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Child neglect and trauma: The additive traumatic effects of neglect on maltreated adolescents

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CHILD NEGLECT AND TRAUMA: THE ADDITIVE TRAUMATIC EFFECTS OF NEGLECT ON MALTREATED ADOLESCENTS

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ABSTRACT

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Child maltreatment affects thousands of youths in the United States and poses numerous detrimental effects to individuals, families, and the community. Neglect is the most commonly reported and least studied form of child maltreatment. All types of child maltreatment may result in negative outcomes, but the chronic and pervasive nature of child neglect poses a significant threat to child development. No studies have been published evaluating the role of child neglect in the development of Posttraumatic Stress Disorder (PTSD) and PTSD-related symptoms.

This study examined whether neglect has an additive traumatic effect on maltreated youth. The first hypothesis was that youths who had experienced only neglect, in the absence of other maltreatment, would exhibit PTSD, dissociation, and depression symptoms similar to peers who had a history of other maltreatment. The second hypothesis was that youths who had experienced neglect in concert with other maltreatment would exhibit more severe symptoms of PTSD, dissociation, and depression than youths who had experienced maltreatment without neglect. The third hypothesis was that gender, age, and specific family factors will influence symptom severity of PTSD, dissociation, and depression.

Study findings indicate that youths who experienced neglect exhibited PTSD-related symptoms similar to adolescents who experienced other forms of maltreatment. Results did not support the notion that neglect has an additive traumatic effect on maltreated youth, as youths who experienced neglect and other maltreatment in concert did not exhibit more PTSD-related symptoms than youth who experienced maltreatment without neglect. Specific family environment variables correlated with PTSD-related symptoms. Female participants exhibited significantly more PTSD, depression, and dissociative symptoms than male participants. A discussion of study results indicates that all types of child maltreatment may lead to similar PTSD-related symptoms due to biological stress responses. Individual, family, and social support factors relate to PTSD and influence trauma reactions.

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CHAPTER 1

INTRODUCTION

Child Maltreatment

Child Maltreatment: History

Newspapers in 1876 featured the story of Mary Ellen Wilson, the first child in the United States rescued from an abusive situation (Brittain, 2006). Despite public outrage at Mary Ellen's treatment, public policy and social awareness were slow to change. The first academic paper on child maltreatment was not published until 1962, six years after Mary Ellen's death. Kemp's 1962 paper on Battered Child Syndrome opened the door for the study of child maltreatment and its consequences (Higgins, 2004), but public policy lagged behind. The Child Abuse Prevention and Treatment Act (CAPTA) passed in 1974. CAPTA formulated broad legal definitions of child maltreatment, encompassing physical and emotional harm, parental neglect, and other factors deleterious to children's development (National Research Council, 1993; U.S. Department of Health and Human Services, 2005).

Legal definitions of child maltreatment have continued to evolve over the past decade (Administration on Children, Youth, and Families, 2007; American Psychological Association Committee on Professional Practice and Standards, 1998; National Research Council, 1993). Research on the prevalence, causes, and effects of child maltreatment has also flourished in the past three decades. Much of this research has suffered, however, from design limitations (Trickett & McBride-Chang, 1996) and the dissemination of this research has failed to sufficiently increase education and awareness necessary to decrease the number of maltreated children (Tyler, Allison, & Winsler, 2006). Child maltreatment

has been recognized as a major public health issue since 1990 when a federal panel declared the situation a national emergency (Azar & Wolfe, 2006; Kaplan, Pelcovitz, & Labruna, 1999).

Child Maltreatment: Definitions

Each state adopts its own definitions of abuse and neglect but federal law sets minimum standards for these definitions. The Federal Child Abuse Prevention and Treatment Act (CAPTA) was amended in 2003 by the Keeping Children and Families Safe Act and currently defines child abuse and neglect as:

> 1) 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 2) An act or failure to act which presents an imminent risk of serious harm. (U.S. Department of Health and Human Services, 2005)

The American Psychological Association Committee on Professional Practice and Standards defines maltreatment as “actions that are abusive, neglectful, or otherwise threatening to a child's welfare” (American Psychological Association Committee on Professional Practice and Standards, 1998, p. 16). This definition allows for individual state, county, and social service system interpretation (Cicchetti, 2004). Hesitancy to further standardize definitions across states and organizations stems from the danger of oversimplification (National Research Council, 1993). Developing a single theoretical and operational definition that considers adult characteristics, behavior and intent, child outcome, environmental context, standards of endangerment, child age, gender, relation to abuser, ethnicity, contextual factors, and discrete types of maltreatment is impractical (Cicchetti, 2004; Cicchetti & Toth, 2005; National Research Council, 1993; U.S.

Department of Health and Human Services, 2005). Scientific, legal, and clinical workers instead adopt contextually meaningful definitions. The categories and definitions described below provide a general outline. Some researchers argue that domestic violence is a separate form of child maltreatment (Higgins, 2004). Domestic violence is grouped with psychological maltreatment for the purposes of this discussion.

Physical maltreatment. The American Psychological Association Committee on Professional Practice and Standards defines physical maltreatment as "the suffering by a child, or substantial risk that a child will imminently suffer, a physical harm, inflicted non-accidentally upon him/her by his/her parents or caretaker" (American Psychological Association Committee on Professional Practice and Standards, 1998, p. 14). Physical maltreatment may include burning, scalding, beatings with an object, and severe physical punishment (U.S. Department of Health and Human Services, 2005).

Sexual maltreatment. Sexual maltreatment is defined as "contacts between a child and an adult or other person significantly older or in a position of power or control over the child, where the child is being used for sexual stimulation of the adult or other person," (American Psychological Association Committee on Professional Practice and Standards, 1998, p. 14). Sexual maltreatment may include incest, sexual assault by a family member or friend or stranger, genital fondling, involvement in child pornography, or exposure to sexual acts or rituals (U.S. Department of Health and Human Services, 2005).

Psychological maltreatment. Psychological maltreatment is defined as "a repeated pattern of behavior that conveys to children that they are worthless, unwanted or only of value in meeting another's needs; may include serious threats of physical or psychological violence" (American Psychological Association Committee on

Professional Practice and Standards, 1998, p. 14). Psychological maltreatment includes verbal abuse and belittlement, acts designed to terrorize a child, and emotional unavailability by caregivers (U.S. Department of Health and Human Services, 2005). Emotional maltreatment is difficult to prove. Child protective and welfare services rarely intervene without evidence of physical harm to the child (Brittain, 2006). Psychological maltreatment is thus diagnosed almost exclusively in the presence of other types of maltreatment.

Neglect. Neglect constitutes an omission of care rather than commission of harm. Neglect has traditionally been identified through parent behavior or child consequences, which may change depending on developmental level and needs of the child (Dunn et al., 2002; Schumacher, Slep, & Heyman, 2001). The APA Committee on Professional Practice and Standards defines neglect as an "act of omission, specifically the failure of a parent or other person legally responsible for a child's welfare to provide for the child's basic needs and proper level of care with respect to food, shelter, hygiene, medical attention or supervision" (American Psychological Association Committee on Professional Practice and Standards, 1998, p. 16).

Child neglect includes supervisory neglect that results in harm; educational, medical, physical, emotional, nutritional, housing-related, and hygienic neglect; and abandonment (Hildyard & Wolfe, 2002; National Research Council, 1993; U.S. Department of Health and Human Services, 2005). Numerous types of neglect may be identified and defined, but the APA Committee on Professional Practice and Standards highlights only two. Emotional neglect is defined as "passive or passive-aggressive inattention to a child's emotional needs, nurturing or emotional well-being. (This is) also referred to as

psychological unavailability to a child" (American Psychological Association Committee on Professional Practice and Standards, 1998, p. 16). Physical neglect is defined as "a child suffering, or in substantial risk of imminently suffering, physical harm causing disfigurement, impairment of bodily functioning, or other serious physical injury as a result of conditions created by a parent or other person legally responsible for the child's welfare, or by the failure of a parent or person legally responsible for the child's welfare to adequately supervise or protect him/her" (American Psychological Association Committee on Professional Practice and Standards, 1998, p. 16). Defining neglect is often complicated by cultural and contextual factors (National Research Council, 1993). What might be considered normal and appropriate supervision in one culture or one setting may be different in another (Ferrari, 2002).

Maltreatment: Prevalence

Over 3,000,000 cases of child maltreatment involving more than 6,000,000 children are reported to authorities annually (Administration on Children, Youth, and Families, 2007). One-third of these reports are fully substantiated, and one-third to one-half of cases are not investigated (Administration on Children, Youth, and Families, 2007; Cicchetti & Toth, 2005). Recent community surveys indicate that actual cases of child maltreatment may be underreported by as much as 300% (Azar & Wolfe, 2006).

Child protection authorities typically document one type of maltreatment, but different forms of child maltreatment frequently overlap. Physical maltreatment often involves emotional maltreatment such as fear and degradation. Sexual maltreatment frequently includes emotional harm and physical pain. Neglect co-occurs with physical,

emotional, and sexual maltreatment (Trickett & McBride-Chang, 1996). Single types of maltreatment rarely exist in isolation and as many as 90% of maltreated children experience multiple types of maltreatment (Belsky, 1994). The Consortium of Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) documented statistically significant correlations between maltreatment types. Physical maltreatment was significantly correlated with emotional maltreatment and neglect (p=.001). Sexual and emotional maltreatment were each significantly correlated with neglect (p=.03; p=.001) (English et al., 2005). Child protection agencies frequently assign official maltreatment classifications after negotiation and consultation with family, social, and legal authorities (Belsky, 1994). Despite such difficulties in classification, different types of child maltreatment and neglect differ with respect to prevalence, risk factors, and outcomes (English et al., 2005).

Prevalence rates by maltreatment type. Child neglect is the most commonly reported form of child maltreatment and consistently accounts for at least half of maltreatment cases (National Research Council, 1993). In the 2005 Federal Fiscal Year (FFY), 62.8% of substantiated child maltreatment victims suffered neglect (Administration on Children, Youth, and Families, 2007). Since the late 1980s, reports of child neglect have increased sharply because of better recognition by care providers and the public (Hildyard & Wolfe, 2002). Recent evidence from random community sampling suggests that child neglect in the general population may still be under-recognized, stable, and pervasive (Hines, Kantor, & Holt, 2006; Theodore, Runyan, & Chang, 2007). The chronic nature of child neglect must be considered in discussions of incidence and prevalence (National

Research Council, 1993). The effects of child neglect remain the least studied type of child maltreatment (Hildyard & Wolfe, 2002; McSherry, 2007; Wolock & Horowitz, 1985).

Physical maltreatment is the second most reported form of child maltreatment, accounting for 16.6% of maltreatment victims in FFY 2005. An additional 9.3% of victims experienced sexual maltreatment (Administration on Children, Youth, and Families, 2007). Retrospective studies of child sexual maltreatment report wide ranges of prevalence: 2-60% in females and 3-30% in males (Wolfe, 2006). FFY 2005 data indicate that emotional maltreatment was the least reported maltreatment type, accounting for 7.1% of child maltreatment reports (Administration on Children, Youth, and Families, 2007).

Gender differences in prevalence. Sexual maltreatment is associated with a clear gender discrepancy. Girls are 1.5-5.0 times more likely than boys to experience sexual maltreatment (Wolfe, 2006). Minimal gender differences exist across other maltreatment types (Azar & Wolfe, 2006). Child maltreatment victims were equally female and male in FFY 2005 (Administration on Children, Youth, and Families, 2007). Some evidence suggests that gender differences may increase with child age (Kaplan et al., 1999). Siblings reported similar types and levels of neglect, but male siblings reported slightly more neglect than female siblings (Hines et al., 2006). This difference may be a function of higher rates of externalizing behaviors in boys. These behaviors may increase risk of negative parenting behaviors (Hines et al., 2006).

Age differences in prevalence. Children from birth to age 3 years had the highest rate of victimization at 16.5 per 1000 children. More than 50% of victims were under age 7 years (Administration on Children, Youth, and Families, 2007). Evidence indicates that rates of physical maltreatment peak at age 4-8 years. Emotional maltreatment peaks at 6-8 years and remains stable through adolescence (Kaplan et al., 1999).

SES and ethnic differences in prevalence. Maltreatment victims were largely White (49.7%), African-American (23.1%), and Hispanic (17.4%). The greatest maltreatment type was neglect across all racial groups. Rates of maltreatment per 1000 children were 19.5 for African-American, 16.5 for American Indian or Alaska Native, 16.1 for Pacific Islander, 10.8 for White, 10.7 for Hispanic, and 2.5 for Asian children (Administration on Children, Youth, and Families, 2007). A review of national statistics and literature indicated that African American, Native American, and Latino children are disproportionately represented in child welfare and foster care systems. This overrepresentation may result from true maltreatment differences associated with poverty and neighborhood risk factors or may result from biases in reporting and substantiating cases (Westby, 2007).

Family factor differences in prevalence. Data regarding family structure and living arrangements are incomplete, but maltreatment appears to exist across family structure types. More than 20% of maltreated children lived with a single parent and 13% lived with both parents of unknown marital status. An additional 12% lived with married parents or married parent and stepparent. Only about 3% lived with unmarried parents (Administration on Children, Youth, and Families, 2007).

Maltreatment: Effects

Child maltreatment poses numerous detrimental effects to individuals, families, and the community. An estimated 1,460 children died from maltreatment in 2005. Over 76% of these deaths occurred in children under age 4 years. This number is a slight decrease from the previous year but translates to 2 deaths per 100,000 children. (Administration on Children, Youth, and Families, 2007). Children that survive maltreatment pose a significant cost to society. Hospitalization, mental health care, child welfare services, law enforcement, special education, juvenile delinquency, adult criminal justice system, and lost productivity costs related to child maltreatment total $103.8 billion annually (Wang & Holton, 2007). About 50% of children who experience maltreatment develop clinically significant cognitive, behavioral, and emotional problems (Azar & Wolfe, 2006; Zielinski & Bradshaw, 2006). This paper focuses on these effects, in particular Posttraumatic Stress Disorder (PTSD).

Limitations of the research on child maltreatment

Child maltreatment is recognized as a public health crisis. Research into the causes and effects of child maltreatment still lag behind public policy. Published reports suggest that different types of maltreatment pose different risks to child development but many of these reports suffer from design limitations and reports are conflicting. Neglect remains the least studied form of child maltreatment, despite its prevalence.

Posttraumatic Stress Disorder

Posttraumatic Stress Disorder History

Accounts of symptoms from trauma date to ancient times (De Bellis & Van Dillen, 2005; Pfefferbaum, 2005). The scientific study of the psychological reaction to trauma began in the mid-19th century when Jean Charcot characterized hysteria as a neurosis of the brain triggered by trauma in individuals with hereditary predisposition (De Bellis & Van Dillen, 2005). The first edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) acknowledged posttraumatic symptoms under headings of "shell shock" and "gross stress reaction" (Gabbay, Oatis, Silva, & Hirsch, 2004). The term "rape trauma syndrome" entered the research literature a few years later. Investigators recognized similarities among shell shock, gross stress reaction, and rape trauma symptom, and introduced Posttraumatic Stress Disorder (PTSD) into DSM-III in 1980 (Flouri, 2005; Ozer, Best, Lipsey, & Weiss, 2002). Children were not considered vulnerable to posttraumatic reactions and thus did not warrant inclusion in PTSD criteria (Meiser-Stedman, 2003). The DSM-III-R acknowledged that children may experience extreme reactions to trauma and that those reactions may differ from adults (Flouri, 2005; Pfefferbaum, 2005). The current DSM-IV-TR (American Psychiatric Association, 2000) includes specific guidelines for identifying PTSD symptoms in children.

Posttraumatic Stress Disorder Criteria

Posttraumatic Stress Disorder (PTSD) is an anxiety disorder featuring characteristic symptoms following exposure to a traumatic stressor (American Psychiatric Association, 2000). The DSM-IV-TR outlines six main symptom categories for PTSD (see Table 1).

Table 1

PTSD Diagnostic Criteria

Criteria	Required Symptoms	Symptom Descriptions
A. Trauma	Both	Experience or witness event involving personal injury, threats to self-integrity, or threatened injury or death
		Feelings of uncontrollability and extreme fear during the event
B. Reexperiencing	1+	Intrusive distressing trauma recollections
		Distressing trauma-related dreams
		Dissociative experiences (e.g., flashbacks)
		Psychological distress when exposed to trauma cues
C. Avoidance/Numbing	3+	Avoidance of trauma-related thoughts, feelings, or conversations
		Avoidance of trauma-related activities/places/people
		Forgetting all/entire trauma
		Loss of interest in activities
		Detachment from others
		Affect restriction
		Belief of a foreshortened/doomed future
D. Arousal	2+	Sleep problems
		Anger modulation problems
		Concentration problems
		Hypervigilance
		Enhanced startle response
E. Symptom Duration		1 month
F. Impairment		Impairment in social, family, and/or Occupational functioning

Note. From "*Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision,*" by American Psychiatric Association, 2000, p. 463-468. Copyright 2000 by the American Psychiatric Association.

Criterion A states that one must experience or witness an event involving actual or threatened death, serious injury, or threat to physical integrity; or learn about the unexpected or violent death, serious injury, or threat of death or injury to a close relation. One must also respond to the event with intense fear, helplessness, or horror. Criterion A, or the stressor criterion, has been called the gatekeeper of PTSD because the disorder cannot be diagnosed without exposure to a traumatic event (Pfefferbaum, 2005). DSM definitions of Criterion A have evolved over time. In 1980 and 1987, the event had to be considered "outside the range of usual human experience" (American Psychiatric Association, 2000). The DSM-IV allowed for more common events to be considered stressors but stated the events had to be extreme. The DSM-IV addition of Criterion A2, the emotional response, has been empirically supported. One study of victims of violent crime revealed that intense levels of all three emotions outlined in Criteria B, C, and D (see below) strongly predicted PTSD after six months (Brewin, Andrews, & Rose, 2004).

Individuals with PTSD must also evidence symptoms from Criteria B, C, and D clusters. Criterion B symptoms of PTSD include persistent reexperiencing of the traumatic event. These reexperiencing and intrusive symptoms represent classically conditioned responses (De Bellis & Van Dillen, 2005). A traumatic reminder, or conditioned stimulus, activates distressing memories of the traumatic event. These memories may take the form of nightmares, dissociative flashback episodes, psychological distress, and physiological arousal or discomfort.

Criterion C symptoms are characterized by persistent avoidance of stimuli associated with trauma as well as numbing of general responsiveness. These symptoms include attempts to avoid thoughts, emotions, conversations, activities, places, people, and

memories associated with trauma. Criterion C symptoms may also include amnesia for trauma, diminished interest, detached feelings, restricted affect, and foreshortened future. Criterion C symptoms may be conceived of as coping strategies to control distress and pain caused by the reexperiencing symptoms of Criterion B.

Criterion D includes symptoms of heightened physiological arousal. These symptoms may include difficulty falling asleep or staying asleep, irritability and anger, difficulty concentrating, hypervigilance and exaggerated startle response. PTSD symptoms must be present for at least one month (Criterion E) and the symptoms must cause clinically significant distress or impairment in functioning (Criterion F) (American Psychiatric Association, 2000).

PTSD Prevalence

The estimated lifetime prevalence of PTSD in the general population is 7.0-8.7% (American Psychiatric Association, 2000; Keane, Marshall, & Taft, 2006; Kessler, Berglund, Demler, Jin, & Walters, 2005). Twelve-month prevalence is approximately 3.5% (SE=0.3; Kessler, Chiu, Demler, & Walters, 2005). Rape and combat experiences are the most frequently cited traumas that lead to PTSD (De Bellis & Van Dillen, 2005; Kessler, Sonnega, Bromet, & Hughes, 1996). Prevalence rates vary with type of trauma, such as natural or human disaster, chronic illness, exposure to war and terrorism, and family violence including domestic violence and sexual and physical maltreatment (Copeland, Keeler, Angold, & Costello, 2007; De Bellis & Van Dillen, 2005). Higher rates of PTSD are generally associated with interpersonal or violent traumas and trauma exposure at a young age (Keane et al., 2006; Pfefferbaum, 2005).

Gender differences in prevalence rates of PTSD. The National Comorbidity Study found clear gender differences in prevalence rates (Keane et al., 2006; Kessler et al., 1996). These results were duplicated in the National Comorbidity Study Replication (Kessler et al., 2005). Prevalence rates for women and men were 10.4% and 5.0% respectively. This may be due to types of trauma experienced. Men and women reported witnessing injury or death/killing of another (35.6% of men and 14.5% of women), being involved in flood, fire or natural disaster (18.9% of men and 15.2% of women), and being involved in a life threatening accident (25% of men and 13.8% of women). Men also reported more physical attacks (11.1% men and 6.9% women) and combat experience (6.4% men and 0% women) and women experienced significantly more rape (9.2% women and 0.7% men), sexual molestation (12.3% women and 2.8% men), childhood neglect (3.4% women and 2.1% men) and childhood physical maltreatment (4.8% women and 3.2% men) (Kessler et al., 1996). Some investigators have suggested that gender differences are a function of different traumas, but studies controlling for differences in exposure types show persistent gender differences (Keane et al., 2006; Kessler et al., 1996).

Ethnic differences in prevalence rates of PTSD. PTSD has been diagnosed in individuals of many races and ethnicities globally (Keane et al., 2006). When exposure type is controlled, ethnic identity does not appear to provide consistent differences in PTSD prevalence (Keane et al., 2006). Prevalence differences may be more correctly understood as a function of higher trauma exposure rates from refugee status, immigration experiences, and community violence in minority populations (American Psychiatric Association, 2000).

PTSD Course and Outcome

Exposure to potentially traumatic events is relatively common but development of PTSD symptoms is relatively rare (Keane et al., 2006). Onset of PTSD often occurs within the first few months of experiencing a trauma, but delayed onset may occur after months or years. Acute Stress Disorder may be diagnosed when symptoms appear within the first month after trauma exposure (American Psychiatric Association, 2000). Symptom duration varies because many individuals recover within a few months and others display symptoms for years. The National Comorbidity Study (NCS) is a nationally representative, face-to-face general population survey to assess a broad range of DSM disorders. Median time to PTSD symptom remission was 36 months among respondents who sought treatment and 64 months among those who did not (Kessler et al., 1996).

PTSD and Children

Diagnostic considerations in children. Posttraumatic symptoms may manifest differently in children compared to adults. Children may express different types of posttraumatic symptoms depending on age. Younger children tend to display more avoidance symptoms, and older children tend to exhibit greater reexperiencing and hyperarousal (Lonigan, Phillips, & Richey, 2003; Terr, 1990). Empirical studies are mixed, however (Costello, Egger, & Angold, 2005; Lonigan et al., 2003). Younger children may exhibit more severe symptoms because older children have better coping skills, social support, and emotional regulation. Younger children may also be more sensitive to parent response to trauma (Lonigan et al., 2003). Meta-analyses support the

idea that children and adults respond similarly to trauma (Fletcher, 1996; Fletcher, 2003; Meiser-Stedman, 2003).

The DSM-IV-TR specifies that children's intrusive Criterion B symptoms may be part of repetitive play, trauma-specific reenactments, or compulsive rituals (American Psychiatric Association, 2000). Children may also be unable to verbally express avoidant or numbing symptoms. Children may show age-appropriate symptoms instead, such as reduced interest in normal activities, detachment from others, and reduced expression of positive emotions such as happiness. Arousal symptoms may also be expressed as somatic complaints such as headache and stomachache in children (American Psychiatric Association, 2000).

Prevalence rates in children. The prevalence rate of PTSD in preschool children has not been adequately studied (Costello et al., 2005) but has been reported as 0.1% (De Bellis & Van Dillen, 2005). This low rate may be a function of difficulty detecting symptoms in children under age 4 years (De Bellis & Van Dillen, 2005) or because PTSD symptoms are interpreted as general anxiety symptoms in young children (Costello et al., 2005). PTSD prevalence among children aged 9-12 years has been reported at 0.5-2.6% (Costello et al., 2005). Reported PTSD prevalence among older children and adolescents ranges from 0.7-6.0% and more closely reflects adult prevalence (Costello et al., 2005).

A longitudinal survey evaluated 1420 children in the general population for trauma exposure and subsequent posttraumatic symptoms. More than two-thirds of children reported at least one traumatic event by age 16 years and 13.4% of those children developed posttraumatic symptoms. Violent or sexual traumas were associated with the highest rates of symptoms (Copeland et al., 2007). A study that examined prevalence

among urban young adults revealed a lifetime trauma exposure rate of 39.1% and a lifetime PTSD prevalence rate of 9.2% (Breslau, Davis, Andreski, & Peterson, 1991). Smaller scale studies of adolescents place lifetime prevalence rates between 2-6% (Gabbay et al., 2004). PTSD rates vary from 3-100% among at-risk populations (Abram et al., 2004; Gabbay et al., 2004). Maltreated children have PTSD rates ranging from 20-63% (Ackerman, Newton, McPherson, Jones, & Dykman, 1998; Gabbay et al., 2004; Merry & Andrews, 1994; Salmon & Bryant, 2002; Yehuda, Spertus, & Golier, 2001). Prevalence rates for the development of PTSD in non-maltreatment related childhood trauma such as automobile accidents, medical illness, manmade and natural disasters, war, and other exposure to violence range from 3-90% (Gabbay et al., 2004; Salmon & Bryant, 2002; Yehuda et al., 2001).

Gender differences in children. Girls consistently report greater PTSD symptoms following exposure to traumatic events than boys. This gender difference may increase with age. The gender difference may be because girls are exposed to more interpersonally traumatic events such as rape, sexual assault, and sexual maltreatment than boys. Girls may thus meet full diagnostic criteria for PTSD following a single severe trauma, but boys may not meet full criteria until exposed to numerous episodes of violence or disaster-related trauma (Lonigan et al., 2003). Adolescent PTSD prevalence rates based on a national household probability sample are 3.7% for boys and 6.3% for girls. Exposure to interpersonal violence increases risk of trauma-related disorders and diagnostic comorbidity (Kilpatrick et al., 2003).

Ethnic differences in children. Reports are mixed regarding rates and severity of PTSD in different ethnic groups. Some suggest that ethnic minority children are at greater

risk for developing PTSD symptoms following exposure, but other studies indicate that White children are at higher risk (Lonigan et al., 2003). Lemos-Miller and Kearney (2006) found that multiracial identity status may increase vulnerability to PTSD and PTSD-related symptoms, but that strong African-American identity might serve as a protective factor.

Limitations of the research on PTSD in children.

Child vulnerability to PTSD went unrecognized until publication of the DSM-III-R in 1987. The DSM-IV-TR now acknowledges that children may experience PTSD and that child PTSD symptoms may differ from adult symptoms. Systematic studies of PTSD in child populations are relatively recent and sparse (Salmon & Bryant, 2002; Costello et al., 2005). Research is lacking regarding long-term clinical presentation, comorbidity, and secondary consequences of chronic PTSD symptoms. More research is also needed on the influence of trauma factors; individual factors such as gender, age, and ethnicity; familial factors; and environmental factors (Flouri, 2005; Lonigan et al., 2003; Pfefferbaum, 2005). Findings also suggest the importance of considering parental trauma symptoms (Foy, Madvig, Pynoos, & Camilleri, 1996) and subthreshold trauma symptoms when assessing and researching PTSD in children and adolescents (Carrion, Weems, Ray, & Reiss, 2002; De Bellis & Van Dillen, 2005).

Studies examining PTSD prevalence consistently reveal that maltreated children are at significantly increased risk of PTSD and PTSD-related symptoms compared to non-maltreated peers. Elevated rates of PTSD have also been demonstrated in adult survivors of childhood maltreatment. Early DSM criteria excluded child maltreatment from qualifying as a Criterion A stressor. Research regarding the link between child

maltreatment and PTSD has thus lagged behind the child PTSD and the child maltreatment literature. Neglect, the least studied form of maltreatment (Dubowitz, 2007; McSherry, 2007; Wolock & Horowitz, 1985), has not yet been studied in the context of child PTSD (Cohen, personal communication, March 12, 2007; De Bellis, personal communication, March 10, 2007; De Bellis, 2005).

CHAPTER 2

REVIEW OF RELATED LITERATURE

Effects of Child Maltreatment

Child Maltreatment in Context

Earliest theories of maltreatment focused on single risk factors such as parental psychopathology, family history of maltreatment, poverty, and child temperament (Cicchetti, 2004). Research quickly revealed that no single condition or risk factor leads to child maltreatment. Focus has shifted recently toward interactive etiological models to explain the multi-causal nature of child maltreatment. These models consider individual, family, environmental, societal, and other factors that influence risk for, and effects of, maltreatment (Cicchetti, 2004; Cicchetti & Toth, 2005; Zielinski & Bradshaw, 2006).

The contextual or ecological model is based on work by Bronfenbrenner (1979, 1980; Freisthler, Merritt, & LaScala, 2006). Brofenbrenner's Ecological Systems Theory outlines four types of nested environmental systems. This model recognizes that humans develop within many social contexts ranging from immediate family to larger society. Immediate family has more proximal influence and society has more distal influence on a child's development (Bronfenbrenner, 1978; Bronfenbrenner, 1980; Zielinski & Bradshaw, 2006). Furthermore, a child affects and is affected by her environment (Zielinski & Bradshaw, 2006).

Bronfenbrenner's theory offers an explanation for how different levels of environmental influence weaken child and family support, increase stress, and ultimately result in child maltreatment (Bronfenbrenner, 1980). Garbarino (1979) further specified that child maltreatment results from a mismatch between the child and her family and

between the family and the community. Researchers now recognize that child maltreatment is determined by various contextual factors working at different levels and interactions to impact the parent-child relationship (Belsky, 1994). When stressors and risk factors outweigh support and resiliency factors, the likelihood of child maltreatment increases and becomes more detrimental to the child's development (Cicchetti, 2004; Cicchetti & Toth, 2005). The same factors that place a child at risk for maltreatment also influence risk and resiliency following maltreatment.

Ecological models account for the heterogeneity of outcomes following child maltreatment. These models provide a basis for understanding why many children demonstrate remarkable resiliency and recover from traumatic experiences while others struggle with physical, cognitive, behavioral, and emotional difficulties. Within an ecological model, the most proximal family environment exerts the greatest direct control on the child's development. This explains why chronic child maltreatment, child neglect, and domestic violence may be the most influential factors on a child's developmental trajectory (Cicchetti, 2004; Cicchetti & Toth, 2005; Zielinski & Bradshaw, 2006).

Ecological Factors Associated with Risk and Resiliency

Recent studies provide empirical support for ecological models of maltreatment. The APA Committee on Professional Practice and Standards acknowledges the importance of ecological considerations in its guidelines for child protection. These guidelines urge psychologists to consider specific risk factors associated with cultural, educational, religious and community context. Psychologists should also consider factors associated with the family context, such as financial circumstances, health of family members, substance abuse or dependency, and domestic violence (American Psychological

Association Committee on Professional Practice and Standards, 1998). Risk and resiliency factors have thus been identified at societal, familial, and individual levels. The most pertinent research findings in these areas are discussed in more detail below.

Societal factors. Societal factors include socioeconomic status (SES), race, ethnic identity, religion, political climate, community setting, cultural context and other factors (Belsky, 1994). Children of immigrant and transient minority families may be at particular risk for maltreatment and negative sequelae from stress, disorientation, and loss of social supports associated with migration. Many immigrant families are less knowledgeable about child development and cultural norms of child treatment (Belsky, 1994; Westby, 2007; Zielinski & Bradshaw, 2006).

Sidebotham and Heron (2006) evaluated the importance of societal risk factors within a comprehensive ecological framework using a longitudinal cohort study. They found the strongest risks for maltreatment to be from socioeconomic deprivation and parental background factors. Other risk factors were identified but socioeconomic status largely mediated these risks.

A study of 188 maltreated and 134 non-maltreated children also supported the relevance of societal factors. Researchers employed a longitudinal design to examine mutual relationships among community violence, child maltreatment, and children's functioning over time. Rates of maltreatment were higher among children who reported higher levels of community violence. Children who reported more violence in their neighborhoods also reported greater physical maltreatment and more severe neglect. Sexual maltreatment was associated with higher levels of externalizing behavior problems. Severity of child neglect related positively to internalizing behaviors, traumatic

stress symptoms, depressive symptoms, and negative self-esteem (Lynch & Cicchetti, 1998).

Familial factors. Familial factors include family structure, number of children, and other factors, but the most widely studied factors relate to parental status. Economic factors likely influence the family system and parents in particular. Low socioeconomic status households typically exist within an impoverished community. Both pose significant risk factors for child maltreatment (Zielinski & Bradshaw, 2006). The negative effects of poverty on parenting can lead to detrimental outcomes in maltreated children. Economic stress has a negative impact on parental warmth and attentiveness to children. Low SES parents are more likely to rely on power-assertive discipline, use harsh and inconsistent discipline, and focus on negative child behaviors (Westby, 2007; Zielinski & Bradshaw, 2006). Parents living in poverty also have less access to emotional resources, health care, and other physical resources (Westby, 2007). Parents are at highest risk for maltreating children when there is an inadequate availability of resources, poor preparation and support for the parenting role, and impairment in coping skills from overwhelming stress (Wolfe, 1993). Belsky (1994) applied a developmental-ecological perspective model to the etiology of child maltreatment. He identified several parent factors that contribute to risk or resiliency after child maltreatment, including intergenerational transmission of maltreatment, personality of parents, psychological resources of parents, parent-child interaction, and community and social support.

Other evidence suggests that parental substance abuse poses the strongest risk to children. Parental psychopathology and substance abuse are linked to increased risk of maltreatment and worse outcomes for maltreated children (Zielinski & Bradshaw, 2006).

A large scale study of over 7000 parents found that social and demographic variables were limited predictors of maltreatment, but substance abuse disorders were strongly associated with the onset of maltreatment and neglect (Chaffin, Kelleher, & Hollenberg, 1996). Substance abuse in low-SES families emerged as the strongest predictor of neglect status. Substance abuse also predicted parental disposition and adequacy of home environment (Ondersma, 2002). Other family factors include several closely spaced siblings (Zielinski & Bradshaw, 2006), parental mental health problems, social isolation (Belsky, 1994), and parental depression (Chaffin et al., 1996).

Individual factors. Individual factors associated with the child such as age, gender, health, and temperament have also been identified as potential risk factors for maltreatment (Belsky, 1994). Age may have a particularly strong impact on effects of maltreatment. Kim and Cicchetti (2003) found, among 305 maltreated and 195 non-maltreated children, that younger maltreated children exhibited inflated levels of perceived self-efficacy in the context of negative peer interactions. Children with higher levels of self-efficacy showed significantly less internalizing behaviors. In older children, regardless of maltreatment status, higher levels of perceived social self-efficacy in conflict situations related to lower internalizing symptoms (Kim & Cicchetti, 2003).

Kaplow and Widom (2007) tested the hypothesis that children maltreated earlier in life are at greater risk for poor psychological functioning in adulthood than those maltreated later in life. The researchers identified individuals (N=496) with documented cases of physical and sexual maltreatment and neglect prior to age 12 years and assessed these individuals in adulthood. Earlier onset of maltreatment predicted more symptoms of

anxiety and depression in adulthood, even after controlling for race, gender, current age, and number of maltreatment reports (Kaplow & Widom, 2007).

The risk of maltreatment is higher in children with physical, emotional, and cognitive disabilities (Westby, 2007). Children with disabilities may require additional attention or parental resources. This places individuals with disabilities at increased risk for all types of maltreatment compared to their non-disabled counterparts. The literature also notes the bidirectional nature of the relationship. Children who experienced maltreatment often develop cognitive and language delays (Westby, 2007).

The ecological model and child neglect. The ecological model also illuminates risk factors particular to neglect. Neglected children may be at particular risk for maltreatment and poorer subsequent outcomes. Patterns of neglect tend to be more chronic and pervasive, so neglect may be associated with more extreme risk factors. Neglect indicates severe and chronic failure of a child's ecology on multiple levels (Azar & Wolfe, 2006). Resiliency factors are also more limited in cases of neglect. The family and community contribute to the negligent situation through failure to provide supervision, resources, and relationships (Stewart, Mezzich, & Day, 2006; Tyler et al., 2006; Zielinski & Bradshaw, 2006). Risk factors for the occurrence of neglect include poverty, parental mental health problems, parental substance abuse problems, parental history of maltreatment, social isolation, and child characteristics (Carter & Myers, 2007; Schumacher et al., 2001; Stewart et al., 2006; Tyler et al., 2006).

These ecological theories and related findings clarify why and when maltreatment is likely to occur. Researchers still lack a clear understanding of the nature of maltreatment and its sequelae. No comprehensive theory exists to explain the specific effects of any

maltreatment type (Higgins, 2004). The next section covers the myriad effects of maltreatment and child development.

Child Maltreatment and Child Development

Maltreatment constitutes a traumatic experience most likely to adversely affect child development due to its interpersonal and repetitive nature. Child maltreatment is most frequently perpetrated by those charged with protecting and supporting a child's development (Cicchetti & Toth, 2005; Downey, Feldman, Khuri, & Friedman, 1994; Freyd, 1996). The majority (80%) of people responsible for child maltreatment are parents (Streeck-Fischer & Van der Kolk, 2000; Van der Kolk, 2005). Child maltreatment thus represents a profound failure in environment, undermines biological and psychological development, and results in developmental difficulties across many domains of functioning. The result is a problematic developmental path characterized by failure and disruption in successful resolution of major developmental stages (Cicchetti, 2004; Cicchetti & Toth, 2005).

Data support the hypothesis that psychobiological sequelae of maltreatment constitute an environmentally induced developmental disorder. Childhood maltreatment is associated with biological stress reactions that influence brain development (De Bellis, 2001). These biological stress reactions disrupt motor, emotional, behavioral, language, social, psychosexual, moral, and cognitive skill development. De Bellis hypothesized that maltreatment leads to PTSD and PTSD-like symptoms through biological mechanisms. These symptoms result in failures of behavioral and emotional regulation that contribute to poor attachment. Poor attachment leaves a child at risk for developing internalizing disorders such as separation anxiety disorder, dysthymia, chronic PTSD, major

depression, and externalizing disorders such as attention deficit hyperactivity disorder and oppositional defiant disorder. Difficulties in middle childhood may include suicide attempts, cognitive problems, learning disorders, and pervasive developmental disorder symptoms. Difficulties in adolescence include conduct disorder, alcohol and drug abuse, and personality disorders (De Bellis, 2001). Child maltreatment thus interferes with development across domains and throughout the lifespan of its victims.

Most researchers and theorists view adjustment following child maltreatment as pathological, but Bidell and colleagues offered a different approach in Dynamic Skills Theory (Ayoub et al., 2006; Bidell & Fischer, 2000). This theory offers a conceptualization that describes "psychopathology" as adaptive. Maltreated children develop complex systems and skills for managing their experiences. Children keep events and anxieties separated as an adaptive strategy. Fragmentation of thoughts, feelings, and memories allow a child to limit negative experience and continue functioning. When maltreatment recurs, these adaptations become more practiced and form "alternative developmental pathways." Maltreated children may develop fundamental changes in feeling and personality. They may embrace malignant feelings of guilt or fragmentation in self. According to Bidell and colleagues, this represents complex skill development for addressing negative experiences rather than a developmental delay. These children may be less able to handle positive experiences than their non-maltreated counterparts. The maltreated child's skills are adaptive and maladaptive – survival in the home is enhanced but survival outside the home is endangered. This model has been validated in recent studies of maltreated youngsters (Ayoub et al., 2006).

Whether adaptive or maladaptive, sequelae associated with child maltreatment lead to various negative outcomes such as poor physiological and affect regulation, failure to develop secure attachment with primary caregiver, failure to develop an autonomous self-system, poor formation of peer relations, ineffective peer relations, interpersonal problems, unsuccessful adaptation to school environment, deleterious impact on cognitive, linguistic, social, emotional, and representational development, increased risk of behavior problems, personality disorders, substance abuse problems, and other mental disorders (Cicchetti, 2004; Ford, 2005; Kaplan et al., 1999; Kaufman, 2008). These outcomes are discussed below in greater detail.

Combined maltreatment types. Research regarding neurobiological sequelae of child maltreatment is in its infancy but strong evidence exists for neurological and psychobiological consequences of all types of maltreatment (Cicchetti, 2004; Trickett & McBride-Chang, 1996). Each neurobiological system that has been studied shows some degree of abnormality or alteration (Cicchetti, 2004). Findings show differences in acoustic startle response (Klorman, Cicchetti, Thatcher, & Ison, 2003), cortical levels (Cicchetti & Rogosch, 2001), event related potentials (Cicchetti & Curtis, 2005; Pollak, Cicchetti, Klorman, & Brumaghim, 1997), and neuroimaging (Watts-English, Fortson, Gibler, Hooper, & De Bellis, 2006). The pathway between these biological changes and cognitive, emotional, and behavioral impact is still unclear but evidence suggests that a link exists (Kaufman, 2008; Watts-English et al., 2006).

Evidence supports the idea that all types of maltreatment have a negative impact on development and adjustment of children, adolescents, and adults (Lau et al., 2005). Trickett and McBride-Chang (1996) conducted a large-scale meta-analysis and outlined

various developmental outcomes associated with child maltreatment. They found, in mixed maltreatment samples, that infants consistently exhibit delayed motor development, lower physical competence, lower IQ, and insecure attachment to caregivers. Insecure attachments may have detrimental effects on the development of self systems and social relationships later in life. As infants develop, maltreatment effects are found in other domains. Mixed maltreatment is associated with low development scores, low readiness to learn, low IQ, more problems in school, apathetic work habits, grade retention, impaired cognitive controls, and ADHD in middle childhood. Maltreated children of mixed type exhibit disturbed peer relations, heightened anger and aggression, poor social interactions, avoidance, low perceived competence, low self esteem, anxiety, PTSD symptoms, and oppositional disorder in middle childhood and delinquency and running away in adolescence (Trickett & McBride-Chang, 1996).

Other studies also report impaired cognitive abilities and school performance in maltreated children. Expressive and receptive language skills may be a particular weakness. Expressive language difficulties relate to increased risk of aggression and conduct problems (Kaplan et al., 1999). A study of maltreated, neglected, and non-maltreated children aged 5-8 years found that neglected and maltreated children exhibited significantly fewer prosocial behaviors than non-maltreated counterparts (Prino & Peyrot, 1994).

A study of children and adolescents found that high levels of stress, parental depression, and substance use within the family interacted with maltreatment to negatively impact child adjustment. Children who experienced multiple forms of

maltreatment were more likely to engage in delinquent behaviors (Kurtz, Gaudin, Howing, & Wodarski, 1993).

A survey of 500 adolescents admitted to a short-term residential chemical dependency treatment center revealed that 150 experienced physical and or sexual maltreatment. The maltreated group had a higher incidence of prior mental health services, acting-out behavior, running away, legal involvement, and sexual promiscuity than the non-maltreated group. Sexually maltreated adolescents reported the least homicidal ideation and physically maltreated adolescents reported the most legal problems (Cavaiola & Schiff, 1988).

A retrospective study of 384 college students found a high co-occurrence rate for different maltreatment types. All maltreatment types were associated with negative symptoms. Individuals who experienced multiple forms of maltreatment were more depressed, had lower self-esteem, engaged in more life threatening behaviors, were more likely to have past suicidal thoughts and attempts, were more promiscuous, used alcohol and drugs more, and reported more delinquent behavior than individuals with no maltreatment history (Arata, Langhinrichsen-Rohling, Bowers, & O'Farrill-Swails, 2005).

Mullen and colleagues (1996) found that 107 of 497 women reported some type of maltreatment. History of any maltreatment type was correlated with increased psychopathology, sexual difficulties, decreased self-esteem, and interpersonal problems. More similarities than differences existed across maltreatment types (Mullen, Martin, Anderson, & Romans, 1996). Children with documented histories of multiple types of maltreatment have shown greater internalizing and externalizing symptoms, lower social

competence, more severe depression, and more severe posttraumatic stress symptoms than children who experience only one maltreatment type (Clemmons et al., 2007).

A longitudinal study of a community sample of 375 young adults found evidence for early negative impact of various types of child maltreatment. Approximately 80% of youth with a history of maltreatment met DSM-III-R criteria for at least one psychiatric disorder by age 21 years. Compared to their non-maltreated peers, maltreated youth demonstrated significant impairments in functioning in mid-adolescence and early adulthood, including more depressive symptoms, anxiety, psychiatric disorders, emotional-behavioral problems, suicidal ideation, and suicide attempts (Silverman, Reinherz, & Giaconia, 1996).

A study of 1500 adolescents reporting child maltreatment found that 15-20% reported clinically significant levels of posttraumatic stress, anxiety, depression, and dissociation (base rate for entire school sample was 10%). Maltreated girls were 7 times more likely to than non-maltreated girls to have clinically significant difficulties with anger and depression and 9 times more likely to have posttraumatic symptoms and anxiety. Maltreated boys were 2.5-3.5 times more likely to report clinical levels of depression, posttraumatic stress, and dissociation than non maltreated boys (Scott, Wolfe, & Wekerle, 2003).

Analysis from a national probability sample of maltreated children aged 11-15 years (N=739) revealed that maltreatment is related to aggression and delinquency. Aggression and delinquency were predicted by age, below-average social skills, a low sense of caregiver relatedness, and being female. Male participants reported greater caregiver relatedness and lower parental monitoring than females (Wall & Barth, 2005).

Physical maltreatment. Effects of physical maltreatment in the absence of other types of maltreatment include insecure attachment, aggressiveness, noncompliance, demanding behavior (boys), withdrawal (girls), poor social problem solving, limited prosocial behaviors, and low cognitive maturity in infants and young children (Trickett & McBride-Chang, 1996). Approximately 80% of physically maltreated preschoolers exhibit dysregulated emotional patterns (Maughan & Cicchetti, 2002).

Physically maltreated children show soft neurological signs, decreased heart rate (boys), internalizing and externalizing problems, aggression, conduct disorders, noncompliance, pessimism, atypical social networks, low peer status, low empathy, low cognitive maturity, low school competence and performance, grade retention, ADHD, low IQ, low reading scores, and developmental difficulties in middle childhood (Trickett & McBride-Chang, 1996). Physical maltreatment has also been linked to impairments in affect regulation such as irritability, anger, passivity, depression, poor impulse control, distortions in reality testing, and extensive operation of immature defense mechanisms (Finzi, Har-Even, & Weizman, 2003).

In adolescence, physically maltreated children maintain internalizing and externalizing problems, lower self-esteem, poor social competence, poor school peer- and self-adjustment, and lower overall school performance in adolescence (Trickett & McBride-Chang, 1996). Parent reports also indicate that physically maltreated children demonstrated greatest difficulty with delinquent, withdrawn, and social problem behaviors (Maughan & Cicchetti, 2002).

Aggressive and delinquent behaviors are the most frequently reported behavior problems associated with child physical maltreatment. These youths also engage in

higher levels of risk taking and potentially self-harming behavior. Many children and adolescents who were physically maltreated have current diagnoses of major depressive disorder (80%) and lifetime major depressive disorder diagnoses (40%). Many also have lifetime disruptive disorders (30%) (Kaplan et al., 1999).

Depression, anger, and anxiety are consistently reported among physically maltreated children. A longitudinal study of 167 caregiver-child dyads in which a child witnessed or experienced physical violence revealed that children are negatively affected by exposure to violence in their homes and neighborhoods. Physical victimization significantly predicted child aggression and depression. Witnessed violence predicted aggression, depression, anger, and anxiety (Johnson et al., 2002).

A retrospective study of parental physical and verbal maltreatment and emotional neglect among students aged 16-56 years old found that parental physical maltreatment predicted current anger and that physical maltreatment by fathers related to lower self-esteem in men (Loos & Alexander, 1997). Springer and colleagues (2007) evaluated the impact of childhood physical maltreatment on mid-life mental and physical health. Analysis of population-based survey data from over 2000 middle-aged men and women in the Wisconsin Longitudinal Study found that childhood physical maltreatment predicted a graded increase in depression, anxiety, anger, physical complaints, and medical diagnoses. Family factors and early adversities attenuated but did not eliminate the relationship between childhood maltreatment and adult health (Springer, Sheridan, Kuo, & Carnes, 2007).

Sexual maltreatment. Sexual maltreatment is associated with enuresis, somatic complaints, inappropriate sexual behavior, anxiety, social withdrawal, and developmental

delay in infancy and early childhood (Trickett & McBride-Chang, 1996). In middle childhood, symptoms include enuresis, dysregulated cortisol, inappropriate sexual behavior, internalizing and externalizing behaviors, dissociation, anxiety, lower grades and/or academic performance, learning problems, and ADHD (Trickett & McBride-Chang, 1996). Sexual maltreatment in particular is linked to PTSD and type II or complex PTSD (Wolfe, 2006).

Adolescent children who experienced sexual maltreatment continue to show evidence of dysregulated cortisol, internalizing and externalizing problems, self-harming behaviors, early sexual activity, illegal activities, running away, behavior difficulties in school, lower grades and/or academic performance, and lower IQ scores (Trickett & McBride-Chang, 1996). A strong association between sexual maltreatment and dissociative disorders exists in children, which often lasts into adolescence and adulthood (Putnam, 2006). History of sexual maltreatment is associated with substance use, personality disorder, depression, anxiety, and other difficulties in adulthood (Trickett & McBride-Chang, 1996).

Psychological maltreatment. Psychological maltreatment rarely occurs alone, so studies examining only psychological maltreatment are lacking. Numerous adverse consequences are associated with psychological maltreatment, however. Difficulties with peers, low social competence, cognitive deficits, problem solving deficits, aggression, self-harming behavior, anxiety, anger, dependency, and depression have been observed (Loue, 2005).

Neglect. Neglect has received less attention in the literature than other types of maltreatment (Dubowitz, 2007; Kaplan et al., 1999; McSherry, 2007; Schumacher et al.,

2001). Wolock and Horowitz (1994) highlighted “neglect of neglect.” The authors noted that child neglect is more prevalent than other forms of maltreatment and is equally detrimental to children but receives less attention in the media, political debate, and research and practice literature. The authors further stated that neglect is poorly understood and inaccurately viewed as a maltreatment type across all social classes (Wolock & Horowitz, 1985). McSherry (2007) outlined primary reasons for the paucity of research on child neglect. He highlighted difficulties defining neglect, difficulties substantiating cases of neglect, close association of poverty and neglect, low priority of neglect within child protective agencies, and tendency to underestimate the negative impact of neglect as key reasons for “neglect of neglect” (McSherry, 2007).

Limited studies exist regarding the impact of child neglect but research indicates that the impact of neglect is as severe other maltreatment types (Gauthier, Stollak, Messé, & Aronoff, 1996; Hildyard & Wolfe, 2002; McSherry, 2007; Trickett & McBride-Chang, 1996). Healthy child development depends on parental care and nurturance, so neglect poses a substantial threat to child development (Hildyard & Wolfe, 2002). Neglect may pose particular risk to child development because it accompanies a vacuum of compensatory factors such as positive interactions and social supports (Azar & Wolfe, 2006; Gauthier et al., 1996). Physical and sexual maltreatment are often incident-specific but neglect is more likely to be chronic and pervasive (Azar & Wolfe, 2006; Hildyard & Wolfe, 2002; Hines et al., 2006). Child neglect begins at an early age, bringing with it an accumulating effect on subsequent development (Hildyard & Wolfe, 2002). Unequivocal and long-term research on child neglect remains lacking.

Trickett's meta-analysis revealed that neglected children exhibit the worst delays and lowest performance on cognitive development and school performance measures compared to physically maltreated and non-maltreated peers (Trickett & McBride-Chang, 1996). From an early age, neglected children show insecure attachment, difficulty with peers, withdrawal, less prosocial behavior, developmental delays, and greater delays in language skills than other maltreated children (Trickett & McBride-Chang, 1996).

Hildyard and Wolfe's (2002) review of the literature supported these findings. The authors concluded that neglected preschoolers differ from maltreated children by greater cognitive and language problems, fewer positive social interactions, poor coping abilities and emotional regulation, and an unhappy and dependent demeanor. Hildyard and Wolfe also speculated that neglected children may have greater difficulties with compliance, but maltreated children may better regulate emotion and comply with demands out of fear. They cite evidence that neglect alone may be more detrimental than multiple forms of maltreatment. In neglectful parent-child relationships, parents may be so detached from the child that they fail to respond to important signals. Maltreating, non-neglecting parents may exhibit poor coping strategies but stronger parent-child attachment (Hildyard & Wolfe, 2002).

A study examined the relationship between child neglect prior to age 4 years and child outcomes at age 4 years. Neglect with respect to residence safety or cleanliness predicted language impairments. History of untreated behavioral problems also predicted language delays. Failure to provide shelter predicted impairments in several developmental outcomes and a stimulating home environment predicted less impairment in cognitive development. Frequent changes in residence predicted externalizing behavior

problems (English, Thompson, Graham, & Briggs, 2005). A related study revealed a significant main effect for neglect on internalizing and externalizing behavior problems (English et al., 2005).

Gauthier and colleagues (1996) examined the relationship between reported neglect and physical maltreatment and symptoms and attachment styles among 236 male and 276 female undergraduates. A history of neglect was associated with more severe psychological problems and anxious attachment styles then a history of physical maltreatment. Neglect may be more predictive of symptoms and dysfunctional attachment styles than physical maltreatment because neglect involves a lack of parent-child interaction and physical maltreatment requires parent-child interaction (Gauthier et al., 1996).

These attachments do not fit the “normal” attachment patterns outlined by Ainsworth (Ainsworth, 1969; Ainsworth, 1985; Ainsworth, Blehar, Waters, & Wall, 1978). Maltreated and neglected children frequently lack strategies to address stressful separations and reunions with caregivers. Maltreated children may thus have a lifelong pattern of maladaptive interpersonal relationships with peers and romantic partners (Crouch & Milner, 1993; Schumacher et al., 2001; Tyler et al., 2006).

Neglected children may exhibit few socio-emotional differences from non-maltreated peers but frequently have significantly lower grades and test scores, higher ratings of learning difficulties, and more school absences and grade retention (Trickett & McBride-Chang, 1996). Some evidence exists that neglected children have greater cognitive and academic difficulties than other maltreated children. Neglected children have particular difficulty in school functioning. These children have been described as anxious,

inattentive, overly dependent on and/or uncooperative with teachers, lacking in basic understanding of assignments, and lacking initiative.

Neglected children also perform poorly on academic tasks such as standardized tests, graded assignments, and IQ tests. They are more likely to be retained and show cognitive and developmental delays (Tyler et al., 2006). Social withdrawal, poor social problem solving skills, poor conflict avoidance skills, and poor interpersonal skills have been associated with childhood maltreatment, particularly neglect. (Tyler et al., 2006) This places neglected children at further risk for social isolation and rejection. Some studies indicate that neglected children struggle with receptive and expressive language. Allen and Oliver (1982) found language problems to be more pronounced in neglected children than those neglected and maltreated. This indicates that neglect may be the most influential type of maltreatment on the development of language delay (Allen & Oliver, 1983; Hildyard & Wolfe, 2002). Physically neglected children have social functioning deficits, experience frequent conflicts, and have fewer reciprocated friendships then children experiencing other forms of maltreatment (Kaplan et al., 1999). Neglected school-aged children are also socially withdrawn and may have significant internalizing problems. Externalizing problems are less common among neglected children than among maltreated counterparts (Hildyard & Wolfe, 2002). Neglected adolescents exhibit internalizing and externalizing disorders as well as overall poor school performance (Trickett & McBride-Chang, 1996).

The connection between early childhood neglect and later behavior problems was also supported by longitudinal study findings. A cohort of at-risk children (N=1318) were monitored from birth to age 8 years. Maltreatment was determined through review of

local child protective services records. Researchers examined the association between childhood neglect prior to age 2 years, early childhood maltreatment, and later childhood maltreatment and neglect and childhood aggression at ages 4, 6, and 8 years and other childhood maltreatment. Only early neglect significantly predicted aggression scores. Early maltreatment, later maltreatment, and later neglect were not significantly predictive of aggression scores. Child neglect in the first 2 years of life may be a more important precursor of childhood aggression than maltreatment later in life (Kotch et al., 2008).

Substance abuse and dependence is often a contributing factor in many families involving neglect (Dunn et al., 2002). Substance use may confound study results. Effects of child neglect are numerous and pervasive, impacting various developmental domains and creating consequences that last into adulthood (Stewart et al., 2006; Tyler et al., 2006). Some evidence suggests that male children are more likely to experience neglect than their female siblings (Hines et al., 2006). Gender differences in outcomes following neglect are still not well documented. As previously noted, neglect rarely occurs alone and is rarely studied alone. When it does exist alone, it may be better thought of as a precursor to other forms of maltreatment (Ney, Fung, & Wickett, 1994). When neglect occurs in concert with other types of maltreatment it contributes to worse outcomes.

The impact of childhood maltreatment may be profound and outcomes vary widely. Not all children who experience maltreatment have the same or similar outcomes. Many maltreated and neglected children experience depression, substance abuse problems, aggression, criminal behavior, and sexual problems. Nearly a quarter of maltreated children, however, experience no long term consequences (Zielinski & Bradshaw, 2006).

Limitations of the Research on Effects of Child Maltreatment.

Research into the causes and effects of child maltreatment has proliferated in past decades. Many of these studies, however, suffer from research design limitations such as sampling bias. Most studies rely on limited convenience samples because of difficulties with participant recruitment and ethical concerns. Studies of children and adolescents typically recruit from intervention programs or foster care facilities. Studies of child neglect tend to rely on young children, as it may be difficult to recruit neglected adolescents. Other researchers rely on retrospective studies that are subject to question (Yehuda et al., 2001).

Another concern is the frequent overlap of maltreatment types. Different types of child maltreatment have been studied individually (Higgins, 2004), but most types of maltreatment are not experienced alone (English et al., 2005; Lau et al., 2005). Physical, sexual, and emotional maltreatment co-occur at rates ranging from 17%-71% (Clemmons, Walsh, DiLillo, & Messman-Moore, 2007). Many neglected children have likely experienced other maltreatment (English et al., 2005; Hildyard & Wolfe, 2002). Researchers often fail to identify the exact type of maltreatment due to overlap of types, unreliable self-reports, and limited information from state agencies (Cicchetti & Toth, 2005; Kaplan et al., 1999).

Differences in definitions of maltreatment, assessment techniques, and research methods result in inconsistent findings (Lau et al., 2005). Some researchers conclude that physical maltreatment is most harmful but others conclude that psychological maltreatment is more detrimental. Other researchers report that sexual maltreatment is most harmful to outcomes. Streeck-Fischer and Van der Kolk (2000) reviewed existing research literature on sequelae of child maltreatment and concluded that children with

histories of exposure to intrafamilial violence typically meet criteria for numerous clinical diagnoses, none of which capture the complexity of their biological, emotional and cognitive problems. The impact of neglect on child development remains the least studied topic in the child maltreatment literature.

Child Maltreatment, PTSD and PTSD-Related Symptoms

Numerous studies have examined the connection between child maltreatment and Posttraumatic Stress Disorder. Strong evidence exists for the development of PTSD and PTSD-like symptoms in children and adults following all forms of maltreatment. Dissociation and depression have also been repeatedly linked to child maltreatment.

Fletcher's (1994) meta-analysis of 2,697 traumatized children from 34 studies found, among children who experienced chronic or abusive traumas and exhibited PTSD symptoms, that dissociative responses had a 100% incidence rate and depression had a 28% incidence rate (with guilt at 59% and low self-esteem at 34%; Fletcher, 2003). PTSD, dissociation, and depression in maltreated children are intimately connected. Dissociative symptoms and symptoms consistent with depression are necessary for diagnosis of PTSD. Substantial symptom overlap exists among PTSD, dissociation, and depression according to the DSM-IV-TR (American Psychiatric Association, 2000).

Dissociative processes and dissociative disorders are believed to be a direct result of trauma, specifically trauma experienced during childhood. The link between child maltreatment and later dissociative disorders is well established in the literature. Severe dissociative processes such as Dissociative Identity Disorder have also been described as syndromes characterized by a core of depressive and dissociative symptoms from childhood trauma (Becker-Lausen, Sanders, & Chinsky, 1996).

Depressive symptoms have been repeatedly observed in traumatized children and adults, and many theories have been developed to explain the link between trauma, maltreatment, and depression. High rates of comorbidity exist among PTSD, dissociation, and depression in children and adults who experienced maltreatment (Downey et al., 1994). Depression and dissociation in maltreated children mediate negative outcomes in clinical and non-clinical samples (Becker-Lausen et al., 1996). PTSD, dissociation, and depression and their relationships with child maltreatment are discussed in detail below.

Child Maltreatment and PTSD

Theoretical Models of Posttraumatic Stress Disorder

Several theoretical models detailing the development of PTSD have emerged in recent years. Prominent models focus on biological processes (Farkas, 2004) and cognitive or information-processing (Salmon & Bryant, 2002). Despite a recent focus on the influence of developmental factors on PTSD, little is known about the applicability of these models to children (Salmon & Bryant, 2002). The primary biological and cognitive models are presented. The discussion will also include an overarching working model of PTSD in childhood (Fletcher, 2003).

Posttraumatic Stress Disorder Biological Models

The biological or biomedical models are based on the stress-diathesis paradigm (Flouri, 2005). Individuals may have an organic or underlying predisposition to posttraumatic symptoms and these symptoms are expressed following exposure to sufficient amounts of stress. The model has evolved to include explanations of how specific biological systems interact to produce and maintain symptoms. Acute stress results in activation of the noradrenergic system and influences arousal regulation,

vigilance, irritability, locomotion, attention, sleep, startle response. These neurobiological changes represent an adapted survival response (Meiser-Stedman, 2003).

The hyperarousal symptoms seen in individuals with PTSD led to the investigation of various neurotransmitters, in particular catecholamines. Studies in adults implicate the noradrenergic system and heightened levels of norepinephrine (Kowalik, 2004). Dopamine and serotonin abnormalities have also been found in adults with PTSD and PTSD-like symptoms (Kowalik, 2004). The relationship between hormones and stress has led to investigations of the neuroendochrine system in relation to PTSD. The hypothalamic-pituitary-adrenal axis, or HPA axis, has been linked to PTSD (Kowalik, 2004; Nemeroff et al., 2006).

Changes in brain structure and volume, especially of the hippocampus, have also been observed in adults (Kowalik, 2004; Nemeroff et al., 2006). Dynamic studies have also been conducted to observe differences in brain function. Neuropsychological testing, measures of cerebral blood flow, and fMRI results reveal abnormalities in brain function of adults with PTSD. An exaggerated response to stimulus has also been observed in adults with PTSD (Kowalik, 2004). Trauma and PTSD symptoms thus impact, and are impacted by, an individual's neurobiology. Early childhood traumas and stress may be associated with neuroendochrine alterations, sensitivity to later stressors, and susceptibility to PTSD and dissociative symptoms. These alterations leave one at higher risk for additional difficulties later (Kloet & Rinne, 2007). This model does not clearly differentiate between stressors and diathesis. As the definition of stressor has changed with DSM criteria, the model has been challenged. This model does not account for

various other factors that influence susceptibility to PTSD such as social, familial, and individual factors (Flouri, 2005).

Applicability of PTSD Biological Models to Youths

Recent studies show that children who have experienced maltreatment, regardless of PTSD diagnosis, display disruption of neurotransmitters, specifically increased catecholaminergic activity (De Bellis, 2001; Kowalik, 2004). Stress in children may result in dysregulation of neuroanatomical and neurophysiological systems (Meiser-Stedman, 2003). Maltreated children tend to exhibit some degree of HPA axis dysfunction as indicated by salivary and urinary cortisol level tests (Kowalik, 2004). Like adult counterparts, children with PTSD have smaller total brain volume and smaller hippocampus regions (Kowalik, 2004). Dynamic studies of event related potentials and sensory processing are not yet conclusive (Kowalik, 2004). Evidence supports the idea that children, like adults, are susceptible to shock. Severe and ongoing trauma may continue to cause changes in the child's biology (De Bellis, 2001; Farkas, 2004).

Posttraumatic Stress Disorder Cognitive and Information-Processing Models

Cognitive and information-processing models of PTSD are based on the theory that cognitions, appraisals, and emotions related to traumatic events are stored in memory or fear networks (Chemtob, Roitblat, Hamada, & Carlson, 1988; Ehlers & Clark, 2001; Foa, Steketee, & Rothbaum, 1989; Salmon & Bryant, 2002). These networks form at the time of the traumatic event and store information about stimuli, responses, and meanings related to the trauma. The networks are thus closely interrelated and strongly associated with traumatic reminders, anxiety, and fear (Foa et al., 1989). When external and internal

stimuli reminiscent of the trauma appear, these memory networks are activated and the fear response occurs (Salmon & Bryant, 2002).

According to cognitive and information-processing theories, PTSD is characterized by a bias toward searching for and identifying threatening stimuli and a lower threshold for recognizing stimuli as threatening (Salmon & Bryant, 2002). This response bias might originally have served an adaptive purpose but now results in disruptive responses to low-threat situations (Chemtob et al., 1988). The response bias, or fear network, maintains the PTSD threat-response via a positive feedback loop in which an individual interprets a mild or ambiguous situation as threatening (Chemtob et al., 1988). PTSD becomes persistent when a person processes trauma in a way that results in sense of current threat. This sense of threat is a consequence of excessively negative appraisals of the trauma and a disturbance of trauma memory (Ehlers & Clark, 2001; Meiser-Stedman, 2003). Resolution of the fear network is thought to require two conditions. First, the memory network must be activated for a prolonged period of time to allow habituation to anxiety sensations and weaken threat associations. Second, corrective information schema must be provided to replace the faulty threat-based belief system (Salmon & Bryant, 2002).

Applicability of PTSD Cognitive Models to Youths

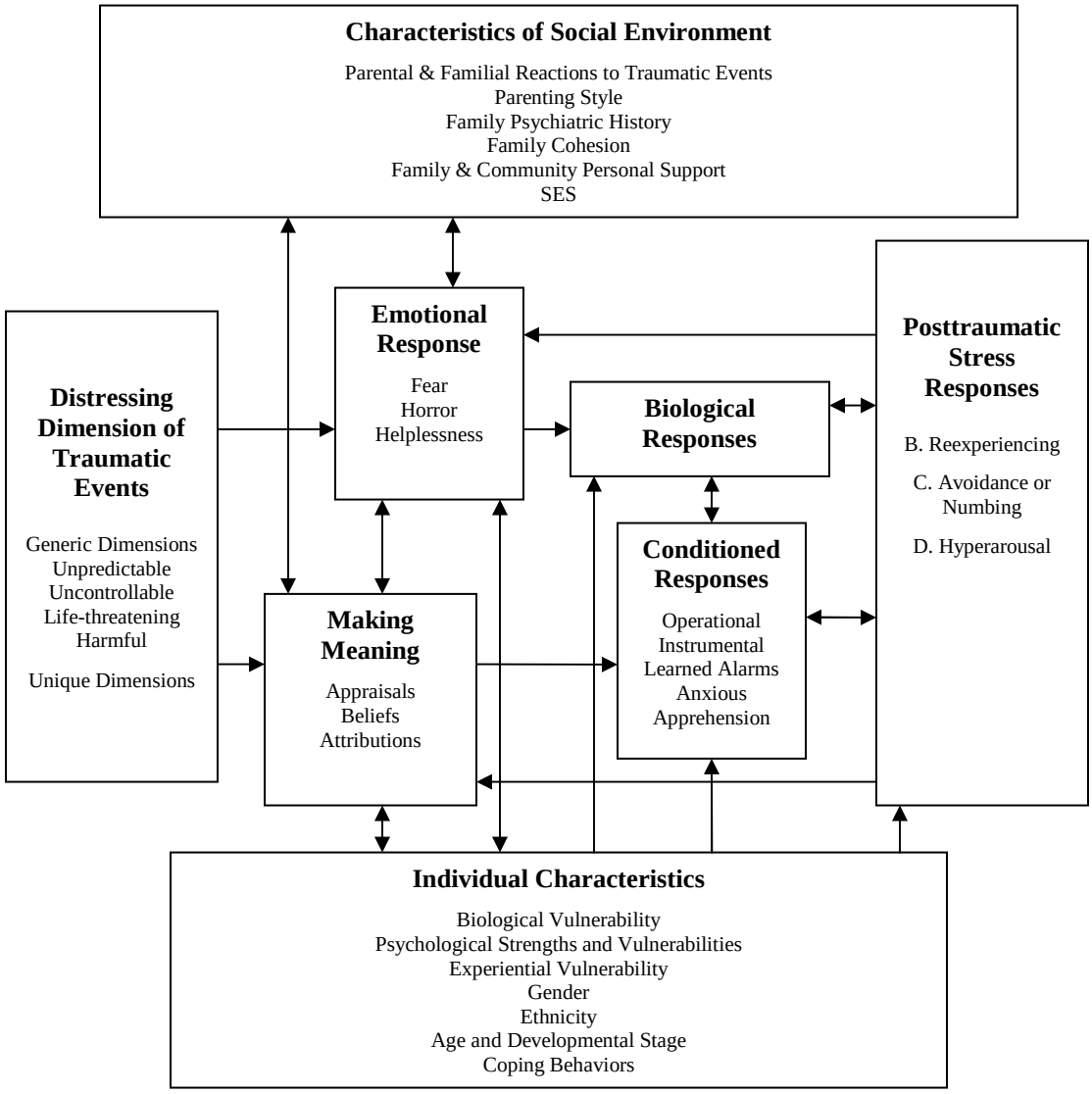
The most influential theories of PTSD are cognitive theories based on information processing. Preliminary evidence suggests that cognitive and information-processing models may, in part, apply to children (Ehlers, Mayou, & Bryant, 2003; Meiser-Stedman, 2003; Stallard, 2003). These theories may not account, however, for developmental differences in information processing and encoding, emotional regulation, and social

factors specific to children (Salmon & Bryant, 2002).Younger children encode information at a slower rate than older children and adults. Prior knowledge influences a child's understanding and appraisal of trauma resulting in less detailed or lasting representation and gaps in memory. Language development also influences how well information can be encoded verbally (Salmon & Bryant, 2002). Parents may also serve as external support, helping a child make sense of the traumatic event by discussing the event to prevent forgetting, helping the child appraise and interpret the experience, correcting misconceptions, and helping the child regulate emotions (Salmon & Bryant, 2002). Current cognitive models do not account for this parental support. These theories may not adequately account for developmental and social influences specific to children.

Fletcher's Working Model of PTSD and Youth

Biological and cognitive models of PTSD development are dominant and well supported but two main concerns still exist. First, evidence suggests that other factors such as societal context and individual differences influence development of PTSD. These models may not apply to the specific developmental concerns of children. Fletcher's (2003) overarching model accounts for various factors involved in the development and maintenance of PTSD in children, including (1) nature of the traumatic event itself, (2) cognitive, emotional, psychobiological, and behavioral responses to the event, (3) characteristics of the individual, (4) characteristics of the family, and (5) social ecology (Fletcher, 2003). A particular strength of this model is its foundation on previous research findings and its incorporation of previous, more limited models.

Figure 1. Fletcher's working model for the development of childhood PTSD.



Note. Adapted from Fletcher, K. E. (2003).

Different types of traumas are associated with different PTSD symptom profiles. Type I trauma refers to a single acute trauma. Subsequent symptoms include detailed memories, cognitive reappraisals, and misperceptions. Type I traumas do not inspire as much denial, dissociation, or personality problems as Type II traumas. Type II traumas, also known as complex traumas, refer to chronic traumatic experiences and are associated

with symptoms of denial, repression, dissociation, self-hypnosis, identification with the aggressor, and aggression turned against self (Briere & Spinazzola, 2006; Lonigan et al., 2003; Terr, 1994; Van der Kolk, 2005). Fletcher also includes emotional reaction to trauma as a determining factor in PTSD development. Research suggests that children who experience sadness, worry, fear, isolation, anger, shame, guilt, emotional numbing, and panic have more severe PTSD symptoms later (Bernat, Ronfeldt, Calhoun, & Arias, 1998; Fletcher, 2003; Shannon, Lonigan, Finch, & Taylor, 1994; Udwin, Boyle, Yule, Bolton, & O'Ryan, 2000). Fletcher's model also includes an individual's assessment of the event. He includes this factor based on evidence for the association between exposure to trauma events and severe emotional responses mediated by the individual's assessment, appraisal, beliefs, or attributions regarding the event (Pynoos, Steinberg, & Piacentini, 1999). Numerous theorists suggest that posttraumatic responses represent an individual's attempt to accommodate to and assimilate traumatic experiences that threaten or alter one's previous world view (Chemtob et al., 1988; Foa et al., 1989; Van der Kolk, Brown, & Van der Hart, 1989; Van der Kolk, 2005).

Scientific understanding of neurological changes is in its infancy but the extent and impact of these changes has been linked to PTSD symptom severity and outcomes (Fletcher, 2003). Fletcher also includes in his model conditioned responses, which account for learning, information-processing, and cognitive theories (Foa et al., 1989). Conditioned responses account for the anxiousness, apprehension, and re-experiencing exhibited in PTSD.

Fletcher next considers individual characteristics known to influence the development and maintenance of PTSD. These include biological vulnerability, psychological

strengths and vulnerabilities, experiential vulnerability, gender differences, ethnic and cultural variables, developmental differences including age, and coping behaviors. Social characteristics in Fletcher's model include social supports, parenting skills and style, family discord and cohesion, and other environmental characteristics such as SES. Evidence in support of the model comes from previous and recent studies of similar models (Costello, Erkanli, Fairbank, & Angold, 2002; Fletcher, 1996; Fletcher, 2003; La Greca, Silverman, Vernberg, & Prinstein, 1996; Pynoos et al., 1999; Udwin et al., 2000). As ecological systems theory predicts, no single risk or resiliency factor exists. The onset and course of PTSD in each individual is determined by a complex network of contributing factors (Fletcher, 2003). Models that include all relevant factors may prove most useful for research and clinical case conceptualization.

Child Maltreatment and Posttraumatic Stress Disorder

Posttraumatic Stress Disorder is the disorder most frequently associated with child maltreatment. Evidence supports the relationship between all types of child maltreatment and PTSD in children and adults. Recent research findings highlight the importance of ecological factors in diagnosis and treatment of PTSD and PTSD-related symptoms following child maltreatment.

Prevalence rates of childhood PTSD vary widely depending on trauma type and other risk factors. Sexually maltreated children reportedly have higher rates of PTSD than physically maltreated children (Famularo, Fenton, Kinscherff, & Ayoub, 1994). Prevalence rates of PTSD among children who have experienced psychological maltreatment or neglect remain unknown. Sullivan and colleagues (2006) examined subtypes of child maltreatment to assess relationships between maltreatment type and

specific posttraumatic stress symptom clusters among adolescent inpatients. Emotional maltreatment had a high to moderate association with each symptom cluster and overall posttraumatic stress. Physical maltreatment, sexual maltreatment, and physical neglect were moderately related to overall PTSD and symptom clusters. Children who report a history of maltreatment experience various trauma symptoms (Sullivan, Fehon, Andres-Hyman, Lipschitz, & Grilo, 2006).

Research has also contributed to an understanding of the role of individual factors in the development and maintenance of PTSD. Famularo and colleagues (1996) examined the persistence of PTSD in a pediatric sample. After a 2-year period without evidence of renewed parental maltreatment and in the presence of prevention and treatment programs, 32.7% of children still met full diagnostic criteria for PTSD (Famularo, Fenton, Augustyn, & Zuckerman, 1996). These findings support previous reports that chronic exposure to trauma results in lower rates of recovery from PTSD (Carrion et al., 2002; Fletcher, 2003; Terr, 1994).

Evidence also exists for a dose-response relationship between severity of exposure and severity of PTSD symptoms in maltreated children. This relationship may be a function of the objective level of exposure and subjective experience of the exposure (Lau et al., 2005; Lonigan et al., 2003). This dose-response relationship may depend not just on level or severity of exposure but also on a child's perception of the traumatic event. Children who experience maltreatment are at risk for PTSD but also persistent PTSD symptoms despite treatment efforts.

A host of individual, family, and social factors that influence the relationship between maltreatment and PTSD have been considered (Pfefferbaum, 2005). In a study examining

maternal and child PTSD symptoms, Famularo and colleagues (1994) interviewed 109 pairs of women and their children brought before a family court due to maltreatment. Over 35% of the children met criteria for PTSD. In addition, 15.6% of mothers met criteria for a current presentation of PTSD and 36.7% had a past history of PTSD. PTSD was significantly overrepresented among children of mothers with PTSD (Famularo et al., 1994). This supports previous findings that maternal posttraumatic symptoms are related to child maltreatment outcomes.

Gender and age differences in PTSD in maltreated children have also been supported in recent literature. Sullivan (2006) found younger age to be associated with elevated PTSD arousal symptoms and PTSD diagnosis. Girls were more likely to report emotional maltreatment and associated symptoms (Sullivan et al., 2006). Linning and Kearney (2004) found maltreated youth to be more likely diagnosed with PTSD if they were female, had a history of extensive alcohol or drug use, and had a longer history of maltreatment. Lemos-Miller and Kearney (2006) found that multiracial identity status increased vulnerability to PTSD and PTSD-related symptoms but strong African-American identity served as protective factors (Lemos-Miller & Kearney, 2006).

PTSD in maltreated children is highly comorbid with other disorders. Within Carrion's study, 24% of children met full diagnostic criteria for PTSD with high rates of comorbidity. The most prevalent comorbid conditions were depressive disorder NOS (12%), major depressive disorder (11%), attention deficit hyperactivity disorder (11%), specific phobia (9%), separation anxiety disorder (7%), and social phobia (7%) (Carrion et al., 2002). This high rate of comorbidity makes sense in the context of developmental

psychopathology. De Bellis (2005) noted that trauma in childhood is most detrimental due to developmental interactions on biological and psychological domains.

Early exposure to trauma may have a negatively cascading impact on a child's development, functioning, and behavior (Lonigan et al., 2003). Linning and Kearney (2004) found that maltreated youth with PTSD had significantly more comorbid diagnosis than peers without PTSD. Youth with PTSD had higher rates of dysthymia and major depressive disorder. Scores also tended to be higher on measures of generalized anxiety disorder, panic disorder, panic disorder with agoraphobia, and specific phobia (Linning & Kearney, 2004). Clinical manifestations of childhood trauma may share symptoms or even warrant diagnoses of conduct, borderline personality, major affective, attention deficit hyperactivity, phobic, dissociative, panic, and adjustment disorders (Ford, 2005; Terr, 1994).

Current and retrospective studies of adults maltreated as children also support the connection between child maltreatment and PTSD (Clemmons et al., 2007). This may be a result of people with histories of childhood maltreatment failing to acquire adaptive methods of coping with stress that later render them vulnerable to PTSD in adulthood (Flouri, 2005). The link between child maltreatment and adult PTSD may also be a function of the persistence of PTSD and other posttraumatic symptoms. Studies empirically validate a strong association between experiences of trauma in childhood and psychological problems in adulthood, particularly PTSD. Symptoms in adulthood subsequent to childhood trauma include anxiety, depression, suicidality, dissociation, personality disorders, and substance use (Yehuda et al., 2001). Sexual maltreatment victims (37.5%), physical maltreatment victims (32.7%), and neglect victims (30.6%)

met criteria for lifetime PTSD. The relationship between childhood victimization and number of PTSD symptoms persisted despite the introduction of covariates (family, individual, and lifestyle characteristics) associated with risk for both (Widom, 1999). Clemmons and colleagues (2007) found that number of maltreatment types and total maltreatment severity were independently associated with poorer psychological functioning and adult trauma symptoms in college students (Clemmons et al., 2007).

Child Neglect and PTSD

Child neglect is the most under-researched area of child maltreatment (Dubowitz, 2007; McSherry, 2007; Wolock & Horowitz, 1985). Evidence indicates that neglected children are at increased risk for PTSD compared to non-maltreated counterparts (Widom, 1999). This evidence comes primarily from studies designed to study child maltreatment in general. No studies directly examine PTSD in neglected children (De Bellis, 2001; De Bellis & Van Dillen, 2005). Neglect may be perceived as traumatic and constitute a Criterion A stressor through failure to fulfill basic needs that results in fear, helplessness, or horror or through traumatic separation from a parent or caregiver (De Bellis, 2001; Hoksbergen et al., 2003). The degree of the traumatic experience perceived by a child will depend on age, developmental level, and stress system responses of the child. Additionally, an unsupervised non-maltreated young child is more likely to witness interpersonal traumas such as domestic violence (Antle et al., 2007; McSherry, 2007). A child is also more likely to experience traumatic accidents, placing them at increased risk for posttraumatic reactions (De Bellis, 2001).

Widom (1999) found that 30.6% of adults who experienced neglect as children met criteria for PTSD in adulthood. A follow-up study of adopted children from Romania

found 20% exhibited PTSD. These children experienced extreme physical and emotional neglect in Romanian orphanages before being adopted into Dutch families (Hoksbergen et al., 2003). Grassi-Oliveira and Stein (2008) found that childhood neglect, particularly emotional neglect, was a significant predictor of PTSD and emotional distress in Brazilian adults. Children who experience neglect may thus be at increased risk of developing PTSD and PTSD-like symptoms due to other contextual factors. Neglected children frequently lack interpersonal relationships with adults that foster emotional regulation and processing.

Limitations of Current Research on Child Maltreatment and PTSD

A proliferation of research on child maltreatment and posttraumatic stress reactions has occurred, but little is understood about risk and resiliency factors central to maltreated children's development (De Bellis & Van Dillen, 2005). Additionally, research has suffered from limited use of standardized measures (Linning & Kearney, 2004). Gaps in the literature also persist as a result of difficulty recruiting appropriate participants.

Child Maltreatment and Dissociation

Dissociation

The DSM-IV-TR describes a dissociative disorder as "disruption in the usually integrated functions of consciousness, memory, identity, or perception" (American Psychiatric Association, 2000). Dissociation may result from acute or repeated trauma, including traumas associated with child maltreatment and severe neglect (Putnam, 1997). These disruptions can be sudden, gradual, transient, or chronic. Dissociative symptoms include amnesia and dissociative process symptoms (Putnam, 1997). Amnesia symptoms

include trouble remembering important personal information, skills, and events. Dissociative process symptoms involve distressful feelings of detachment or changes in personality states. The five distinct dissociative disorders recognized by the DSM-IV-TR are Dissociative Amnesia, Dissociative Fugue, Depersonalization Disorder, Dissociative Identity Disorder (formerly Multiple Personality Disorder), and Dissociative Disorder Not Otherwise Specified (American Psychiatric Association, 2000).

Dissociation and Children

Reports of dissociation in children date back centuries but dissociative disorders were not frequently reported in the literature until Fagan and McMahon's 1984 paper on dissociative disorders in four children. Dissociative symptoms have since been recognized in children. The five types of dissociative disorders have been applied to children and adolescents but childhood dissociative symptoms do not easily match adult diagnostic categories (Hornstein & Putnam, 1992; Silberg, 2000). No large scale studies of children with dissociative disorders exist and researchers rely on clinical descriptors.

Many believe that dissociative disorders result from trauma experienced during childhood. Age and developmental level at time of trauma may thus be central to understanding the dissociative process (Silberg, 2000). Most childhood dissociation involves interruption to memory and self (Haugaard, 2004). Children displaying dissociative symptoms have survived extreme trauma or maltreatment. Their symptoms may include difficulty with memory and identity, auditory or visual hallucinations, trance-like states, and comorbid depressive and PTSD symptoms.

Certain types of dissociation such as daydreaming are common and developmentally appropriate among children. Normative patterns of dissociation across the lifespan are not

well established, however. Some researchers conclude that dissociative experiences peak around age 10 years and decline rapidly, but others conclude that dissociation increases until early adolescence and then declines steadily (Haugaard, 2004). Consistent evidence regarding prevalence, etiology, and optimal treatment for childhood dissociative disorders does not yet exist. Ross estimated the prevalence of dissociative disorders at 5-10% for children and adolescents in the general population, with higher rates in high-risk populations (Ross, 1996). Gender differences seem to increase over time, with male and female children showing similar prevalence rates but adult females nine times more likely to display dissociative symptoms than adult males. Prevalence rates for dissociative symptoms in maltreated children may be 19-73% (Silberg, 2000).

Maladaptive dissociation in children is often accompanied by comorbid symptoms such as withdrawal, depression, and aggression (Haugaard, 2004). High rates of comorbid symptoms have been documented in children with dissociative disorders, including depression (64-88%), posttraumatic stress (64-88%), learning difficulties (45-82%), behavior problems (54-86%), aggression (38-82%), sexual promiscuity (15-45%), self-harming behaviors (6-46%), and regression (36-100%). Full comorbid diagnoses are also common in children with dissociative disorders and include mood disorder (56-64%), PTSD (45-48%), and conduct disorder (12-36%; Coons, 1996).

Putnam (1996) and colleagues found similar comorbidity among maltreated females. Females were more symptomatic than males in five areas, including anxiety and phobic symptoms. More dissociative and comorbid symptoms occurred with increasing age, though most age differences did not achieve statistical significance (Putnam, Hornstein, & Peterson, 1996).

Theoretical Models of Dissociation

Dissociation in maltreated children may occur occasionally or more chronically. Chronic dissociation may lead to more complex dissociative symptoms. Complex dissociation results in failure to integrate memory for the traumatic event. Chronic dissociation begins as an adaptive coping mechanism and only becomes maladaptive over time (Ayoub et al., 2006; Bidell & Fischer, 2000; Macfie, Cicchetti, & Toth, 2001). Theorists have proposed numerous models of dissociation that are described next.

Biological models. Psychobiological understanding of dissociation remains in its infancy. Most evidence for the biological mechanisms of dissociation come from research done on PTSD. Significant evidence suggests that early childhood stress and adversity may result in critical changes in hormones, neural structure, and neural functioning, particularly changes associated with PTSD symptoms (Flouri, 2005; Kloet & Rinne, 2007; Kowalik, 2004; Meiser-Stedman, 2003; Nemeroff et al., 2006). Additional evidence for the biological mechanisms in dissociation comes from studies of highly dissociative adults (Putnam, 1984; Putnam, 1997; Putnam, 2006). Differences in hormonal level, blood flow patterns, hemispheric activation, and intracranial volume have been found compared to controls. These studies do not necessarily apply to the understanding of dissociative processes in children.

Developmental models. Autohypnosis is a traditional explanation for dissociative disorders. Dissociation is thought to be a common and effective defense mechanism. A child who experiences repeated or prolonged trauma may dissociate on a recurring basis, eventually losing ability to regulate the process and dissociating at inappropriate times (Ross, 1997; Terr, 1990). The Attachment Model (Ross, 1997) and Betrayal Trauma

Theory (Chu & DePrince, 2006; Freyd, 1996) both posit that dissociation allows a child to attach or remain attached to her own abuser, which she must do to survive. The Discrete Behavioral States (DBS) is based on the theory that young children behave within discrete states of consciousness. These states are triggered by physical needs and environmental stimuli (Chu & DePrince, 2006; Putnam, 1997; Wolff, 1987; Wolff, 1993). Within normal development, a child begins to acquire control over these states as his needs are met by the caregiver (Putnam, 1997). A child with unmet needs may experience diminished control of states or fail to develop any control. This model is supported by case studies (Albini & Pease, 1989) and empirical evidence (Macfie et al., 2001).

Predisposition combined with chronic stress may play an important role in how dissociation becomes maladaptive. Children whose parents have dissociative disorders are at increased risk of developing maladaptive dissociation. This may be related to environmental or genetic factors. As children use dissociation repeatedly, these pathways become better developed. Children may thus use dissociation to address stressful and not just traumatic situations. The tendency to dissociate may become increasingly pronounced with age, further interrupting development across domains (Haugaard, 2004).

Child Maltreatment and Dissociation

The literature clearly shows a strong connection between dissociative disorders and trauma, especially severe and prolonged child maltreatment. Some of the strongest evidence for this relationship comes from research on adults and children with severe dissociative disorders. A review of three prominent studies of dissociative disorders in youths reveals high rates of maltreatment. Subjects experienced childhood sexual

maltreatment (58-80%), physical maltreatment (65-73%), and neglect (29-80%) (Coons, 1996). Rates of child maltreatment in adult dissociative disorder cases range from 88-100%. These numbers do not indicate a direct causal relation, but the strength of the association is clear (Silberg, 2000). Chronic and acute traumas associated with child maltreatment may also cause brief dissociative reactions as seen in PTSD rather than full dissociative disorders (Carrion & Steiner, 2000; Coons, 1996; Pfefferbaum, 2005). Sexual maltreatment has been most commonly linked to adult dissociative disorders but physical maltreatment, psychological maltreatment, infant neglect, and abandonment have also been linked to dissociative symptoms (Silberg, 2000).

Evidence from studies of dissociative symptoms in children indicates that individual and familial factors may affect development and maintenance of dissociative disorders. A longitudinal study of 168 adolescents considered high-risk for poor developmental outcomes due to poverty revealed age of onset, chronicity, and severity of trauma to be highly correlated to and predictive of dissociation. Insecure attachment patterns also strongly predict dissociation (Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). Another longitudinal study indicated that infant history of attachment disorganization correlated with variables related to mother-infant relationship quality, child behavior problems in preschool through high school, and psychopathology and dissociation in adolescence. Attachment disorganization may mediate relations between early experience and later psychopathology and dissociation (Carlson, 1998). Mann and Sanders (1994) examined relations among child dissociation, parental dissociation, and parenting behaviors among 40 child-parent dyads. An interrelation between parental dissociation, child dissociation, and parenting qualities was found (Mann & Sanders, 1994). The role

of parental dissociation was also implicated among maltreated adolescents with severe dissociative disorders (Dell & Eisenhower, 1990).

Findings conflict regarding a dose-response relationship in children and adolescents. Some research suggests that severity of dissociative symptoms may relate to severity of maltreatment and parent behaviors during the maltreatment incident (Collin-Vézina & Hébert, 2005; Putnam, Helmers, Horowitz, & Trickett, 1995). Others have found no dose-response relationship between extent of exposure to maltreatment and increased dissociative symptoms. This finding raises the question of whether relationships between trauma and dissociation differ in adolescents and adults (Brunner, Parzer, Schuld, & Resch, 2000).

Research on dissociative symptoms in adults maltreated as children also informs current understanding of the relationship between child maltreatment and dissociation. Studies of adult clinical and non-clinical samples consistently demonstrate a strong correlation between self-reported child maltreatment and current dissociative symptoms (Chu & Dill, 1990). Other studies verify these self-report findings. Coons (1994) sought external corroboration of child maltreatment among inpatients and outpatients with severe dissociative symptoms. Review of collateral records confirmed child maltreatment in most cases, providing evidence for the association of dissociation with child maltreatment. Among previously maltreated young adults, researchers found that the relationship between physical maltreatment history and physical maltreatment potential was significantly mediated by level of dissociation. The authors concluded that dissociation may play a pivotal role in perpetuating dissociation and the intergenerational cycle of maltreatment (Narang & Contreras, 2001).

Child Neglect and Dissociation

Conventional wisdom has long tied child neglect to dissociative symptoms in children, but empirical evidence is only beginning to accumulate. Inpatient dissociative symptoms correlate significantly with self-reported maltreatment, including psychological maltreatment, neglect, and negative home atmosphere (Sanders & Giolas, 1991). Brunner and colleagues (2000) found that emotional neglect may strongly predict dissociative symptoms in maltreated inpatient adolescents. This finding suggests that moderate but chronic emotional stress may be of equal or even greater importance than severe physical trauma in the development of dissociation (Brunner et al., 2000).

Despite limited empirical findings regarding child neglect and dissociation, theoretical models of dissociation may inform hypotheses about the impact of neglect on dissociative symptoms. Biological and developmental models support the idea that neglect increases frequency and severity of dissociative processes and symptoms. Discrete behavioral states and attachment models also indicate that neglect may leave children particularly vulnerable to maladaptive dissociation.

Limitations of the Research on Child Maltreatment and Dissociation

No large-scale studies examining maltreatment and dissociation in children and adolescents exist. Much knowledge in this area is based on retrospective studies, archival data, and theoretical conjecture. Existing studies do support a strong connection between child maltreatment and pathological dissociation. The relationship between child neglect and dissociative process remains the most unclear. Developmental models provide preliminary support for a significant relationship between child neglect and dissociation. The discrete behavioral states model implies that neglected children may lack the

attachment to a caregiver necessary to develop control over arousal states, resulting in dissociation. Further research in this area is needed.

Child Maltreatment and Depression

Depression

Depression is conceptualized as a sad mood or pervasive loss of interest or pleasure. Depression is associated with symptoms such as changes in appetite or weight, changes in sleep and activity level, feelings of worthlessness or guilt, difficulty thinking and concentrating, and recurrent thoughts of death or suicide (American Psychiatric Association, 2000).

Depression and Children

Depressed children are more likely to experience somatic complaints, social withdrawal, and irritability than depressed adults. High rates of comorbidity may exist in children and adolescents diagnosed with a depressive disorder (American Psychiatric Association, 2000). A meta-analysis of 26 studies involving 60,000 youth revealed an overall depression prevalence of 2.8% in youth under age 13 years. Prevalence among adolescents aged 13-18 years was 5.6% (girls 5.9%, boys 4.6%; Costello, Erkanli, & Angold, 2006). A national household sample of 4,023 telephone-interviewed adolescents aged 12-17 years found a six-month prevalence rate of major depressive disorder of 7.4% for boys and 13.9% for girls. Witnessing violence or experiencing interpersonal violence increased risk of PTSD, Major Depressive Disorder, and substance abuse disorders (Kilpatrick et al., 2003).

Theoretical Models of Depression in Maltreated Children

Various models explain the frequently reported correlation between childhood maltreatment and later depression. The framework provided by Harkness and Lumley (2008) provides a strong, overarching structure though which the myriad cognitive, psychological, and emotional symptoms and mechanisms may be explained. According to the authors, childhood adversity may lead to major depression through three primary mechanisms. First, child maltreatment may lead to the development of negative cognitive schemas. Second, the child's stress response may disrupt neural pathways, particularly of the hypothalamic-pituitary-adrenal axis. Third, child maltreatment may sensitize an individual to stressful events that trigger depression. These three mechanisms provide the structure for the following discussion.

Development of negative cognitive schemas. Several theories suggest that early adverse experiences influence the development of early cognitive representations that lead to negative long-term outcomes (Harkness & Lumley, 2008). These theories include Bowlby's attachment theory (Bowlby, 1977; Bowlby, 1980), Young's schema theory, (Young, 1994), and Beck's cognitive theory of depression (Beck, 1976). Beck's cognitive theory of depression provides a strong explanation of how child maltreatment leads to the development of negative core beliefs about the self, world, and future. Because these core beliefs are established early, they are frequently enduring and resistant to change.

The most dominant theory explaining the relationship between child maltreatment and depression is the attachment model (Downey et al., 1994; Hankin, 2005). The attachment model is based on evidence that, beginning at a young age, maltreated children exhibit insecure and disorganized attachments to their primary caregivers.

Childhood maltreatment may result in the establishment of negative representational models of self, attachment figures (parents), and self in relation to significant others. These negative internal models from insecure parent-child attachment may set the stage for negative cognitions and symptoms of depression. Attributions of self-blame may play an important role in this model. A maladaptive self-blame schema becomes further crystallized as children develop and is particularly obvious in relationships and interactions with others. Representational models and self-blaming cognitions regarding maltreatment predispose children and adolescents to depression (Downey et al., 1994; Toth, Manly, & Cicchetti, 1992). Differences between maltreated children with and without adequate patterns of attachment have been documented. These differences suggest that attachment may mitigate the adverse effects of maltreatment (Toth & Cicchetti, 1996).

Attachment theory provides a strong potential explanation of depression but has been criticized for omitting other factors. Downey and colleagues propose the rejection sensitivity model. According to this theory, being raised in a maltreating family negatively shapes development of psychological processes regulating social interactions. Maltreated children develop a rejection sensitivity that predisposes them to anxiously expect, readily perceive, and overreact to rejection. Rejection sensitivity develops in families that respond to conflict with criticism instead of problem-solving. Children subsequently resort to blaming self and others instead of resolving interpersonal problems (Downey et al., 1994).

Evidence exists that youth with histories of maltreatment frequently endorse negative cognitions and display abuse-specific and general attributional styles. These negative

cognitions and attributional styles mediate the development of depressive symptoms (Gibb et al., 2001; Glassman, Weierich, Hooley, Deliberto, & Nock, 2007; Hankin, 2005; Lumley & Harkness, 2007; Webb, Heisler, Call, Chickering, & Colburn, 2007).

The biological stress response. Child maltreatment is related to critical changes in hormones, neural structure, and neural functioning, particularly those changes associated with PTSD symptoms (Flouri, 2005; Kloet & Rinne, 2007; Kowalik, 2004; Meiser-Stedman, 2003; Nemeroff et al., 2006). Harkness and Lumley cite additional evidence regarding the impact of maltreatment and early adversity on the HPA axis dysregulation (Harkness & Lumley, 2008). The authors cite research evidence for glucocorticoid hypersecretion and neurotoxicity, hippocampal atrophy, reduced intracranial volumes, and altered cortisol functioning from child maltreatment. These physiological patterns have been repeatedly found in adults with a history of maltreatment and current PTSD symptoms and major depression, but findings relating to children are less clear (De Bellis, 2001; Harkness & Lumley, 2008). What is clear is that neurophysiological profiles of individuals who experienced child maltreatment and have PTSD and/or depression have notable HPA axis dysregulation as seen in altered hormone level and reduced hippocampal volume.

Increased stress sensitivity. Harkness and Lumley (2008) hypothesize that negative cognitive schemas and neurological stress responses following child maltreatment combine to leave individuals more vulnerable to later stress. The authors cite findings in the area of stress research that certain individuals are particularly sensitive to stress and thus more likely to develop depression. This stress sensitization concept may explain why certain individuals are more susceptible to recurrent depressive episodes (Monroe &

Harkness, 2005; Post, 1992) and how child maltreatment leaves certain individuals more susceptible to depression (Harkness & Lumley, 2008).

This theory is supported by various findings. Women who experienced childhood sexual maltreatment had an overall increased risk for major depression and a substantially increased sensitivity to the depressive effects of stressful life events (Kendler, Kuhn, & Prescott, 2004). Other studies support this hypothesis. Studies of late adolescent girls and young children show that individuals exposed to a wide range of adversities require lower levels of stress to precipitate depression than peers who have not experienced such adversities (Harkness & Lumley, 2008). These and other findings suggest that child maltreatment heightens sensitivity to future stress, making depression more likely to occur and to occur in the face of relatively lower levels of stress.

Harkness and Lumley further hypothesize that the process by which maltreated individuals become sensitized to stress is mediated by an increase in cognitive schema consolidation and an increase in the HPA axis stress response. The authors conclude that adolescence is a crucial period for maltreated children because schemas are being consolidated and crucial brain development takes place. Adolescents may be particularly vulnerable and likely to benefit from intervention.

Child Maltreatment and Depression

Links between child maltreatment and childhood depression are based largely on child maltreatment literature and retrospective studies of adults with depression. Victims of interpersonal violence and individuals with depression share many symptoms such as hopelessness, helplessness, poor self-esteem, restricted range of affect, high self-criticism, and difficulty with relationships (Downey et al., 1994). Significant evidence

exists that maltreatment and neglect in early childhood often lead to depression, withdrawal, and self-destructive behaviors.

One of the earliest studies of child maltreatment and depression found a strong relationship between physical maltreatment and depressive symptoms in 79 child psychiatric inpatients. When compared to non-maltreated counterparts, physically maltreated children exhibited significantly lower self-esteem, more depression, and more negative expectations about the future. Results also supported the theory that dose-response relationship exists in terms of symptom severity (Kazdin, Moser, Colbus, & Bell, 1985). These findings were replicated four years later using a non-clinical sample of children (Allen & Tarnowski, 1989).

The association between specific types of maltreatment and depression has also become more clear in recent years. Physical maltreatment is associated with most severe depressive symptoms compared to other maltreatment types. Children from abusive homes exhibited more depressive symptoms and lower self-esteem than neglected and non-maltreated peers (Toth et al., 1992). Finzi and colleagues (2001) found differences in depressive symptoms between physically maltreated, neglected, and non-maltreated children. Physically maltreated children manifested significantly higher levels of depressive symptoms and suicidality than neglected and non-maltreated children. Depression levels were significantly more severe in neglected children than non-maltreated children (Finzi et al., 2001).

Individual factors associated with depression in maltreated children may involve self-concept, self-esteem, and self-efficacy (Kim & Cicchetti, 2003; Kim & Cicchetti, 2006; Kinard, 1998), guilt and shame (Stuewig & McCloskey, 2005), and social concepts

(Downey et al., 1994). Family factors may involve maternal depression (Bishop & Leadbeater, 1999; Kaufman, 1991; Kinard, 1998; Bouma, Ormel, Verhulst, & Oldehinkel, 2008), and insecure attachments early in childhood (Kinard, 1998).

Research on adults also reveals a strong association between child maltreatment and depression. Depressed adults often report their parents as abusive, emotionally distant, critical, authoritarian, punishing, and rejecting (Downey et al., 1994). Women and men who report sexual maltreatment in childhood also report current elevated levels of depressive symptoms and clinical depression. Adult research also reveals a strong overlap between depressive, dissociative, and posttraumatic stress symptoms in adults sexually maltreated during childhood (Downey et al., 1994). A review of 17 studies from 1969 through 1989 assessed childhood experience of adults with depression. Sixteen studies indicated greater degree of dysfunction in childhood histories of depressed individuals compared to controls and patients with other diagnoses. Childhood maltreatment was more strongly correlated with adult depression than childhood separation or loss (Bemporad & Romano, 1993).

Other retrospective studies illuminate the relationship between types of maltreatment, ecological factors, and depression. A retrospective study of 253 female undergraduates from physically abusive, incestuous, and alcoholic homes found the number of childhood traumas was related to depression and self-esteem. Child physical maltreatment was associated with higher depression and lower self-esteem (Fox & Gilbert, 1994). A different large-scale, longitudinal study investigated the magnitude and independence of effects of childhood neglect, physical, and sexual maltreatment on adolescent and adult depression and suicidal behavior. Adolescents with a history of childhood maltreatment

were three times more likely to become depressed or suicidal compared to those without such a history. Sexual maltreatment was most closely related to negative outcomes. Adverse ecological factors, including family environment and parent and child characteristics, accounted for much of the increased risk for depressive disorders and suicide attempts in adolescence but not adulthood (Brown, Cohen, Johnson, & Smailes, 1999).

Gibb and colleagues (2007) sought to determine the relationship between childhood maltreatment and psychopathology in adulthood. Analyses revealed that emotional maltreatment in childhood was related to major depression in adulthood. This relationship was stronger than the relationship between major depression and physical and sexual maltreatment. Adults with major depression also reported lower levels of emotional maltreatment than those with Posttraumatic Stress Disorder (Gibb, Chelminski, & Zimmerman, 2007).

Widom and colleagues (2007) hypothesized a link between childhood maltreatment and elevated risk of major depressive disorder in young adulthood. Children with substantiated cases of physical and sexual maltreatment and neglect before age 11 years (N=676) were matched on age, race, sex, and SES with non-maltreated children (N=520) and followed into early adulthood. Maltreatment in early childhood was associated with significantly increased risk for major depression in young adulthood (odds ratio = 1.51). Children who were physically maltreated or who experienced multiple types of maltreatment demonstrated higher incidence of lifetime major depression. Children who experienced neglect were more likely to experience major depression currently (Widom, DuMont, & Czaja, 2007).

Schraedley and colleagues (1999) sampled 6,954 nationally representative youths in grades 5-12. The researchers assessed for depression and used a lifetime retrospective self-report to determine previous experiences of physical and sexual maltreatment. Twenty-one percent of youths who endorsed a history of physical maltreatment exhibited highly depressive symptoms, but only 6% of youth who did not endorse a history of physical maltreatment exhibited highly depressive symptoms. Similarly, 27% of youth with a history of sexual maltreatment exhibited highly depressive symptoms, but only 6% of youth with no history of sexual maltreatment exhibited highly depressive symptoms. Physical and sexual maltreatment were strongly linked to depression for boys and girls, with sexual maltreatment having a stronger impact among boys.

Silverman (1996) conducted a 17-year longitudinal study of 375 youth to examine the relationship between childhood and adolescent physical and sexual maltreatment and psychosocial functioning in mid-adolescence and early adulthood. At age 15 years, females who experienced physical or sexual maltreatment had significantly higher scores on measures of depression than non-maltreated peers. Maltreated and non-maltreated males did not significantly differ. At age 21 years, 25% of females and 20% of males who experienced physical maltreatment had a diagnosis of depression, but only 5.1% of females and 3.9% of males without a history of physical maltreatment met criteria for depression. Meanwhile, 21.7% of females with sexual maltreatment histories were diagnosed with depression but only 4.3% of females with no history of sexual maltreatment were diagnosed with depression (Silverman et al., 1996).

Brown (1999) assessed the impact of childhood maltreatment on adolescent and adult depression and suicidality. Adolescents and young adults (N=776) with a history of

childhood maltreatment were three times more likely to become depressed or suicidal than individuals without such a history. Contextual risk factors such as family environment and parent and child characteristics accounted for much of the increased risk for depressive disorders and suicide attempts in adolescence but not in adulthood. The effects of childhood sexual maltreatment were largest and most independent of associated factors. Risk of repeated suicide attempts was eight times greater for youths with a sexual maltreatment history (Brown et al., 1999).

Kilpatrick and colleagues (2003) found a history of physical maltreatment to be significantly associated with depression in a nationally representative sample of 4,023 youths aged 12-17 years. A history of sexual maltreatment was significantly associated with comorbid depression and PTSD (Kilpatrick et al., 2003). Fergusson and colleagues (1996) sampled 1,019 youth from birth to age 18 years. All forms of sexual maltreatment and rape significantly predicted depression, such that youth with a history of sexual maltreatment were 3.6 (no intercourse)-5.4 (intercourse) times more likely than non-maltreated peers to develop depression (Fergusson, Horwood, & Lynskey, 1996).

The National Youth Victimization Prevention Study team interviewed 1,433 nationally representative youths aged 10-16 years. Youth were interviewed twice, fifteen months apart. A history of physical or sexual maltreatment between interview one and interview two significantly predicted a diagnosis of depression at interview two after controlling for victimization levels at time 1 (Boney-McCoy & Finkelhor, 1996).

Danielson and colleagues (2005) examined differences in depression symptoms in adolescents based on maltreatment type histories. A large subsample (N=548) of youths from the National Survey of Adolescents who met criteria for major depressive episode

in the past year were assessed. Significant differences were found in severity and symptoms of depression based on type of maltreatment experienced and gender. Adolescents who experienced physical and sexual maltreatment were significantly more likely to be depressed than those who experienced only physical or neither type of maltreatment. Females with a history of maltreatment were more depressed than males. Seventy percent of those who experienced sexual and physical maltreatment endorsed some suicidal ideation. This study also found 15.3% of depressed youth met lifetime criteria for PTSD. Those adolescents with multiple maltreatment types had the highest rate of PTSD (34.1%) followed by physical maltreatment alone (16.0%) and sexual maltreatment alone (11.1%) (Danielson, de Arellano, Kilpatrick, Saunders, & Resnick, 2005).

Linning and Kearney (2004) assessed 55 youths aged 8-17 years who were placed in shelter care facilities following maltreatment. Youths with PTSD experienced significantly greater diagnostic comorbidity than peers without PTSD. The presence of a mood disorder was also highly predictive of PTSD. Youths with PTSD met criteria for dysthymia (43.2%) and major depressive disorder (35.1%). No youths without PTSD had comorbid mood disorders. Shared vulnerabilities associated with youth depression and maltreatment may trigger the parallel development of PTSD and mood disorder among some individuals following trauma.

Lemos-Miller and Kearney (2006) examined 90 youths aged 11-17 years living in shelter care facilities following maltreatment. Level of depression was a significant mediator between (1) dissociation and trauma-related cognitions and (2) PTSD symptomatology. These findings support those of Linning and Kearney (2004) and

indicate that depression is a key variable with respect to PTSD symptomatology in maltreated youth.

Child Neglect and Depression

Research on the connection between child neglect and depression is still preliminary but the presence of neglect may increase likelihood of depressive symptoms in maltreated children. Arata and colleagues (2005) found neglect to be related to internalizing symptoms more than externalizing symptoms. Neglect and emotional maltreatment specifically were identified as significant predictors of depression (Arata et al., 2005). Other studies have connected child neglect with intermediary factors that contribute to childhood depression such as maternal depression, impoverished social contexts, and individual risk factors (Casady & Lee, 2003; Gaudin, Polansky, Kilpatrick, & Shilton, 1994).

Éthier, Lemelin, and Lacharite (2004) implicated the role of chronic maltreatment in the development of depressive symptoms. Their longitudinal study examined the link between chronicity of maltreatment and child behavioral and emotional problems. Researchers followed 32 victims of chronic child maltreatment and 17 victims of transitory maltreatment over 6 years. Victims of chronic maltreatment demonstrated significantly more anxiety and depression than victims of transitory maltreatment (Éthier, Lemelin, & Lacharité, 2004). This study did not specifically address neglect but contributed to an understanding of how persistent maltreatment such as neglect may severely and negatively impact child development.

Summary of Symptom Expressions in Response to Child Maltreatment

Maltreatment may affect child development across various domains, including physical, neurological, cognitive, behavioral, and emotional domains. Maltreated children often exhibit posttraumatic, dissociative, and depressive symptoms. These symptoms interfere with cognitive, emotional, and social functioning and further interfere with child development. Previous studies have focused primarily on physical and sexual maltreatment. Recent studies, though limited, indicate that neglect may also have severe negative effects on child outcomes. Ecological risk and resiliency factors have also been explored. Specific individual, familial, and societal factors play an important role in determining risk for maltreatment and resiliency following maltreatment.

Purpose of Study

This study examined the additive traumatic effect of neglect in maltreated children. Neglect is frequently a chronic and pervasive problem that negatively impacts children over their lifetime. Neglected children are at increased risk for insecure attachments, language and cognitive delays, poor social skills, and negative self-concept. These early risk factors leave a child vulnerable to later cognitive, emotional, and behavioral difficulties. Neglected children also experience fewer conditions associated with resiliency within the family and community. All types of child maltreatment may result in negative outcomes, but neglect may represent a strong additive risk factor for the development and reinforcement of posttraumatic, dissociative, and depressive symptoms.

No studies have been published evaluating the role of child neglect in the development of PTSD and PTSD-related symptoms (Cohen, personal communication, March 12, 2007; De Bellis, personal communication, March 10, 2007; De Bellis, 2005).

Many studies examine the relationship between maltreatment and PTSD but fail to consider neglect as a distinct maltreatment type. Other studies evaluate the impact of neglect on development but do not consider trauma-related symptoms. Studies of child PTSD and child maltreatment frequently fail to consider individual and family factors that contribute to risk and resiliency.

This study evaluated the additive traumatic effects of neglect on maltreated adolescents. Risk and resiliency factors including family functioning and gender were also considered within and ecologically-based framework.

Hypotheses

This study examined whether neglect has an additive traumatic effect on maltreated adolescents. The study also evaluated influences of family environment and individual characteristics on trauma-related symptoms. The first hypothesis was that adolescents who experienced only neglect, in the absence of other maltreatment, would exhibit PTSD, dissociation, and depression symptoms similar to peers with a history of other maltreatment. Preliminary research indicates that neglect alone may constitute a significant traumatic stressor comparable to physical, sexual, and emotional maltreatment (De Bellis, 2001, 2005; Hoksbergen et al., 2003)

The second hypothesis was that adolescents who experienced neglect and other maltreatment would exhibit more severe symptoms of PTSD, dissociation, and depression than adolescents with a history of maltreatment without neglect. Previous studies and theories imply that neglect will have a significant additive traumatic effect on posttraumatic symptoms (Antle et al., 2007; McSherry, 2007), dissociative symptoms

(Brunner et al., 2000; Sanders & Giolas, 1991), and depressive symptoms (Arata et al., 2005; Casady & Lee, 2003; Gaudin, Polansky, Kilpatrick, & Shilton, 1994).

The third hypothesis was that gender, age, and specific family factors would influence symptom severity of PTSD, dissociation, and depression. Ecological Systems Theory highlights the importance of individual and family factors on child outcomes following maltreatment (Bronfenbrenner, 1979, 1980; Cicchetti, 2004; Garbarino, 1979). Discrete Behavioral States (Putnam, 1997) and Attachment Theory (Ainsworth, 1985; Bowlby, 1977) further emphasize the importance of parent-child interaction in developmental outcomes. The role of parent-child interaction may be particularly important to the development of PTSD (Fletcher, 2003), dissociation (Putnam, 1997), and depression (Harkness & Lumley, 2008). Family and individual factors may thus be particularly important for understanding effects of neglect. Female identity was predicted to be associated with more severe trauma-related symptoms than male identity. Younger age at time of maltreatment was also predicted to be associated with more severe trauma-related symptoms. Specific family factors such as expressiveness, cohesion, control, conflict, and independence were predicted to be associated with varying degrees of trauma-related symptomatology. High levels of control and conflict were predicted to be associated with more severe trauma-related symptomatology, while higher levels of expressiveness, cohesion, and independence were predicted to be associated with lower levels of trauma-related symptomatology.

CHAPTER 3

METHODOLOGY

Participants

Participants were 67 adolescents from Department of Family Services/Child Haven in Las Vegas, Nevada. Child Haven is a shelter that provides respite and care to children placed in protective custody by Child Protective Services (CPS). Adolescent participants were 36 females, 30 males, and 1 transgender (male to female) person. Participants were aged 11-17 years (M=14.5, SD=1.6). Youths self-identified as multiracial (37.3%), African-American (28.4%), European-American (19.4%), Hispanic (10.4%), Asian-American (1.5%), Native-American (1.5%), or other (1.5%). Most participants (61) were born in the United States; 3 in Mexico, 1 in the Philippines, 1 in El Salvador, and 1 in Kenya. Most participants (51) said their mother was born in the United States; 9 said their mother was born outside the United States. Most (43) participants said their father was born in the United States; 9 said their father was born outside the United States. Participants reported varying marital status for their parents: never married (35.8%), currently married (29.9%), divorced (22.4%), and separated (7.5%).

Youths were currently in protective custody. Reasons for removal from the home included physical abuse, sexual abuse, runaway, neglect, abandonment, exposure to domestic violence, physical abuse of sibling, sexual abuse of sibling, and failed foster placement. For this study, participants were classified into 1 of 3 maltreatment history groups: (1) neglect without other maltreatment, (2) maltreatment without neglect, or (3) combined neglect and other maltreatment. The neglect only group (29) included participants in protective care due to neglect only, neglect and abandonment, or neglect

and runaway. The maltreatment only group (17) included participants in protective care due to direct sexual abuse or direct physical abuse. These participants had no history of neglect according to available DFS records. The neglect with other maltreatment group (21) included participants in protective care due to direct physical or sexual abuse and neglect. Table 2 reports the composition of maltreatment history groups by gender.

Information on socioeconomic status was unavailable because of limitations regarding access to parental demographic information and familial income. Youth data about parental education and occupation did provide general information on socioeconomic status. Adolescents said their mother graduated (49.3%) or did not graduate (25.4%) from high school; 25.4% did not know. Adolescents said their mother had (35.8%) or did not have (29.9%) 1-4 years of college experience; 34.3% did not know. Adolescents said their father graduated (37.3%) or did not graduate (20.9%) from high school; 40.3% did not know. Adolescents said their father had (18%) or did not have (26.9%) 1-4 years of college experience; 55.1% did not know. Many adolescents said their parents were employed in a minimum wage job or were unemployed.

Many adolescents (52.2%) reported at least one experience with drug/alcohol use. Many (44.8%) said their family was religious/regularly participated in religion and most (70.1%) identified as religious regardless of family religious commitment. Mean number of traumatic events was 3.09 (SD=1.83, range=1-12). Participants in the maltreatment only group reported the lowest number of traumatic events (M=2.70), followed by participants in the neglect only group (M=2.97) and the neglect and maltreatment group (M=3.50). Types of traumatic experiences reported by participants are in Table 3.

Youths were diagnosed as PTSD negative (6%) or PTSD positive (subclinical, acute, and chronic cases of PTSD) (94%). Sixty-two percent of youths met full diagnostic criteria for chronic PTSD, 8% acute PTSD, and 30% were PTSD negative (including subclinical cases of PTSD). Composition of PTSD diagnoses by maltreatment type is in Table 4. Youths were also given scores based on how many PTSD symptom clusters (0-6) they were experiencing (M=5, *SD*=1, range=1-6). Symptom clusters included exposure to a traumatic event, situational reactivity, reexperiencing, avoidance and numbing, increased arousal, and significant distress.

Measures

Demographic/Information Sheet. The demographic/information sheet solicited information on age, gender, race/ethnicity, country of origin, biological parent race/ethnicity, parental marital status, family size, family socioeconomic status, religion, languages spoken in the home, and youth experience with drugs and alcohol (Appendix I). Addendum questions were administered verbally to adolescents and involved type, frequency, and perpetrators of maltreatment as well as violence within and outside of the family. Youths were also asked about social support within the family.

Lau and colleagues (2005) highlighted the importance of considering Child Protective Services (CPS) and child/parent self-reports of maltreatment when determining predominant maltreatment type. Child Haven staff provided graduate student researchers with the reason for removal from home provided by CPS. Researchers also assessed youths' understanding of the reason for placement in the DFS facility or foster family. Based on both reports, maltreatment type was recorded as (1) neglect without other maltreatment, (2) maltreatment without neglect, or (3) combined neglect and other

maltreatment. Accurate classification of each participant into a maltreatment history group was verified by a graduate student researcher and by the principal investigator.

Children's PTSD Inventory (CPTSD-I) (Saigh, 1998). The Children's PTSD inventory is a semistructured interview that assesses DSM-IV-TR PTSD symptoms in youths aged 7-18 years (Saigh et al., 2000a). Interview administration lasted 15-20 minutes in youths who report a traumatic event. Youth responses were scored on a dichotomous scale. Interview questions assessed individual PTSD symptoms via five subscales: exposure to trauma, reexperiencing symptoms, avoidance and numbing symptoms, increased arousal, and significant distress. The CPTSD-I also assessed duration of distress for each symptom. The CPTSD-I assessment yields one of five diagnoses: Negative, Acute PTSD, Chronic PTSD, Delayed Onset PTSD, and No Diagnosis. No Diagnosis includes youths who experienced a trauma but did not acknowledge this during the interview (Saigh et al., 2000a).

To establish content validity of the CPTSD-I, three members of the DSM-IV PTSD Work Group independently rated the measure for correspondence with current diagnostic criteria using a 0-100 point Likert-type scale. Mean subtest ratings were 86.7-90.0, indicating consistently high levels of correspondence between the CPTSD-I and DSV-IV PTSD Diagnostic criteria (Saigh et al., 2000b).

Saigh and colleagues (2000b) examined CPTSD-I internal consistency and reliability in traumatized and non-traumatized youths aged 7-18 years (13.8 years mean age) and obtained high internal consistency estimates of CPTSD-I diagnoses. Diagnostic internal consistency was estimated with a Cronbach's alpha of .95. The five subtests were also evaluated and yielded internal consistency alphas from .53-.89.

Excellent estimates of interrater reliability have been reported for the CPTSD-I. Interrater agreement of 98.1% for diagnosis was reported (Saigh et al., 2000b). Saigh and colleagues reported a Cohen's kappa of .96, indicating excellent diagnostic agreement between. Four subtests yielded Cohen's kappas of .84-1.00, indicating excellent inter-rater reliability. The sole exception was a kappa coefficient of .66 for the Situational Reactivity subtest.

Excellent estimates of test-retest reliability were also obtained, yielding 97.6% agreement at the diagnostic level, with a Cohen's kappa of .91. Test-retest reliability for the subtests, with the exception of Significant Impairment, yielded kappas from .78-1.00. A kappa of .66 was obtained for the Significant Impairment subtest.

Yasik and colleagues examined the validity of the CPTSD-I in traumatized and non-traumatized youths aged 7-18 years (mean age = 13.4) (Yasik et al., 2001). The CPTSD-I displayed high concurrent validity compared to three criterion measures: clinician derived diagnosis, Diagnostic Interview for Children and Adolescents-Revised PTSD module, and Structured Clinical Interview for DSM. Pearson product-moment correlation coefficients with the CPTSD-I were obtained for diagnostic efficiency and ranged from .93-.95. Across the three criterion measures, moderate to high levels of sensitivity and specificity, as well as positive and negative predictive power, were noted (Yasik et al., 2001).

Yasik and colleagues (2001) also evaluated convergent and discriminant validity of the CPTSD-I. The Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985) and Children's Depression Inventory (CDI) (Kovacs, 1992) assess symptoms associated with PTSD and were considered adequate measures to examine

CPTSD-I convergent validity (Yasik et al., 2001). Significant correlations between CPTSD-I overall symptom endorsement and RCMAS and CDI symptom endorsement indicate strong convergent validity. Discriminant validity was examined with the Junior Eysenck Personality Inventory (JEPI; Eysenck, 1963). The CPTSD-I and JEPI extraversion scales were not associated, providing evidence for CPTSD-I discriminant validity.

Adolescent Dissociative Experiences Scale (A-DES) (Armstrong, Putnam, Carlson, Libero, & Smith, 1997). The A-DES is a 30-item self-report questionnaire that assesses dissociation following normal to pathological experiences in youths aged 12-18 years (Armstrong et al., 1997). A-DES scoring is based on a Likert-type scale where "0 = never" and "10 = always." Each adolescent is asked to indicate how often a particular experience happens to him/her when not under the influence of drugs or alcohol.

This scale contains four domains of dissociation: Dissociative Amnesia, Absorption and Imaginative Involvement, Passive Influence, and Depersonalization and Derealization (Armstrong et al., 1997). Dissociative amnesia refers to dissociative memory lapses and difficulty with recall. Absorption and imaginative involvement refers to excessive engagement in fantasy activities and difficulty distinguishing between reality and fantasy. Passive influence refers to disconnect between mental and physical actions and sensations. Depersonalization and derealization refers to feelings of both mind-body separation and personal separation from the world. The supplemental scales dissociated identity (D1) and dissociated relatedness (D2) subscales assess specific effects of depersonalization.

Armstrong and colleagues (1997) examined A-DES validity among 73 inpatient, 12 outpatient, and 17 control adolescents. Excellent internal consistency was noted for the A-DES with a Cronbach's alpha of .93. Subscale alphas ranged from .72-.85, indicating good subscale internal consistency. A Spearman-Brown value of .92 indicated adequate split-half reliability. A-DES scores did not differ based on demographics such as age, gender, race, or grade (Armstrong et al., 1997). However, A-DES scores differentiated maltreatment status in that physically and sexually maltreated participants earned higher scores than controls. The A-DES appears to be a valid measure of normal and pathological dissociation. Youths previously diagnosed with dissociative disorders scored higher on the A-DES than controls (Armstrong et al., 1997).

Farrington and colleagues (2001) examined A-DES factor structure and internal reliability among non-clinical youths aged 11-16 years in the United Kingdom. Excellent internal reliability was indicated with a Cronbach's alpha of .94. A Spearman-Brown value of .90 indicated strong split-half reliability. Consistent with Armstrong and colleagues, no significant age or gender differences were found. Analyses of the A-DES revealed one main factor reflecting dissociative experiences. Factors for the A-DES subscales were not reported for this non-clinical sample. The overall mean score of 2.66 provides normative data for non-clinical samples (Farrington, Waller, Smerden, & Faupel, 2001).

Smith and Carlson (1996) also provided normative data, reliability, and validity for the A-DES among 180 non-clinical high school students aged 12-17 years and 46 non-clinical college students aged 18-21 years. A-DES total mean scores were 2.24 for high

school students and .78 for college students. Subscale means ranged from 1.87-2.75. Two-week test-retest reliability of .77 was also found for high school students.

Smith and Carlson (1996) also examined A-DES internal consistency and concurrent validity. Internal consistency was indicated with a Cronbach's alpha of .92 for the A-DES total score. Internal consistency values of A-DES subscales ranged from .64-.83. Additionally, adequate Spearman-Brown split-half reliability was reported for the A-DES at .94. Concurrent validity was examined by comparing responses of the college-aged group on the A-DES to the Dissociative Experiences Scale (E. B. Carlson & Putnam, 1993). Good concurrent validity was noted with a correlation coefficient of .77 (Smith & Carlson, 1996).

Muris and colleagues (2003) examined psychometric properties of the A-DES among 331 nonclinical adolescents aged 12-17 years. Factor analyses revealed a single factor measuring dissociative experiences. The authors reported an A-DES total mean score of 1.27, providing normative data for the A-DES and adolescent non-clinical populations. Mean scores for A-DES subscales were 1.79 for absorption/imaginative involvement, 1.58 for passive influence, 1.36 for dissociative amnesia, and .82 for depersonalization/derealization. Good reliability was reported with a Cronbach's alpha of .93. A-DES scores appeared unrelated to demographic variables such as age and gender. Higher A-DES scores were associated with more anxiety disorder symptoms, particularly PTSD (Muris, Merckelbach, & Peeters, 2003).

Seeley and colleagues (2004) examined internal reliability and construct validity of the A-DES among 65 females aged 11-18 years. Analyses revealed that the A-DES had good internal consistency with a Cronbach's alpha of .94. The researchers also examined

the response format of the A-DES via several pilot studies with sexually maltreated and control adolescent females. Researchers administered the A-DES using a 6-point Likert-type scale rather than the 11-item response scale designed by Armstrong and colleagues (1997). Pilot studies provided evidence for the utility of using a 6-point Likert-type scale for the A-DES. Sexually maltreated females consistently scored higher on the A-DES than controls. While A-DES scores discriminated between clinical and non-clinical sexually maltreated adolescents, the scores did not differentiate maltreated females with PTSD from maltreated females with other disorders. However, the PTSD-clinical group (n = 16) and other psychiatric disorder-clinical group (n = 15) sample sizes may have been too small to detect statistical differences. Further, therapist ratings of adolescent dissociation coincided with adolescent mean scores on the A-DES (Seeley, Perosa, & Perosa, 2004).

Children's Depression Inventory (CDI) (Kovacs, 1992). The CDI is a 27-item self-report questionnaire for youths aged 7-17 years. The CDI measures severity of depressive symptoms over the past two weeks. Each item is based on a 3-point response format from 0 (absence of the symptom) to 2 (definite symptom). The CDI yields a total depression score and five subscale scores for Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia, and Negative Self-Esteem (Kovacs, 1992).

Smucker and colleagues (1986) reported normative and reliability data for the CDI from three large-scale independent public school samples (1,252 subjects aged 8-16 years). The researchers reported a CDI total score mean of 9.09 (SD = 7.04). Based on the upper 10% distribution scores, the CDI cutoff score was 19 for both males and females. Three-week test-retest reliability values were good for all ages. Internal

consistency reliability was acceptable with coefficient alphas from .83-.89 (Smucker, Craighead, Craighead, & Green, 1986).

Nelson and colleagues (1987) examined CDI characteristics with inpatient youth aged 6-18 years. Females received higher CDI total scores than males. These gender differences appear more prominent in adolescents than children. Overall age differences were not apparent among CDI scores. Ethnic differences were not observed. Researchers reported coefficient alpha of .86 for internal consistency (Nelson, Politano, Finch, & Wendel, 1987).

Nelson and colleagues (1990) assessed the test-retest reliability of the Children's Depression Inventory (CDI) in 96 inpatient children aged 6-15 years. Subjects completed the CDI on three occasions: initially, 10 days later, and 30 days later. Scores decreased significantly from the initial assessment to administrations conducted at 10 days and 30 days. Stability coefficients for the overall group ranged from .47-.62. Stability between the 10- and 30-day administrations was somewhat lower for males than females (Nelson & Politano, 1990).

Liss and colleagues (2001) report notable gender differences in CDI scores, with female youths scoring higher than male youths. This gender difference was significant for younger and older age groups (age range 7-17 years). Racial/ethnic differences in CDI scores were not observed among this large, diverse inpatient sample. Evidence for CDI discriminant validity was provided. Youths with depression-related disorders had higher CDI scores than youths with primary aggressive/conduct disorders and youths with primary aggressive/conduct disorders in conjunction with secondary emotional/depressive problems (Liss, Phares, & Liljequist, 2001).

Finch and colleagues (1987) examined test-retest reliability for the CDI in 108 children aged 7-12 years. Researchers obtained acceptable test-retest values for all CDI administrations for 2 weeks (.82), 4 weeks (.66), and 6 weeks (.67). However, analyses revealed differences in scores over the four administrations. Specifically, the initial CDI mean score was higher than the 2-week CDI mean score (Finch, Saylor, Edwards, & McIntosh, 1987).

CDI internal structure was examined with a diverse nonclinical sample of children aged 4-18 years (Helsel & Matson, 1984). Analyses revealed good face validity for four factors: affective behavior, image/ideation, interpersonal relations, and guilt/irritability. A split-half correlation of .89 was found for internal reliability. Researchers reported no difference in CDI scores according to race or gender. The authors did, however, note that older children and adolescents may report more depressive symptoms than younger children (Helsel & Matson, 1984).

Twenge and Nolen-Hoeksema (2002) evaluated the effects of age, gender, and socioeconomic status on the CDI. The researchers performed a within-scale meta-analysis on 310 children aged 8-16 years (N=61,424). Results of the analysis revealed that girls' depression scores stayed steady from age 8-11 years and then increased from age 12-16 years. Boys' scores remained stable from age 8-16 years with the exception of a high score at age 12. In early years, girls' scores were slightly lower than boys'. Beginning at age 13 years, girls' scores were higher. The analysis also revealed no socioeconomic status effects and no differences between European-American and African-American samples. Latino/Hispanic samples scored significantly higher on the CDI than other ethnic groups (Twenge & Nolen-Hoeksema, 2002).

Family Environment Scale, Form-R (FES) (Moos & Moos, 1986). The FES is a 90-item true-false self-report questionnaire that assesses family-of-origin characteristics across 3 factors: Relationship, Personal Growth, and System Maintenance (Moos & Moos, 1986). The Relationship dimension features 3 subscales: cohesion, expressiveness, and conflict. The Personal Growth dimension features 5 subscales: independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, and moral-religious orientation. The System Maintenance dimension features 2 subscales: organization and control. Examinee responses are recorded as true or false.

Waldron and colleagues (1990) examined factor structure of the FES in a sample of non-clinical college students and non-clinical adults. Reliability estimates of FES subscales varied from .43 (independence), to .51 (achievement orientation) to .77 (cohesion). Internal consistency was found for only 5 of the 10 FES subscales: cohesion (.77), intellectual-cultural (.75), moral-religious emphasis (.74), conflict (.74), and organization (.72). Remaining subscale alpha levels ranged from .63 to .66 (Waldron, Sabatelli, & Anderson, 1990).

Perosa and Perosa (1990) assessed convergent and discriminant validity for the cohesion and adaptability dimensions of the FES with two other measures of family functioning. The measures were administered to 85 high school students and 98 undergraduates. Convergent validity among measures of cohesion was strong; convergent validity for measures of adaptability was moderate. Problems with discriminant validity were noted (Perosa & Perosa, 1990).

Boyd and colleagues (1997) examined FES reliability in adolescents aged 11-18 years. Internal consistency estimates varied from low to moderate. Internal consistency

alpha levels were acceptable for the conflict (.72), moral-religious emphasis (.71), and cohesion subscales (.67). The independence and expressiveness subscales had the lowest internal consistency estimates with alphas of .31 and .39, respectively. Other subscale alphas included achievement (.44), intellectual-cultural orientation (.47), control (.59), organization (.60), and active-recreational orientation (.62) (Boyd, Gullone, Needleman, & Burt, 1997).

Procedure

Procedures followed UNLV and DFS policies regarding research with human subjects. The UNLV Office for the Protection of Research Subjects, Institutional Review Board (IRB), Social and Behavioral Sciences committee approved protocol # 0801-2586 on June 6, 2008. An approved interlocal contract by UNLV and DFS was in accordance with county and state laws regarding children in protective custody. A Confidentiality Certificate from Department of Health and Human Services, National Institutes of Health applies to Child Haven/UNLV participants (August 1, 2007).

Participants came from Child Haven in Las Vegas, Nevada. Adolescents recruited from Child Haven were in CPS protective custody. Coordinators at Child Haven informed researchers when an adolescent potentially met eligibility criteria for the study. Eligibility criteria included youths aged 11-17 years who reported a traumatic experience. No racial/ethnic or gender exclusions applied. Adolescents were excluded from the study if they did not affirm the experience of trauma or if they had a thought disorder (per self-report/history or observed by researchers). If adolescents did not comprehend the assent form, interview questions, and/or self-report forms, the assessment was not completed.

Forty consenting youths were ineligible and/or did not complete assessment procedures (males=24, females=16). Twenty-two youths did not endorse a traumatic event, 5 did not comprehend assessment measures, 5 declined to participate, 5 began the assessment but later discontinued, 2 were limited in English proficiency, and 1 endorsed a traumatic event but declined to discuss the incident. Age information was unavailable for 4 ineligible youths, but remaining adolescents with incomplete assessments had a mean age of 13.8 years. An additional 25 youths completed the assessment procedures but were excluded from data analysis based on maltreatment history. Excluded adolescents' maltreatment history were unknown (6), abandoned early in life with subsequent other maltreatment or incomplete records (5), runaway (4), domestic violence in the home (3), sexual abuse of a sibling (3), physical abuse of a sibling (3), and maternal substance abuse (1).

Before meeting with potential Child Haven participants, researchers attempted to obtain parental consent via telephone. If researchers were unable to contact parents, Child Haven/DFS mental health staff or Child Haven coordinators/supervisors acting as emergency legal guardians provided consent. Graduate-level researchers met with eligible adolescents individually to further explain the study. If an adolescent expressed interest in the study, the researcher provided additional details and solicited youth assent. After obtaining consent and assent, youths met individually with a graduate-level researcher to complete the semistructured interview and self-report forms. Researchers advised participants not to answer questions they felt uncomfortable with and that participation was voluntary. Researchers provided information about research confidentiality, rights as a participant, and limits of confidentiality. Adolescents

completed a demographic/ information form, the Children's PTSD Inventory, Children's Depression Inventory, Posttraumatic Cognitions Inventory, Adolescent-Dissociative Experiences, State-Trait Anger Expression Inventory, Family Environment Scale, and Multigroup Ethnic Identity Measure.

Assessments occurred in a confidential environment without DFS staff. A graduate student interviewed each adolescent with the CPTSD-I. Completion of the demographic/information form and CPTSD-I lasted approximately 20-25 minutes. Youths then completed self-report measures with the assistance of a graduate student researcher and undergraduate research assistant. The self-report measures lasted approximately 60-90 minutes.

Participants were encouraged to take breaks during the assessment process. If researchers observed excessive fatigue, a follow-up session was scheduled. If a youth expressed discomfort during the assessment, a graduate student researcher was available for support. Researchers applied appropriate actions if a youth expressed intent to harm others or self or significant psychopathology such as visual/auditory hallucination. At Child Haven, the graduate-level researcher discussed the issue with the adolescent and offered to meet with a Child Haven cottage staff or mental health team member of the youth's choice to secure the safety of the adolescent. Contact occurred with the youth's primary mental health clinician or social worker if necessary. The graduate student researchers provided appropriate contact numbers to the legal guardian/biological parent and Child Haven staff if further problems arose.

Debriefing for participants occurred immediately after each assessment was completed. This debriefing consisted of further explaining the study purpose and

procedures. Youths were encouraged to process their feelings and ask questions about participation. Adolescents were encouraged to share distressing feelings with their parent, counselor, or social worker, as applicable. If possible, a follow-up debriefing occurred with each Child Haven participant at least one week after initial assessment. During the debriefing, researchers addressed additional inquiries about the research or procedures. With assenting Child Haven youths, researchers provided an introductory session on relaxation and healthy coping strategies. Assenting Child Haven adolescents learned about journaling to cope with stress. Researchers provided a handout of these techniques and a journal to each participating adolescent. Forms were confidential and coded by a number to ensure anonymity of the participant. Data were stored in a locked filing cabinet in a university office.

CHAPTER 4

FINDINGS OF THE STUDY

Hypothesis One and Hypothesis Two

The first hypothesis was that adolescents who experienced only neglect, in the absence of other maltreatment, would exhibit PTSD, dissociation, and depression symptoms similar to peers who experienced other maltreatment types. The second hypothesis was that neglect has an additive traumatic effect on maltreated adolescents such that PTSD, dissociation, and depression symptoms are more severe among adolescents who have been neglected and otherwise maltreated than adolescents with a history of maltreatment without neglect. These two hypotheses were examined via analyses of variance and t-tests.

Multivariate Analyses of Variance for the independent variable of maltreatment type and the dependent variables of PTSD symptomatology, depression, and dissociation

A one-way between-groups multivariate analyses of variance (MANOVA) was conducted for the independent variable of maltreatment history (neglect alone, maltreatment without neglect, neglect with other maltreatment) and the dependent variables of symptoms (CPTSD-I, A-DES, CDI). No statistically significant difference was found with respect to maltreatment type: F (3, 62) = 1.07, p = .386.

Multivariate Analyses of Variance for the independent variable of neglect history and the dependent variables of PTSD symptomatology, depression, and dissociation

A one-way between-groups multivariate analyses of variance (MANOVA) was conducted for the independent variable of history of neglect (history of neglect, no history of neglect) and for the dependent variables of symptoms (CPTSD-I, A-DES,

CDI). The independent variable was collapsed into two groups. The history of neglect group included individuals previously classified as experiencing neglect alone or neglect with other maltreatment (N = 50). The no history of neglect group included individuals previously classified in the maltreatment without neglect group (N=17). PTSD symptomatology, depression, and dissociation did not significantly differ with respect to neglect history: F (3, 63) = .52, p = .668. The analysis was then repeated excluding adolescents who had experienced neglect and other maltreatment. No significant differences were detected: F (3, 42) = 1.25, p = .306.

Analyses of Variance for the independent variable of maltreatment type and the individual dependent variables of PTSD related symptoms

One-way between-groups analyses of variance (ANOVA) were conducted to explore the impact of maltreatment type on PTSD-related symptoms. The independent variable was maltreatment history (neglect alone, maltreatment without neglect, neglect with other maltreatment). Dependent variables examined were the total scores and all subscale scores from the CPTSD-I, A-DES, and CDI (see Table 5). Means and standard deviations for dependent variables by maltreatment type are in Tables 6, 7, 8 and 9.

The dependent variables A-DES Depersonalization/Derealization, CDI Negative Mood, and CDI Anhedonia showed significance (discussed below). The dependent variable CPTSD-I Significant Distress showed a trend towards significance (p = .07). Other variables did not differ significantly with respect to maltreatment type.

A statistically significant difference was found regarding A-DES Depersonalization/ Derealization for the three maltreatment groups: F (2, 64) = 5.26, p = .008. Post-hoc comparisons using the Bonferroni test to control for Type 1 error indicated that the mean

score for adolescents with a history of neglect (*M* = 17.48, *SD* = 16.53) was significantly lower than mean scores of adolescents with a history of neglect with other maltreatment (*M* = 35.57, *SD* = 27.26) and significantly lower than mean scores of adolescents with a history of maltreatment without neglect (*M* = 37.53, *SD* = 29.26). Adolescents with a history of maltreatment without neglect and adolescents with a history of neglect with other maltreatment did not differ.

A statistically significant difference was found regarding CDI Negative Mood for the three maltreatment groups: *F* (2, 64) = 3.22, *p* = .046. Post-hoc comparisons using the Bonferroni test did not indicate that the mean score for adolescents differed significantly by maltreatment history. Actual differences in mean scores were quite small: adolescents with a history of neglect (*M* = 2.34, *SD* = 2.77); adolescents with a history of neglect with other maltreatment (*M* = 3.95, *SD* = 2.52); adolescents with a history of maltreatment without neglect (*M* = 4.29, *SD* = 3.31).

A statistically significant difference was found regarding CDI Anhedonia for the three maltreatment groups: *F* (2, 64) = 4.15, *p* = .020. Post-hoc comparisons using the Bonferroni test indicated that the mean score for adolescents with a history of neglect (*M* = 3.31, *SD* = 3.01) was significantly lower than mean scores of adolescents with a history of maltreatment without neglect (*M* = 5.76, *SD* = 3.33) but not significantly lower than mean scores of adolescents with a history of maltreatment without neglect (*M* = 5.38, *SD* = 3.29). Adolescents with a history of maltreatment without neglect and adolescents with a history of neglect with other maltreatment did not differ.

Independent Samples Tests among the independent variable of neglect history and the individual dependent variables of PTSD related symptoms

Independent sample t-tests were performed to specifically compare the independent variable of neglect within the dependent variables of PTSD-related symptoms. The independent variable was history of neglect (history of neglect, no history of neglect). Dependent variables are in Table 5. The dependent variable A-DES Depersonalization/Derealization showed a trend toward significant difference in mean scores for history of neglect (M = 25.08, SD = 23.26) and no history of neglect (M = 37.53; SD = 29.26); t (65) = -1.783, p = .079. The dependent variable CDI Anhedonia showed a trend toward significant difference in mean scores for history of neglect (M = 4.18, SD = 3.27) and no history of neglect (M = 5.76; SD = 3.33); t (65) = -1.719, p = .090. No significant differences were found.

Secondary independent sample t-tests were performed to specifically compare the independent variable of neglect within the dependent variables of PTSD-related symptoms. Adolescents who had experienced neglect with other maltreatment were excluded from this analysis. The independent variable was history of neglect (history of neglect, history of other maltreatment). Dependent variables are listed above in Table 5.

Significant differences were found in CPTSD-I Significant Distress, A-DES Depersonalization/Derealization, CDI Negative Mood, and CDI Anhedonia. Results of this analysis are reported in Table 10. Adolescents with a history of neglect reported significantly less CPTSD-I Significant Distress (M = 1.69, SD = 1.26) than adolescents with a history of other maltreatment (M = 2.65, SD = 1.22), t (44) = -2.52, p = .015. Adolescents with a history of neglect reported significantly less A-DES

Depersonalization/Derealization (*M* = 17.48, *SD* = 16.53) than adolescents with a history of other maltreatment (*M* = 37.53, *SD* = 29.26), *t* (44) = -2.98, *p* = .005. A trend toward significance was found in which adolescents with a history of neglect reported less depressive symptoms (CDI Total Score) (*M* = 10.00, *SD* = 8.69) than adolescents with a history of other maltreatment (*M* = 15.24, *SD* = 10.33), *t* (44) = -1.84, *p* = .073. Adolescents with a history of neglect reported significantly less CDI Negative Mood (*M* = 2.34, *SD* = 2.77) than adolescents with a history of other maltreatment (*M* = 4.29, *SD* = 3.31), *t* (44) = -2.14, *p* = .038. Adolescents with a history of neglect reported significantly less CDI Anhedonia (*M* = 3.31, *SD* = 3.01) than adolescents with a history of other maltreatment (*M* = 5.76, *SD* = 3.33), *t* (44) = -2.57, *p* = .038.

Moderated multiple regression analysis: Neglect as a moderator in the relationship PTSD symptomatology and dependent variables

General analyses demonstrated significant correlations between the independent variable (PTSD symptomatology) and the dependent variables (A-DES Dissociative Amnesia, A-DES Absorption/Imaginative Involvement, A-DES Passive Influence, A-DES Depersonalization/Derealization, A-DES Total Score, CDI Negative Mood, CDI Interpersonal Problems, CDI Ineffectiveness, CDI Anhedonia, CDI Negative Self-Esteem, and CDI Total Score) (see Table 11). Moderated multiple regression analyses were then conducted to determine if neglect moderated the relationship between the independent and dependent variables. Moderation is implied when the relationship between an independent and dependent variable fluctuates as a function of a third, or moderating, variable (Aguinis, 2004). To test for moderation, separate multiple regression analyses were conducted for the dependent variables of A-DES Dissociative

Amnesia, A-DES Absorption/Imaginative Involvement, A-DES Passive Influence, A-DES Depersonalization/Derealization, A-DES Total Score, CDI Negative Mood, CDI Interpersonal Problems, CDI Ineffectiveness, CDI Anhedonia, CDI Negative Self-Esteem, and CDI Total Score.

In these analyses, the independent (PTSD symptomatology) and dependent variables were continuous. The hypothesized moderator, neglect, was coded as a binary variable (0 and 1 for absence or presence of neglect). Aguinis (2004) advocates the dummy coding of binary variables as a simple way to interpret moderated multiple regression results when comparing groups. Moderated multiple regression analyses were conducted via hierarchical regressions according to the protocol described by Aguinis (2004).

Moderated multiple regression analyses are comprised of specific steps (Aguinis, 2004). First, two regression equations are conducted (Aguinis, 2004; Frazier, Tix, & Barron, 2004). The first regression equation tests the first order effects. Here the first order effects are the amount of PTSD symptomatology variance caused by a specific dependent variable and the hypothesized moderator neglect. For a significant first order effect to be implied, each one-point increase in the independent variable would predict a specific increase in the dependent variable when the hypothesized moderator is held constant (Aguinis, 2004; Frazier, Tix, & Barron, 2004).

The second regression equation calculates the first order effects and a product term. The product term is determined by the independent variable and the proposed moderator (Aguinis, 2004). For moderation to be implied, the first regression equation must be examined (via F-test) and the second regression equation must be significant (per t-test). The second regression equation must also explain more PTSD symptomatology variance

(in terms of r^2) than the first regression equation (Aguinis, 2004; Frazier, Tix, & Barron, 2004). Moderation is implied if a significant r^2 change is found. For this analysis, significant r^2 change would demonstrate that the presence of neglect among maltreated youth explains a greater amount of variance in the dependent variable (specific levels of depression or dissociation symptoms) than can be explained by the relationship between the independent (PTSD symptomatology) and dependent variable alone (Aguinis, 2004).

Moderated multiple regression was completed twice for each of the dependent variables. Initially, the proposed moderator included adolescents who experienced neglect alone or neglect with other maltreatment (coded as 1) and adolescents who experienced maltreatment without neglect (coded as 0). No significant moderating effects were detected. A second, more restricted analysis was completed wherein the proposed moderator excluded adolescents who experienced neglect with other maltreatment. The groups were neglect without other maltreatment (coded as 1) and maltreatment without neglect (coded as 0). No significant moderating effects were detected.

Hypothesis Three

The third hypothesis was that individual factors of gender, age, and specific family factors would influence symptom severity of PTSD, dissociation, and depression. Female identity was predicted to be associated with more severe trauma-related symptoms than male identity. Specific family factors included family expressiveness, cohesion, control, conflict, and independence. These family factors were predicted to be associated with varying degrees of trauma-related symptomatology. Higher levels of family expressiveness, cohesion, and independence were predicted to be associated with lower levels of trauma-related symptomatology. Higher levels of family conflict and control

were predicted to be associated with higher levels of trauma-related symptomatology. These hypotheses were evaluated using t-tests and correlation. Although younger age at time of maltreatment was predicted to be associated with more severe symptomatology, DFS records were inadequate in determining ages of participants at time of maltreatment.

Independent Samples Tests among the independent variable of gender and the individual dependent variables of PTSD related symptoms

Independent sample t-tests were performed to compare the independent variable of gender within the dependent variables of PTSD-related symptoms. A Bonferroni adjustment was applied to the alpha level to control for increased Type 1 error resulting from multiple comparisons. The sole transgender identified individual was excluded from data analysis. This individual was receiving testosterone blockers and estrogen and progesterone therapy for at least two years. She could not be appropriately placed in the male or female groups for data analysis. The dependent variables CPTSD-I Situational Reactivity, CPTSD-I Reexperiencing, CPTSD-I Avoidance/Numbing, CPTSD-I Increased Arousal, CPTSD-I Total Score, A-DES Dissociative Amnesia, A-DES Depersonalization/Derealization, A-DES Total Score, CDI Negative Mood, CDI Anhedonia, CDI Negative Self-Esteem, and CDI Total Score showed significant differences in mean scores such that female participants reported more PTSD-related symptomatology than males. No significant differences were found in mean CPTSD-I Significant Distress, A-DES Absorption/Imaginative Involvement, A-DES Passive Influence, CDI Interpersonal Problems, and CDI Ineffectiveness scores for males and females. Results of this analysis are in Table 12.

Pearson Correlations among PTSD Symptomatology and Family Environment

Pearson product-moment correlations were calculated for PTSD symptomatology and family environment factors (Family Environment Scale). A moderate positive correlation was found between PTSD symptomatology and family conflict (r=.445, $p\leq$.01). Moderate negative correlations were found between PTSD symptomatology and family cohesion (r=-.464, $p\leq$.01), family organization (r=-.379, $p\leq$.01), active-recreational orientation (r=-.343, $p\leq$.01), and intellectual-cultural orientation (r=-.261, $p\leq$.01).

CHAPTER 5

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion of Results

This study examined whether neglect had an additive traumatic effect on adolescents who experienced maltreatment. The study also evaluated influences of family factors and individual characteristics on trauma-related symptoms. The sample in this study was an ethnically diverse, mainly low-income, shelter-based population of adolescents who were removed from their home following maltreatment.

All adolescents in this study experienced some type of trauma. Maltreatment experiences included physical abuse, sexual abuse, neglect, abandonment, and exposure to domestic violence. Participants were classified into 1 of 3 maltreatment history groups: (1) neglect only, (2) maltreatment only, and (3) neglect with other maltreatment. The majority of adolescents (74.6%) experienced neglect. Approximately equal numbers of males and females experienced neglect only (29) or neglect with other maltreatment (21). Only 17 participants (25.4%) experienced maltreatment without neglect. Of these 17 participants, 13 were females and 4 males. Most youths (94%) endorsed subclinical to chronic levels of PTSD.

Maltreatment type and PTSD symptomatology, depression, and dissociation

The first hypothesis was that adolescents who experienced neglect in the absence of other maltreatment would exhibit PTSD-related symptoms similar to peers who experienced other maltreatment types. The second hypothesis was that adolescents who experienced maltreatment in concert with neglect would exhibit more severe PTSD-related symptoms than adolescents who experienced only neglect or only maltreatment.

These two hypotheses were examined via analyses of variance and t-tests. No significant differences were found based on maltreatment history with respect to total scores on the CPTSD-I, A-DES, or CDI. Only the subscales CPTSD-I Significant Distress, A-DES Depersonalization/Derealization, CDI Negative Mood, and CDI Anhedonia revealed some differences. In each case, adolescents with a history of maltreatment exhibited more severe symptoms than adolescents with a history of neglect.

The general lack of significant differences between maltreatment history groups partially supports the first hypothesis. As predicted (Gauthier, Stollak, Messé, & Aronoff, 1996; Hildyard & Wolfe, 2002; McSherry, 2007; Trickett & McBride-Chang, 1996), the impact of neglect is as severe as other maltreatment types with respect to PTSD-related symptoms. This finding provides some of the first empirical evidence disproving the widely held assumption in state and county child protective agencies that neglect is less harmful than other types of maltreatment (McSherry, 2007; Wolock & Horowitz, 1994). Despite the "neglect of neglect" described by Wolock & Horowitz (1994; Dubowitz, 2007; Kaplan et al., 1999; McSherry, 2007; Schumacher et al., 2001), evidence is accumulating to support the idea that neglect is equally detrimental to child and adolescent development compared to other types of maltreatment (Azar & Wolfe, 2006; English et al., 2005; Hines et al., 2006). This study provides preliminary support for the idea that neglect and other forms of maltreatment lead to similar levels of posttraumatic symptoms, depression, and dissociation in adolescents.

The results did not, however, support the second hypothesis. The lack of significant differences between maltreatment history groups fails to support the notion that neglect has an additive traumatic effect on maltreated youth. The limited number of significant

differences that were found indicates that adolescents who experienced maltreatment with or without neglect exhibited more PTSD-related symptoms than neglected adolescents.

The lack of significant differences between maltreatment history groups may reflect methodological limitations of the study. Adolescents were classified into maltreatment history groups based on information available from Department of Family Services (DFS) records and information provided by the adolescent. Lau and colleagues (2005) noted the importance of state or county records, child self-reports, and parent self-reports of maltreatment when determining maltreatment history. DFS records were occasionally incomplete due to problems with electronic records, incomplete paper charts, and complications related to ongoing child maltreatment investigations. Adolescent self-reports of maltreatment history may also have been incomplete due to an adolescent's unwillingness or inability to articulate all previous abuse. No parent self-reports of maltreatment history were available. These limitations are not unique to this study. Researchers frequently note the difficulty of classifying maltreatment history, differentiating maltreatment types, and accurately identifying and studying neglect (Cicchetti & Toth, 2005; Clemmons, Walsh, DiLillo, & Messman-Moore, 2007; English et al., 2005; Higgins, 2004; Hildyard & Wolfe, 2002; Lau et al., 2005).

Recent findings regarding biological responses to trauma and maltreatment may also explain the lack of significant differences between maltreatment history groups. Childhood maltreatment, regardless of PTSD diagnosis, is associated with biological stress reactions that influence brain development (De Bellis, 2001; Farkas, 2004; van der Kolk, 2005). Documented biological reactions to child maltreatment include disruption of neurotransmitters, increased catecholaminergic activity (De Bellis, 2001; Kowalik, 2004),

dysregulation of neuroanatomical and neurophysiological systems (Meiser-Stedman, 2003), and HPA axis dysfunction as indicated by salivary and urinary cortisol level tests (Kowalik, 2004). Children who experienced maltreatment and/or trauma have smaller total brain volume and smaller hippocampus regions (Kowalik, 2004). Abnormalities in event-related potentials and sensory processing have also been noted (Kowalik, 2004).

These biological stress reactions lead to a cascading sequence of events that further disrupt motor, emotional, behavioral, language, social, psychosexual, moral, and cognitive skill development (Cicchetti, 2004; Cicchetti & Toth, 2005). These disruptions in turn lead to poor coping skill, problematic self-regulation of behavior, poor attachment to caregivers, wide-ranging psychological problems, and devastating long-term effects. Studies of biological stress reactions in maltreated children and adolescents do not distinguish maltreatment type. Biological stress reactions instigated by maltreatment may not differ across maltreatment or trauma type. In addition, biological differences according to maltreatment type may be more apparent in childhood but less so among adolescents following an extensive abuse history. Long-term psychological outcomes such as PTSD, depression, and dissociation may thus not differ across maltreatment type.

Gender and PTSD-related symptoms

The third hypothesis included the prediction that female identity would be associated with more severe trauma-related symptoms than male identity. This prediction was tested via independent samples t-tests. Findings strongly supported this hypothesis. Female participants displayed significantly higher mean scores on CPTSD-I Situational Reactivity, CPTSD-I Reexperiencing, CPTSD-I Avoidance/Numbing, CPTSD-I Increased Arousal, CPTSD-I Total Score, A-DES Dissociative Amnesia, A-DES

Depersonalization/Derealization, A-DES Dissociated Relatedness, A-DES Total Score, CDI Negative Mood, CDI Anhedonia, CDI Negative Self-Esteem, and CDI Total Score. Mean scores on CPTSD-I Significant Distress, A-DES Absorption/Imaginative Involvement, and A-DES Passive Influence showed a trend toward significant difference with female participants reporting more PTSD-related symptomatology than males. No significant differences were found in mean CDI Interpersonal Problems or CDI Ineffectiveness scores for males and females.

These results lend further support to previous research with this population. General studies of PTSD in adults (Keane et al., 2006; Kessler et al., 1996; Kessler et al., 2005) reveal gender differences in frequency and severity of PTSD symptoms such that women are more likely to be diagnosed with PTSD and to report more severe PTSD symptoms than their male counterparts. Kessler and colleagues (2005) reported prevalence rates within a representative national sample of 10.4% for adult women and 5.0% for adult men. Some investigators have suggested that gender differences are a function of different trauma types (Kessler et al., 1996). These gender differences remain even in studies controlling for differences in exposure types (Keane et al., 2006).

General studies of PTSD in children and adolescents (Kilpatrick et al., 2003) also reveal gender differences in frequency and severity of PTSD symptoms. Linning and Kearney (2004) found maltreated youth more likely to be diagnosed with PTSD if they were female. Lonigan and colleagues (2003) hypothesized that girls may be exposed to more interpersonally traumatic events such as rape, sexual assault, and sexual maltreatment than boys. Within the current study, all youths experienced some form of interpersonally traumatic event in the form of maltreatment, yet the gender differences

remain. The gender difference may potentially be explained by Lonigan's hypothesis that girls experience greater PTSD symptoms following a single severe trauma, but boys may not meet full criteria until exposed to numerous episodes of violence or disaster-related trauma (Lonigan et al., 2003).

Gender differences in the A-DES and A-DES subscales lend support to previous studies of dissociation among maltreated children and adolescents (Putnam, 1996; Silberg, 2000). Gender differences in the CDI and CDI subscales support previous findings regarding depression in adolescents (Brown, 1999; Costello, Erkanli, & Angold, 2006; Kilpatrick et al., 2003; Silverman, 1996). However, many previous studies indicate that the gender difference may partly relate to higher frequency of interpersonal violence experienced by females (Kilpatrick et al., 2003). This study relied solely on maltreated adolescents who experienced interpersonal violence. The gender difference may thus reflect a genuine difference between female and male symptom expression.

Family Environment and PTSD-related Symptoms

The third hypothesis included the prediction that specific family environment factors such as expressiveness, cohesion, control, conflict, and independence would be ssociated with varying degrees of trauma-related symptomatology. High levels of control and conflict were expected to be associated with more severe trauma-related symptomatology, while higher levels of expressiveness, cohesion, and independence were expected to be associated with lower levels of trauma-related symptomatology. Pearson product-moment correlations were calculated for PTSD symptomatology and family environment factors measured by the FES. A moderate positive correlation was found between PTSD symptomatology and family conflict. A moderate negative

correlation was found between PTSD symptomatology and family cohesion. In addition, moderate negative correlations were found between family organization, active-recreational orientation, and intellectual-cultural orientation.

These findings partially support the hypothesis and lend support to previous studies and theories regarding the role of family factors in child development outcomes. The Ecological Systems Theory outlined by Bronfenbrenner (1979, 1980; Freisthler, Merritt, & LaScala, 2006) highlights the influence of the immediate family environment on child development. More contemporary work with maltreated youth supports Bronfenbrenner's theory (Cicchetti, 2004; Cicchetti & Toth, 2005; Pfefferbaum, 2005; Zielinski & Bradshaw, 2006). A host of discrete family factors have been identified as contributing to child outcomes following trauma. Factors include socioeconomic status (Zielinski & Bradshaw, 2006), disciplinary style (Westby, 2007) intergenerational abuse history (Belsky, 1994), parental substance abuse (Chaffin, Kelleher, & Hollenberg, 1996; Ondersma, 2002; Zielinski & Bradshaw, 2006), parental psychopathology (Belsky, 1994; Chaffin et al., 1996; Famularo et al., 1994), and family cohesion (Fletcher, 1996, 2003). Many discrete family and parental factors could not be reliably identified within the scope of this study. Instead the more unified constructs identified by the Family Environment Scale were used. This study appears to be among the first to provide empirical support for the theory that the unified constructs of family cohesion and family organization relate to more positive outcomes while family conflict relates to more negative outcomes in maltreated youth.

This study also identified dimensions of Personal Growth from the FES that appear to be associated with more positive outcomes. These dimensions, active-recreational

orientation and intellectual-cultural orientation, may reflect a level of social interaction and support. Items on these subscales tap into aspects of personal growth as well as involvement in community and social events outside of home and school settings (Moos & Moos, 1986). The correlation between higher scores on these subscales and lower PTSD symptom severity may provide evidence for the positive influence of social supports within the greater community hypothesized by Bronfenbrenner (1979 & 1980) and others (Belsky, 1994; Cicchetti, 2004; Cicchetti & Toth, 2005; Freisthler, Merritt, & LaScala, 2006; Westby, 2007; Zielinski & Bradshaw, 2006).

Social support outside the home has long been identified as a potential protective factor that can help buffer children's negative responses to adverse circumstances (Demaray & Malecki, 2003; Malecki & Demaray, 2002; Demaray & Elliott, 2001; Malecki, Demaray, Elliott, & Nolten, 1999). Research has shown that social support may buffer the onset of anxiety (Demaray & Malecki, 2002; White, Bruce, Farrell, & Kliewer, 1998) and depression (Demaray & Malecki, 2002; Ostrander, Weinfurt, & Nay, 1998) in children and adolescents exposed to other risk factors. According to one theoretical model, social support may potentially benefit all children and adolescents by improving their overall psychological state, thus reducing psychological problems (Cohen, Gottlieb, & Underwood, 2001; Cohen, Underwood, & Gottlieb, 2000).

Clinical Implications

The present study has direct relevance for assessment, intervention, and future research in the area of maltreated youth. This study is among the first to demonstrate the traumatic effects of neglect in maltreated youth. As a result, researchers and clinicians should be more aware of the damaging and traumatic effects of neglect in maltreated

children. This study disproves the misconception that neglect is a benign form of maltreatment (McSherry, 2007; Wolock & Horowitz, 1994). The traumatic experiences reported by neglected adolescents are similar to those reported by other maltreated adolescents. Neglected youth are as likely to develop PTSD, depression, and dissociation symptoms as their physically, sexually, and otherwise abused peers. Youth removed from the home due to neglect could possibly receive the same psychological assessment, intervention, and monitoring given to sexually, physically, and otherwise maltreated peers. Simply removing an adolescent from a negligent home and placing her in foster care may be insufficient. Clinicians working with maltreated youth should routinely assess for trauma history, regardless of maltreatment history. Specific interventions should address previous trauma and PTSD-related symptoms.

This study also highlights the relationship between gender and PTSD-related symptoms in maltreated youth. Maltreated adolescent girls exhibited more PTSD, depression, and dissociative symptoms than maltreated adolescent boys. These findings support the idea that girls are at greater risk for PTSD-related symptoms than boys (Kilpatrick et al., 2003; Lonigan et al., 2003). The gender difference is unlikely a result of differences in trauma exposure because both male and female youth experienced interpersonal violence and trauma from maltreatment. Researchers should examine the different symptom presentation in adolescent girls and boys further. Researchers should also consider possible reasons for, and clinical implications of, these differences. Clinicians and case workers should be aware that maltreated girls are likely to endorse more PTSD-related symptoms than maltreated boys. However, the assumption that males suffer less distress following maltreatment should be avoided. Girls may be more willing

to discuss trauma history, reveal emotions and cognitions, and endorse psychological discomfort than boys. Girls may also be better able to identify and verbalize their experiences than boys. Boys may be more likely to exhibit externalizing symptoms such as anger and aggression. Thorough clinical assessment of each adolescent can help determine the severity of trauma-related symptoms and appropriate intervention.

Family factors such as cohesion and conflict should also be carefully considered by researchers and clinicians interested in child maltreatment. Findings from this study indicate that higher levels of family cohesion, regardless of individual parental and family factors, correlate with lower levels of PTSD symptomatology in maltreated youth. Similarly, higher levels of family conflict correlate with higher levels of PTSD symptomatology in maltreated youth. These results lend further credence to previous theories and data regarding the role of family factors in youth resilience (Bronfenbrenner, 1979; 1980; Belsky, 1994; Chaffin et al., 1996; Cicchetti, 2004; Cicchetti & Toth, 2005; Fletcher, 1996; 2003; Freisthler et al., 2006; Ondersma, 2002; Pfefferbaum, 2005; Westby, 2007; Zielinski & Bradshaw, 2006). From a clinical standpoint, an adolescent who experiences maltreatment within a cohesive family may be at substantially less risk than an adolescent who experiences maltreatment within a conflictive family. A careful consideration of family factors should inform decisions about removing an adolescent from the home or reunifying an adolescent with her family. In addition, knowing level of conflict or cohesion within a family may help clinicians provide effective individual and family therapy. Family therapy to reduce conflict and increase cohesion may be an important factor in family reunification plans and family and adolescent outcomes.

Previous levels of family conflict and cohesion may also help clinicians and researchers predict adolescent outcomes following maltreatment.

An incidental finding of this study highlights the importance of social support in adolescent resilience. Maltreated adolescents who endorsed more active-recreational orientation items and more intellectual-cultural orientation items on the FES exhibited lower levels of PTSD symptomatology. These adolescents appear to have more social connections and supports outside of the home than their peers. These findings are well supported in previous research (Demaray & Malecki, 2003; Malecki & Demaray, 2002; Demaray & Elliott, 2001; Malecki et al., 1999). Assessments of maltreated youth could include a measure of social support in the community. Interventions with maltreated youth should include plans to maintain or increase social support and involvement within the youth's community.

Conclusions and Recommendations for Further Study

The findings of this study should be considered with caution due to various limitations. This study relied on a relatively small sample size, particularly within the maltreatment only group. This limitation was particularly relevant when conducting multivariate analysis of variance (Tabachnick & Fidell, 2007) and moderational analyses (Aguinis, 2004). Small sample size and unequal groups can impact the power of a moderational analysis using categorical variables and lead to lower effect sizes or failure to detect relationships (Aguinis, 2004). The findings of this study may have been hampered by a low number of participants.

This study also relied on DFS records and adolescent self-reports to determine maltreatment history. DFS reports may have been incomplete for some adolescents due to

problems with electronic records, incomplete paper charts, and complications related to ongoing child maltreatment investigations. Adolescent self-reports may have been incomplete due to a failure to remember or articulate a complete maltreatment history. Despite best possible methods, the findings of this study may have been limited with respect to the accuracy of maltreatment history classification.

The findings of this study should also be considered with caution because the sample involved shelter-based participants. Maltreated adolescents within this sample experienced a level of abuse sufficiently significant to be removed from the home and placed in foster care by Child Protective Services. Youth who experience less severe maltreatment remained in the home or were placed in the care of other family members or fictive kin. Such youth may have experienced different levels of PTSD-related symptoms but were not available for this study.

Certain results from this study indicate that biological stress reactions may play a key role in the development of PTSD and PTSD-related symptoms among maltreated youths. However, measures of biological stress reactions were beyond the scope of this study. This study was also limited by dependence on the child self-report version of Family Environment Scale (FES) to assess family factors and social support. This instrument did not capture individual parent and family factors previously identified in the maltreatment literature such as parental psychopathology, intergenerational abuse, disciplinary style, socioeconomic status, and others. Instead, the FES generated general constructs related to family factors, thus potentially limiting the study findings. The FES also does not measure social support directly.

Future research should attempt to address these limitations. Researchers could obtain parental reports on symptoms or behaviors of adolescents as well as information on specific family factors. Reports from foster parents, group home administrators, or case managers could also be obtained to supplement information on adolescent behaviors and symptoms. Unfortunately, a limitation of this study concerns reliance on adolescent self-report, which may not be fully valid or reliable. Use of parent or foster parent reports may strengthen the validity and reliability of symptom reports in future studies. Additionally, a measure of social support may be useful.

Not all maltreated youth develop psychopathology. However, all types of maltreatment, even neglect, may lead to development of PTSD and PTSD-related symptoms in some adolescents. The next important step is to better identify and understand specific risk and resiliency factors in adolescents. Understanding these risk and resiliency factors can translate into better clinical assessment and intervention following maltreatment.

APPENDIX I

DEMOGRAPHIC/INFORMATION SHEET FOR CHILDREN

Information Sheet-C

Please fill this sheet out completely. The information you provide will be given a number so you name will not be on any papers you fill out. Please feel free to skip an item if you don't feel comfortable answering, but please try to honestly answer all questions the best you can.

1. Your ID#: _____

2. Your age: _____ 3. Are you: (circle one) Male Female

4. Your Race: (circle one)

Asian African-American Caucasian Hispanic Multiracial Native American

Other_____

5. Place of birth (state, and country): _____

5a. If you were not born in the United States, what country were you born in?

_____

6. Biological mother's race/ethnicity_____

7. Biological mother's place of birth: _____

8. Biological father's race/ethnicity_____

9. Biological father's place of birth: _____

10. Did mother/guardian graduate from high school? Yes No

How many years did mother/guardian go to college or trade school after high school?

_____

11. Did father/guardian graduate from high school? Yes No

How many years did father/guardian go to college or trade school after high school?

_____

12. What kind of work does mother/guardian do?

_____

13. What kind of work does father/guardian do?

_____

14. How many brothers and sisters do you have? _____

15. Are your parents/guardians married now? (circle one)

married never married separated divorced

16. If your parents/guardians are separated or divorced, who has custody of you? (circle one)

joint custody (both parents) mother has custody father has custody

17. Have you ever used alcohol or drugs? Yes No

18. Does your family participate in religion on a regular basis? Yes No

19. Are you religious? Yes No

20. Is English the first language you learned? Yes No

20a. If English is not the first language you learned, what language did you first learn?_____

21. Please list all the languages you are fluent in (e.g., English, Spanish, etc.)_____

22. What language do you primarily speak in your home?_____

THANK YOU

APPENDIX II

DEBRIEFING SCRIPT

Debriefing Script Outline for Adolescent Research Participants

(1) Participant perception of and understanding of research
(A) "Today you answered many questions relating to your past experiences, thoughts, behaviors, and feelings. Do you have any questions or comments about any of the questions we asked you or any of the forms you filled out?"

(B) "Sometimes after young people talk about bad things that happened to them they feel sad, angry, or upset. However, every person feels differently when talking about bad things that happened to them. How did you feel while answering these questions?"

(2) Description of study and offer to participate in brief treatment session
(A) "The main goal of this study is to learn how young people feel when bad things happen, and how they cope with their feelings. Often, after young people experience bad things they feel sad, lonely, angry, or upset. We are also interested in learning how to help young people and families feel better after bad things happen. Concerning this, we would like to talk to you more about your feelings surrounding your bad experience and try to help you cope with these feelings. Would you like to learn more about how to cope with any feelings you have surrounding your bad experience?"

(B) "In about one-week, we will hold a brief treatment session to teach you tools to use when you feel upset, sad, or angry. Many young people are helped by these sessions and report they feel better afterwards. Would you like to participate in this session?"

(3) Assess and ensure participant's current state of well-being
(A) Assess participant's current mental state. If participant admits to or appears to be uncomfortable or upset offer to meet with participant at a later date or offer to facilitate a meeting with child's social worker, therapist/counselor, or a trusted staff member. Lastly, ask the child "Do you have any more questions about the study?"

APPENDIX III

IRB APPROVAL

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

Social/Behavioral IRB – Full Board Review Approval Notice

NOTICE TO ALL RESEARCHERS:

Please be aware that a protocol violation (e.g., failure to submit a modification for any change) of an IRB approved protocol may result in mandatory remedial education, additional audits, re-consenting subjects, researcher probation suspension of any research protocol at issue, suspension of additional existing research protocols, invalidation of all research conducted under the research protocol at issue, and further appropriate consequences as determined by the IRB and the Institutional Officer.

DATE: June 6, 2008

TO: **Dr. Christopher Kearney**, Psychology

FROM: Office for the Protection of Research Subjects

RE: Notification of IRB Action
Protocol Title: **Child Neglect and Trauma: The Additive Traumatic Effects of Neglect on Maltreated Adolescents**
Protocol #: 0801-2586

This memorandum is notification that the project referenced above has been reviewed by the UNLV Social/Behavioral Institutional Review Board (IRB) as indicated in Federal regulatory statutes 45CFR46. The protocol has been reviewed and approved.

The protocol is approved for a period of one year from the date of IRB approval. The expiration date of this protocol is February 6, 2009. Work on the project may begin as soon as you receive written notification from the Office for the Protection of Research Subjects (OPRS).

PLEASE NOTE:
Attached to this approval notice is the **official Informed Consent/Assent (IC/IA) Form** for this study. The IC/IA contains an official approval stamp. Only copies of this official IC/IA form may be used when obtaining consent. Please keep the original for your records.

Should there be *any* change to the protocol, it will be necessary to submit a **Modification Form** through OPRS. No changes may be made to the existing protocol until modifications have been approved by the IRB.

Should the use of human subjects described in this protocol continue beyond February 6, 2009, it would be necessary to submit a **Continuing Review Request Form** *60 days* before the expiration date.

If you have questions or require any assistance, please contact the Office for the Protection of Research Subjects at OPRSHumanSubjects@unlv.edu or call 895-2794.

Office for the Protection of Research Subjects
4505 Maryland Parkway • Box 451047 • Las Vegas, Nevada 89154-1047
(702) 895-2794 • FAX: (702) 895-0805

APPENDIX IV

TABLES

Table 2

Maltreatment History of Participants by Gender

Maltreatment History	Female	Male	Male to Female Transgender	*N*
Neglect	13	15	1	29
Maltreatment	13	4	0	17
Neglect and Maltreatment	10	11	0	21
N	36	30	1	67

Table 3

Participants Self-Report of Experience of Trauma by Maltreatment History

Type of Trauma	Neglect Alone	Maltreatment Without Neglect	Neglect With Other Maltreatment
Been in a bad accident or fire			
Female	1	1	0
Male	0	0	0
Transgender	0	0	0
Death of loved one			
Female	2	0	0
Male	1	0	1
Transgender	0	0	0
Homelessness			
Female	4	0	1
Male	2	0	1
Transgender	0	0	0
Removal from home			
Female	3	3	1
Male	0	0	2
Transgender	0	0	0
Sexual abuse			
Female	5	8	8
Male	0	1	5
Transgender	1	0	0
Sexual violation			
Female	2	5	2
Male	0	0	1
Transgender	0	0	0

Physical abuse			
Female	4	7	8
Male	2	4	6
Transgender	1	0	0
Other trauma			
Female	3	2	4
Male	3	0	2
Transgender	0	0	0
Victim of other serious violence			
Female	1	1	4
Male	3	1	3
Transgender	0	0	0
Witness domestic violence			
Female	5	3	5
Male	6	1	3
Transgender	1	0	0
Witness neighborhood violence			
Female	5	1	6
Male	13	2	6
Transgender	1	0	0
Witnessing someone die or badly hurt			
Female	1	0	3
Male	0	0	0
Transgender	0	0	0

Note. Many participants reported more than one trauma event. These categories are not discrete. Within the Neglect Alone group, reported traumas were inflicted by non-family members.

Table 4

Rates of PTSD According to the CPTSD-I Scores by Maltreatment History

	Sub-Clinical/Clinical PTSD score	Non-clinical PTSD score
Neglect	26	3
Maltreatment	16	1
Neglect and Maltreatment	21	0
N	63	4

Table 5

Dependent Variables of PTSD Related Symptoms

CPTSD-I	A-DES	CDI
CPTSD-I Total Score	A-DES Total Score	CDI Total Score
CPTSD-I A Situational Reactivity	A-DES A Dissociative Amnesia	CDI A Negative Mood
CPTSD-I B Reexperiencing	A-DES B Absorption/ Imaginative Involvement	CDI B Interpersonal Problems
CPTSD-I C Avoidance/Numbing	A-DES C Passive Influence	CDI C Ineffectiveness
CPTSD-I D Increased Arousal	A-DES D Depersonalization/ Derealization	CDI D Anhedonia
CPTSD-I E Significant Distress		CDI E Negative Self-Esteem

Table 6

Reports of Symptoms by Maltreatment History

Ethnicity/Race	CPTSD-I Total	CDI Total	A-DES Total
Neglect			
M	5.07	10.00	56.69
SD	1.16	8.69	44.87
Maltreatment			
M	5.47	15.24	85.41
SD	.94	10.33	71.69
Neglect and Maltreatment			
M	5.57	14.71	86.81
SD	.68	8.62	55.77

Note. Numbers reported are means for each group

Table 7

Reports of CPTSD-I Symptoms by Maltreatment History

Maltreatment History	CPTSD-I A2	CPTSD-I B	CPTSD-I C	CPTSD-I D	CPTSD-I E
Neglect					
Mean	2.83	2.48	3.25	2.57	1.82
SD	1.23	1.60	1.65	1.60	1.19
Maltreatment					
Mean	3.00	3.00	4.12	3.18	2.65
SD	.87	1.94	2.23	1.55	1.22
Neglect and Maltreatment					
Mean	2.95	2.65	3.80	2.25	2.48
SD	.87	1.53	1.67	1.52	1.40

Note. CPTSD-I A2 = Situational Reactivity, CPTSD-I B = Reexperiencing, CPTSD-I C = Avoidance/Numbing, CPTSD-I D = Increased Arousal, CPTSD-I E = Significant Distress.

Table 8

Reports of CDI Symptoms by Maltreatment History

Maltreatment History	CDI A	CDI B	CDI C	CDI D	CDI E
Neglect					
Mean	2.34	.86	2.14	3.31	1.34
SD	2.77	1.16	1.79	3.01	1.99
Maltreatment					
Mean	4.29	1.41	1.71	5.76	2.06
SD	3.31	1.42	1.36	3.33	2.75
Neglect and Maltreatment					
Mean	3.95	1.52	1.95	5.38	1.90
SD	3.34	1.99	1.75	3.29	1.58

Note. CDI A = Negative Mood, CDI B = Interpersonal Problems, CDI C = Ineffectiveness, CDI D = Anhedonia, CDI E = Negative Self-Esteem.

Table 9

Reports of A-DES Symptoms by Maltreatment History

Maltreatment History	A-DES A	A-DES B	A-DES C	A-DES D
Neglect				
Mean	13.07	15.07	11.41	17.48
SD	12.62	12.78	9.72	16.53
Maltreatment				
Mean	18.12	15.82	13.88	37.53
SD	19.352	13.86	12.99	29.26
Neglect and Maltreatment				
Mean	19.38	17.71	14.14	35.57
SD	12.77	13.80	9.87	27.26

Note. A-DES A = Dissociative Amnesia, A-DES B = Absorption/Imaginative Involvement, A-DES C = Passive Influence, A-DES D = Depersonalization/Derealization.

Table 10

PTSD-Related Symptom Means by Neglect History

PTSD-Related Symtpoms	Neglect	No Neglect	*t*	*df*
CPTSD-I Total Score	5.07	5.47	-1.21	44
	(1.16)	(.94)		
CPTSD-I A Situational Reactivity	2.83	3.06	-.69	44
	(1.23)	(.83)		
CPTSD-I B Reexperiencing	2.38	2.94	-1.12	44
	(1.50)	(1.89)		
CPTSD-I C Avoidance/Numbing	3.03	4.00	-1.66	44
	(1.72)	(2.18)		
CPTSD-I D Increased Arousal	2.48	3.12	-1.28	44
	(1.62)	(1.65)		
CPTSD-I E Significant Distress	1.69	2.65	-2.52*	44
	(1.26)	(1.22)		
A-DES Total Score	56.69	85.41	-1.68	44
	(44.87)	(71.69)		
A-DES A Dissociative Amnesia	13.07	18.12	-1.07	44
	(12.62)	(19.35)		
A-DES B Absorption/ Imaginative Involvement	15.07	15.82	-.19	44
	(12.78)	(13.86)		
A-DES C Passive Influence	11.41	13.88	-.73	44
	(9.71)	(13.00)		
A-DES D Depersonalization/ Derealization	17.48	37.53	-2.98**	44
	(16.53)	(29.26)		
CDI Total Score	10.00	15.24	-1.84	44
	(8.69)	(10.33)		
CDI A Negative Mood	2.34	4.29	-2.14*	44

	(2.77)	(3.31)		
CDI B Interpersonal Problems	.86	1.41	-1.43	44
	(1.16)	(1.42)		
CDI C Ineffectiveness	2.14	1.71	.86	44
	(1.79)	(1.36)		
CDI D Anhedonia	3.31	5.76	-2.57*	44
	(3.01)	(3.33)		
CDI E Negative Self-Esteem	1.34	2.06	-1.02	44
	(1.99)	(2.75)		

Note. * = $p < .05$, ** = $p < .01$. Standard Deviations appear in parentheses below means.

Table 11

Correlations among PTSD Symptomatology and Related Symptoms

Related Symptoms	Correlation with PTSD Symptomatology
A-DES Total Score	.42*
A-DES A Dissociative Amnesia	.32*
A-DES B Absorption/Imaginative Involvement	.33*
A-DES C Passive Influence	.32*
A-DES D Depersonalization/Derealization	.45*
CDI Total Score	.51*
CDI A Negative Mood	.46*
CDI B Interpersonal Problems	.25**
CDI C Ineffectiveness	.20
CDI D Anhedonia	.57*
CDI E Negative Self-Esteem	.36*

Note. * = Correlation is significant at the 0.01 level (2-tailed). ** = Correlation is significant at the 0.05 level (2-tailed).

Table 12

PTSD-Related Symptom Means by Gender

PTSD-Related Symtpoms	Female	Male	*t*	*df*
CPTSD-I Total Score	5.69	4.93	3.24**	64
	(.71)	(1.11)		
CPTSD-I A Situational Reactivity	3.25	2.53	2.87**	64
	(.73)	(1.20)		
CPTSD-I B Reexperiencing	3.11	2.07	2.73**	64
	(1.49)	(1.62)		
CPTSD-I C Avoidance/Numbing	3.94	3.03	2.03*	64
	(1.82)	(1.81)		
CPTSD-I D Increased Arousal	3.14	2.00	3.11**	64
	(1.48)	(1.49)		
CPTSD-I E Significant Distress	2.44	1.90	1.65	64
	(1.13)	(1.54)		
A-DES Total Score	88.03	56.90	2.36*	64
	(65.71)	(40.36)		
A-DES A Dissociative Amnesia	19.83	12.43	2.16*	64
	(16.94)	(10.58)		
A-DES B Absorption/ Imaginative Involvement	17.94	13.63	1.32	64
	(14.40)	(11.65)		
A-DES C Passive Influence	14.75	11.10	1.46	64
	(11.98)	(8.29)		
A-DES D Depersonalization/ Derealization	35.47	20.07	2.65**	64
	(28.05)	(19.03)		
CDI Total Score	16.67	8.47	4.05***	64
	(9.44)	(6.98)		
CDI A Negative Mood	4.56	1.90	4.17***	64

	(3.05)	(2.11)		
CDI B Interpersonal Problems	1.42	1.00	1.10	64
	(1.46)	(1.62)		
CDI C Ineffectiveness	2.25	1.67	1.43	64
	(1.63)	(1.69)		
CDI D Anhedonia	5.94	3.10	3.83***	64
	(3.14)	(3.00)		
CDI E Negative Self-Esteem	2.50	0.80	3.80***	64
	(2.43)	(1.03)		

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$. Standard Deviations appear in parentheses below means.

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