Ethnic differences among maltreated youths with respect to posttraumatic stress disorder and related symptoms

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ETHNIC DIFFERENCES AMONG MALTREATED YOUTHS
WITH RESPECT TO POSTTRAUMATIC STRESS DISORDER
AND RELATED SYMPTOMS

by

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2002

A thesis submitted in partial fulfillment
of the requirements for the

Master of Arts Degree in Psychology
Department of Psychology
College of Liberal Arts

Graduate College
University of Nevada, Las Vegas
May 2005
Thesis Approval
The Graduate College
University of Nevada, Las Vegas

April 22, 2005

The Thesis prepared by

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Entitled

Ethnic Differences Among Maltreated Youths with Respect to
Posttraumatic Stress Disorder and Related Symptoms

is approved in partial fulfillment of the requirements for the degree of

Masters of Arts Degree in Psychology

Examination Committee Chair

Dean of the Graduate College
ABSTRACT

Ethnic Differences Among Maltreated Youths With Respect to Posttraumatic Stress Disorder And Related Symptoms

by

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Symptoms associated with the development and maintenance of Posttraumatic Stress Disorder (PTSD) were examined in a diverse group of maltreated adolescents. The first hypothesis was that levels of PTSD symptomatology, depression, dissociation, anger, and maladaptive cognitions were expected to significantly differ among African-American, Caucasian, Hispanic, and Multiracial adolescents. The second hypothesis was that ethnicity was expected to significantly moderate a relationship between (1) severity of PTSD as measured by symptomatology, and (2) the expression of related symptoms (i.e., depression, dissociation, anger, and maladaptive cognitions). Regarding hypothesis one, African-Americans reported less depressive symptoms overall than other ethnic groups, with Caucasians and Hispanics appearing fairly similar, and Multiracial individuals reporting the most symptoms. African-American and Multiracial ethnic statuses were moderators in the relationship between PTSD and depression. Assessment and clinical recommendations pertaining to trauma in diverse youths were provided.
# TABLE OF CONTENTS

ABSTRACT............................................................................................................................. iii

LIST OF TABLES.................................................................................................................. vi

ACKNOWLEDGMENTS ..................................................................................................... vii

CHAPTER 1 INTRODUCTION............................................................................................. 1
  Child Maltreatment ........................................................................................................... 1
  Effects of Child Maltreatment ......................................................................................... 6
  Posttraumatic Stress Disorder ........................................................................................ 11
  Acute Stress Disorder ...................................................................................................... 16

CHAPTER 2 LITERATURE REVIEW ..................................................................................... 19
  Posttraumatic Stress Disorder and Child Maltreatment................................................. 19
  Theoretical Models of Posttraumatic Stress Disorder..................................................... 20
  Associations between Cognitions and PTSD ................................................................. 29
  Anger, Child Maltreatment, and PTSD ........................................................................ 31
  Dissociation, Child Maltreatment, and PTSD ............................................................... 39
  Depression, Child Maltreatment, and PTSD .................................................................... 46
  Culture, Child Maltreatment, and PTSD ....................................................................... 50
  Summary of Symptom Expressions in Response to Child Maltreatment ................. 62
  Purpose of Study ............................................................................................................ 62
  Hypotheses ..................................................................................................................... 63

CHAPTER 3 METHODOLOGY ............................................................................................ 65
  Participants ....................................................................................................................... 65
  Measures ......................................................................................................................... 67
  Procedure ......................................................................................................................... 75

CHAPTER 4 DATA ANALYSIS ........................................................................................... 77
  General Comparisons ..................................................................................................... 77
  Hypothesis One ............................................................................................................... 79
  Hypothesis Two ............................................................................................................... 82
  Post Hoc Analyses ......................................................................................................... 87

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS ................................................ 106
  Discussion of Results ................................................................................................... 106
  Clinical Implications .................................................................................................... 114
  Conclusions and Recommendations for Further Study ............................................. 118
LIST OF TABLES

Table 1  Ethnicity and Race of Participants by Gender .................................................. 121
Table 2  Participants Exposure to Crime or Violence ................................................... 121
Table 3  Participants Self-Report of Experience of Trauma .......................................... 122
Table 4  Rates of Posttraumatic Stress Disorder According to the CPTSD-I Scores, by Gender and Ethnicity/Race ............................................................... 122
Table 5  Types of Maltreatment by Ethnicity and Race .................................................. 123
Table 6  Reports of CDI Symptoms by Ethnicity and Race ........................................... 124
Table 7  Reports of Symptoms by Ethnicity and Race ................................................... 125
Table 8  Correlations among PTSD Symptomatology and Related Symptoms .......... 126
Table 9  Significant Moderational Findings for PTSD Symptoms in African-American Participants ............................................................................................................. 127
Table 10 Significant Moderational Findings for PTSD Symptoms in Multiracial Participants ...................................................................................................................... 128
Table 11 Significant Moderational Findings for PTSD Symptoms and CDI Items ..... 129
ACKNOWLEDGMENTS

I would like to express gratitude to my committee chair and mentor, Dr. Chris Kearney who helped me immensely with this thesis study as well as being a valuable source of support in my personal and professional growth. I would also like to thank my committee members Drs. Floyd, Gottschalk, and Kern for their valuable feedback. My colleague, Lisa Linning spent countless hours helping me with data collection, and deserves my greatest appreciation. My husband, Nick deserves full recognition as he has fully supported me in my educational pursuits and been extremely patient and understanding in this arena. My parents, Tony and Linda have also provided me with unwavering motivation and strength as I pursue my educational and personal goals. Lastly, I would like to thank the administrators, staff, and especially the youths at Child Haven. Without the cooperation and strength demonstrated by the youths at Child Haven, this manuscript would not have been possible.
CHAPTER 1

INTRODUCTION

*Child Maltreatment*

*Child Maltreatment: Introduction and Definitions*

Clinical child psychology is primarily concerned with the safety and well-being of children. This is so because children cannot fully demand their rights when their needs are not being met and because they are more vulnerable to harm than adults (Hart, 1991; Kazdin, 1989). Researchers who track societal and legal attitudes on child protective matters note that perspectives have evolved from a focus on parental rights to prioritizing children’s rights to be safe (Azar & Olsen, 2004). Maltreatment was not recognized as a social problem until the 1960s when Henry Kempe’s introduction of the *Battered child syndrome* acknowledged the physician practice of traditionally ignoring evidence of abuse (Kempe et al., 1962).

The lack of social understanding of child maltreatment as a major issue was evidenced by Kempe’s vast underestimate of child physical abuse in the United States, which he guessed at less than 1,000 (Kempe et al., 1962). In the mid 1970s, the United States government began to more realistically address the issue of child maltreatment.

The year of 1974 marked the landmark congressional passage of the Child Abuse Prevention and Treatment Act as well as formation of the National Center on Child Abuse and Neglect (Kalichman, 1993). This law provided for and encouraged
maltreatment research and focused on the national and local government’s role in protecting youths from maltreatment.

With government funding, researchers became more aware of the serious nature and frequency of child maltreatment in the United States, including psychological effects. In the 1980s, the first national studies were conducted to determine the frequency of child maltreatment, and 1.4 million children in 1986 and 2.8 million children in 1993 were reportedly abused and neglected (Sedlak & Broadhurst, 1996; U.S. Advisory Board on Child Abuse and Neglect, 1990, 1993). Results from these initial incident studies resulted in a general acknowledgement that child maltreatment was a grave and huge concern, leading some to consider it a national emergency (Wolfe, 1999).

Congress implemented the Child Abuse, Prevention, and Family Services Act of 1988 which, in addition to expanding upon the 1974 law, committed more funding and focused on legislative efforts concerning child maltreatment (Child Abuse Prevention, Adoption, and Family Services Act of 1988, Pub. L.). States were encouraged to drop qualifiers such as “serious abuse” in definitions, which led to numerous expansions and revisions of state reporting laws (Kalichman, 1993). As such, all states specifically place psychologists under those required to report suspicion or knowledge of abuse (Kalichman, 1993). With the 1988 law and increasing funds for child maltreatment research, psychologists also became more involved in efforts to learn more about the effects of child maltreatment.

Each situation of child maltreatment varies, which creates difficulties in definition (Korbin, 1994; Wolfe, 1999). However, the Child Abuse Prevention and Treatment Act

*The physical or mental injury, sexual abuse or exploitation, negligent treatment, or maltreatment of a child under the age of 18, or the age specified by the child protection law of the State in question, by a person (including any employee of a residential facility or any staff person providing out-of-home care) who is responsible for the child's welfare under circumstances which indicate that the child's health or welfare is harmed or threatened thereby, as determined in regulations prescribed by the Secretary.*

This was supplemented by the Child Abuse Prevention, Adoption, and Family Services Act of 1988, which stated that any acts of maltreatment had to be avoided and be nonaccidental. This general criterion of child maltreatment represents the basis for guidelines for specific definitions of child maltreatment across states. However, state laws keep definitions of physical abuse broad so as to not intrude on parental rights to discipline or offend cultural differences in child rearing (Kalichman, 1993; Korbin, 1991).

Four subtypes of child maltreatment are generally recognized: neglect, and physical, sexual, and emotional maltreatment (Wolfe, 1999). Physical maltreatment typically involves harming a child through physical injury, including acts such as kicking, burning, shaking, biting, beating, or punching. Neglect is implied when a caregiver does not adequately meet a child's educational, physical, or emotional needs or allows a child to function without supervision or care. Sexual maltreatment involves any sexual exploitation of a child and includes one or a combination of sexual acts such as touching genitals, incest, or rape. Emotional maltreatment, as defined by McGee and Wolfe (1991), is any act by a caregiver involving intense and inappropriate verbal abuse or
punishments that do not necessarily physically harm but could result in extreme behavioral, emotional, or mental dysfunction.

*Maltreatment: Prevalence*

The National Clearinghouse on Child Abuse and Neglect reported that 896,000 youths experienced child abuse and/or neglect in 2002 (National Clearinghouse on Child Abuse and Neglect, 2004). From these statistics, child neglect comprised over 60% of incidents. Regarding other types of maltreatment, physical maltreatment consisted of approximately 19% of cases, sexual maltreatment 10%, emotional maltreatment 7%, and 19% of cases represented “other” categories of maltreatment. Many of the cases reported involved more than one type of maltreatment. The 2004 statistics represented only reported cases of child maltreatment and as in previous years are likely an underestimate of actual incidents occurring in the United States (Straus & Kantor, 1994).

*Gender differences in prevalence.* Although sources differ in rates, the Administration for Children and Families reported that, in 2002, child maltreatment affected boys and girls almost equally, as 48% of victims were male and 52% female (NCANDS; McDonald & Associates, American Humane; 2004). This gender distribution may not apply to all types of maltreatment, as sexual maltreatment victims are more often female than male (Finkelhor, 1990; Kercher & McShane, 1984). Finkelhor and Baron (1986) reported the ratio of sexual maltreatment victims to be 2.5 to 1 for girls to boys based on epidemiological analyses, while incidence studies have suggested that less than 20% of sexual maltreatment victims are boys (Finkelhor, 1993; Wolfe & Birt, 1997). On the other hand, boys seem to be more at risk for experiencing fatal acts of child physical
maltreatment and neglect, with 2001 statistics revealing that 56% of fatality victims were boys and 44% were girls (National Clearinghouse on Child Abuse and Neglect 2003).

*Age differences in prevalence.* Age differences are also found across types of child maltreatment. Regarding child fatalities occurring from abuse and neglect, 76% of victims are under 4 years of age, 12% are 4-7 years of age, 6% are 8-11 years of age, and 6% are 12-17 years of age (NCANDS; McDonald & Associates, American Humane 2004). The major victims of emotional neglect are children over 6 years of age, as compared to a lower risk in toddlers and preschoolers (Sedlak & Broadhurst, 1996). Furthermore, adolescents aged 12-14 years seem most endangered by physical maltreatment. The exception to age differences in the dynamics of child maltreatment concerns sexual maltreatment rates, which do not vary greatly with the exception that those 2 years of age and below have a lower risk than those 15-17 years of age.

*SES and ethnic differences in prevalence.* Child maltreatment does not occur solely in one demographic group, but across all social conditions and cultures. Despite this, there does seem to be some correlates between incidents of maltreatment and socioeconomic characteristics (Holden, Willis, & Corcoran, 1992). Low or poverty level socioeconomic status (SES) is related to increased child maltreatment and is most evident in rates of child neglect (Connelly & Straus, 1992; Holden, Willis, & Corcoran, 1992). Evidence also suggests biases in reporting, as sexual maltreatment is less likely to be reported when present among higher income than lower income families (Wolfe & McEachran, 1997).

Research also indicates that young single mothers with poverty level incomes are at greatest risk to perpetrate physical maltreatment than other types of parental structures
(Connelly & Straus, 1992; Gelles, 1992). However, in terms of mortality, the most deaths resulting from child physical maltreatment and neglect may occur when an adult male is in residence (Alfaro, 1988; Levine, Compaan, & Feeman, 1995). In two-adult households, evidence points to fathers and other male caretakers as being more likely to perpetuate maltreatment.

In 2002, reported cases of child maltreatment by ethnicity/race indicated that 54% of victims were Caucasian, 26% African-American, 11% Hispanic, 2% American Indian/Alaskan Native and 1% Asian-American/Pacific Islander (NCANDS; McDonald & Associates, American Humane, 2004). Regarding prevalence of maltreatment across ethnic groups, 20 of every 1,000 African-American children, 22 of every 1,000 Native American/Alaskan Native children, 11 of every 1,000 Caucasian children, 10 of every 1,000 Hispanic children, and about 4 of every 1,000 Asian-American/Pacific Islander children were maltreated. In terms of race and ethnicity, sexual maltreatment rates of African-American and European-American individuals do not appear to differ (Finkelhor and Baron, 1986; Wyatt, 1985). However, research indicates that Hispanic females may be at greater risk for sexual maltreatment.

**Effects of Child Maltreatment**

Large numbers of children are thus affected by maltreatment, which has fueled a growing need to identify the behavioral, cognitive, and developmental effects of maltreatment (Salzinger, Feldman, Hammer, & Rosario, 1993; USABCAN, 1995; Wolfe, 1999). Tragically, the U.S. Advisory Board of Child Abuse and Neglect (USABCAN, 1995) estimated that, in 1995, approximately five children died per day as a result of
child maltreatment and neglect. More recent statistics estimated that 1,300 youths in 2001 and 1,400 in 2002 died from child abuse or neglect (National Clearinghouse on Child Abuse and Neglect, 2003; NCANDS; McDonald and Associates, American Humane, 2004). Along with these alarming numbers, many more children do not suffer a fatality from child maltreatment but are affected physically and mentally in various ways (Crouch & Milner, 1993; Salzinger, Feldman, Hammer, & Rosario, 1993; Wolfe, 1999).

A multitude of studies have focused on the psychological effects of child maltreatment. Child maltreatment does not affect every child in a similar fashion but does present many risks for impaired development (Wolfe & McEachran, 1997). The effects of child maltreatment appear to vary along a number of factors, such as the type, intensity and frequency of incidents, resiliency, and social support (Cicchetti & Rogosch, 1997; Widom, 1989; Zahn-Waxler, Cole, Welsh, & Fox, 1995).

Cognitive Effects

Maltreated children live in environments that fail to foster the development of basic skills or provide adequate necessities, which places the youths at risk for cognitive impairments (Crouch & Milner, 1993; Egeland, 1991). Children who have been maltreated experience disruptions in development and gain only limited adaptation skills (Cicchetti & Lynch, 1995; Egeland & Erickson, 1987). Language ability and intelligence are lower in neglected children, and significantly lower IQ levels are apparent in maltreated compared to nonmaltreated children (Crouch & Milner, 1993; Fox, Long, & Langlois, 1988; Hoffman-Plotkin & Twentyman, 1984). Even when controlling for SES, poor academic performance, socioemotional impairments, and maltreatment are linked
Maltreated children display lower levels of cognitive and socioemotional skills even when compared to children with similar SES backgrounds who have not experienced maltreatment (Egeland & Erickson, 1987). However, other studies have shown that maltreated children from low SES backgrounds do not have more cognitive functioning impairments than nonmaltreated children in similar SES backgrounds (Nightingale & Walker, 1991). These studies indicate that SES may be as important in the development of cognitive deficits as is maltreatment. Low SES and maltreatment each appear to be risk factors for mental impairments in their own right, and both should be taken into account when assessing for consequent symptomatology. However, the evidence that maltreatment alone functions as a risk factor in various ways seems to outweigh opposing findings.

Affect Regulation

Children who experience maltreatment also tend to experience insufficient and unstable relationships with their caregivers (Wolfe, 1999). When a child is unable to adequately view or experience proper interactions with others, he or she is likely to have deficits in cognitive functioning, social interactions with peers, and emotional regulation (Egeland & Erickson, 1987; Herman, 1992; Rogosch, Cicchetti, & Aber, 1995). Emotional regulation is defined as “initiating, sustaining, modulating, or changing the occurrence, intensity, or duration of internal feeling states and emotion-related physiological processes” (Eisenberg, 1998, p. 6). The environment in which maltreated children develop can impair the formation of healthy self-images and foster frequent
feelings of shame, rage, or self-blame, which in turn affects healthy emotional regulation (Hartman & Burgess, 1989; Wolfe, 1999).

Maltreated youths are indeed at risk for problems in anger modulation, depression, and inhibition of emotional expression (Cicchetti & Beeghly, 1987; van der Kolk & Fisler, 1994). One example of inhibition of emotional responses is compulsive compliance, which has been seen in physically maltreated/neglected children as young as 12 months of age but is mainly evident in toddlers (Crittenden & DiLalla, 1988). Compulsive compliance is characterized by a general state of hypervigilance or alert when around caregivers. This develops as a child learns to adequately conform to abusive caregivers. Other features of compulsive compliance include ambiguous expressions and affect, incongruence between one’s verbal and nonverbal emotions, and unemotional facial expressions when interacting with one’s caregiver. This overreactivity and inhibition of behavior to one’s caregiver seems to stem from attempts to please and reduce the anger of the guardian (Crittenden & DiLalla, 1988).

Peer Interactions and Aggression

Children with histories of maltreatment seem to interact inappropriately with peers (Rogosch, Cicchetti, & Aber, 1995). Specifically, maltreated children are unable to demonstrate or experience the fundamental relationship skills needed to form healthy relationships and fail to display empathy or nonthreatening communication (Birns, Cascardi, & Meyer, 1990). Inappropriate interactions with others place a maltreated child at risk of not being able to form healthy peer relationships.

Children who have been physically maltreated seem to react more strongly and quickly to messages involving angry emotions than nonmaltreated children (Pollack &
As maltreated children learn to be hypervigilant of threatening situations, they can misconstrue others' intentions and become more preoccupied with aggressive stimuli (Dodge et al., 1994). Children with histories of maltreatment are more likely to behave aggressively toward their peers and respond with anger or aggression to emotional displays in other children, such as distress or friendliness (Egeland & Sroufe, 1981; Hoffman-Plotkin & Twentyman, 1984; Main & George, 1985).

As a result of inconsistent and maladaptive parenting, maltreated children may not develop proper self-control and may thus display resistance toward authority figures such as teachers or parents (Maccoby & Martin, 1983). Poor self-control may also lead to more aggressive behavior and prevent a maltreated child from properly interacting with peers (Gaensbauer & Sands, 1979; Maccoby & Martin, 1983; Wolfe, 1999). The experience of childhood maltreatment is indeed associated with juvenile and future adulthood arrest, and future perpetration of sexual and physical violence (Feldman, 1997; Malamuth, Sockloskie, Koss, & Tanaka, 1991; Widom, 1989). More specifically, the experience of child maltreatment has been linked to increased rates of specific diagnoses and psychological symptoms.

**Comorbidity**

*Diagnostic.* Much evidence links child maltreatment with many acute and chronic internalizing and externalizing disorders (Pelcovitz, Kaplan, Goldenberg, Mandel, et al., 1994; Widom, 1989; Wolfe, 1999). Specifically, child physical maltreatment is associated with the development of mood and anxiety disorders, disruptive disorders such as attention-deficit hyperactivity disorder (ADHD), and conduct and oppositional disorders (Flisher, et al., 1997; Pelcovitz, et al., 1994). More specifically, physically
maltreated children and adolescents have been found to be three times more likely to have a mood disorder, four times more likely to have a disruptive disorder, and two to four times more likely to have an anxiety disorder compared to nonmaltreated children (Flisher, et al., 1997). Sexually abused girls also show high rates of posttraumatic stress disorder, major depressive disorder, and separation anxiety disorder (Sadowski, et al., 2003).

Symptom presentations. In addition to specific mental disorders, psychological symptoms have been associated with maltreatment. For example, maltreated children have been found to display depressive symptoms, suicidal ideation, and emotional distress (Kaufman, 1991; Koverola, Pound, Heger, & Lytle, 1993; Toth, Manly, & Cicchetti, 1992). Compared to nonmaltreated youths with similar SES, maltreated youths also display greater levels of hopelessness and lower self-esteem (Allen & Tarnowski, 1989; Downey & Walker, 1992; Kaufman, 1991; Kinard, 1995; Toth et al., 1992). Furthermore, the risk of developing Posttraumatic Stress Disorder is ever present among maltreated children (Kiser, Heston, Millsap, Pruitt, 1991; Linning & Kearney, 2004; McLeer, Dixon, Henry, Ruggiero, Escovitz, Niedda, & Scholle, 1998; Sadowski et al., 2003). Due to the significant amount of studies that have linked Posttraumatic Stress Disorder and maltreatment, attention is turned next to a description of this disorder.

Posttraumatic Stress Disorder

PTSD Criterion

Posttraumatic stress disorder (PTSD) is diagnosed most often in victims of rape, genocide, and military combat and captivity (American Psychiatric Association, 2000).
PTSD can be diagnosed in children or adults, and usually occurs within three months of a traumatic event. The traumatic event includes but is not limited to war, violent assaults such as sexual assault or physical attack, motor accidents, torture, or inappropriate sexual experiences (American Psychiatric Association, 2000; Barlow, 2002). Furthermore, witnessing an event such as death or violent assaults or hearing about an event but not directly experiencing it, such as learning of the unexpected death or serious injury of a loved one, can qualify as a traumatic event for diagnosing PTSD. Additional criteria include symptoms of reexperiencing, avoidance, and hyperarousal that must occur for one month or more and cause significant impairment in functioning.

Diagnostic criteria for PTSD have been set by the American Psychiatric Association (2000) and include the experience of a traumatic event in which a threatened injury or death to oneself or others occurred. Moreover, this traumatic event is accompanied by feelings of intense fear, helplessness, or horror or, in children, possibly accompanied by agitated behavior. Symptoms of reexperiencing can include reliving a trauma through invasive or disturbing recollections, dreams, physiological reactivity, or psychological distress in response to cues reminiscent of the event, as well as dissociative experiences such as flashbacks (American Psychiatric Association, 2000).

Avoidance symptoms can be characterized by the evasion of internal and external reminders related to the event (American Psychiatric Association, 2000). Furthermore, a loss of interest in activities, feelings of detachment or uninvolvment with others, affect restriction, or feelings of a foreshortened or doomed future as a result of the trauma can characterize avoidance symptoms. Avoidance symptoms can also be detected by one's failure to recall some or all of the trauma (Barlow, 2002). Symptoms of increased arousal
include sleep problems, anger modulation difficulties or irritability, increased hypervigilance, or a sensitive startle response (American Psychiatric Association, 2000).

Specifiers are associated with the diagnosis of PTSD (American Psychiatric Association, 2000). If symptoms persist for over three months, then chronic PTSD is diagnosed. If symptoms last for less than three months but at least one month, then acute PTSD is diagnosed. Furthermore, if the symptoms do not appear until 6 months after the traumatic event, PTSD, delayed onset is diagnosed. If symptoms have been occurring for less than one month, Acute Stress Disorder is diagnosed.

PTSD Course and Outcome

About half of those diagnosed with PTSD recover within three months, whereas others continue to experience symptoms for over one year after the traumatic event (American Psychiatric Association, 2000). Symptoms can reactivate if one is confronted with cues related to the trauma, which creates a symptom pattern that waxes and wanes throughout the course of the disorder (American Psychiatric Association, 2000). Furthermore, various life stressors can affect the severity and duration of the disorder. The development of PTSD is possibly affected by level of social support and family history and personality variables. However, if the event is very traumatic, PTSD can develop independent of these other risk factors.

PTSD Prevalence

According to the DSM-IV-TR, PTSD occurs in about 8% of the population (American Psychiatric Association, 2000). The National Comorbidity Survey (NCS) reported a 7.8% prevalence rate in 5,887 American individuals aged 15 to 54 years (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). With respect to adolescents (aged
12 to 17 years), one large scale national study indicated an 8% PTSD prevalence rate in the United States (Kilpatrick & Saunders, & Smith, 2003).

PTSD and Gender and Ethnicity

Several studies have found that females are at a greater risk for developing PTSD than males (Breslau, Davis, Andreski, Peterson, & Shultz, 1997; Breslau, Kessler, Cholcoat, Schultz, Davis, & Andreski, 1998; Kilpatrick, Saunders, & Smith, 2003; Stein, Walker, Hazen, & Forde, 1997; Tolin & Foa, 2002). Specifically, the National Comorbidity Survey (NCS) reported that women have a 10.4% prevalence rate of PTSD, whereas men have a 5% prevalence rate (Kessler et al., 1995). In one epidemiological survey, the cumulative PTSD rate was reportedly 30.2% for women and only 13% for men (Breslau, Davis, Andreski, Peterson, & Shultz, 1997). Indeed, a higher risk of PTSD in women emerged even after controlling for trauma history. A 2003 National Institute of Justice (NIJ) study reported that adolescent females had a 10.1% prevalence rate of PTSD, while adolescent males had a 6.2% prevalence rate (Kilpatrick, Saunders, & Smith, 2003).

Women tend to face different types of trauma than men, such as sexual and physical abuse (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). However, men are more often exposed to trauma events related to combat, accidents, attacks, and disasters. Women may be more likely to experience trauma such as sexual assault or rape, which put them at a greater risk of developing of PTSD (Kilpatrick & Resnick, 1992). Gender differences may partly arise from different cognitive styles (Barlow, 2002). For example, women may be more prone to believing they have less control over their environment,
thus adopting more pessimistic outlooks, maladaptive cognitive styles, and feelings of helplessness.

A 2003 NIJ national study of adolescents in the United States reported differing rates of PTSD in certain racial/ethnic groups (Kilpatrick, Saunders, & Smith, 2003). Respectively, Asian-Americans had a 6.5% prevalence rate, Native-Americans had a 7.1% prevalence rate, Caucasians had a 7.3% prevalence rate, African-Americans had an 11.0% prevalence rate, and Hispanics had an 11.6% prevalence rate of PTSD. Statistically, African-American and Hispanic adolescents had higher PTSD prevalence rates than Asian-American, Native-American, and Caucasian adolescents.

PTSD Symptoms and Children

Symptoms of Posttraumatic Stress Disorder (PTSD) may be experienced differently in children than adults. For example, frequent play centered on traumatic themes, frightening dreams with unrecognizable or generalized content, or trauma-based reenactments can qualify as reexperiencing symptoms in children (American Psychiatric Association, 2000). PTSD in children may also be accompanied by somatic complaints such as headaches or stomachaches. In addition, when expressing irritability, children may display increased aggression after a traumatic event (Ollendick & Hoffman, 1982).

Younger children encode and interpret traumatic experiences differently than older children, and this may lead to variations in PTSD displays (Vernberg & Johnston, 2001). In terms of arousal, for example, younger children have lower arousal tolerance, which lends to a tendency to experience emotions more intensely (Cole & Putnam, 1992). Preschool children tend to show less cognitive symptoms, such as reexperiencing, than older children or adolescents (Fletcher, 1996; Vernberg & Johnston, 2001). However, this
does not imply that younger children do not manifest reexperiencing symptoms in other forms, which is why frightening dreams without recognizable content or thematic or repetitive play are accepted as reexperiencing symptoms in children (American Psychiatric Association, 2000; Vernberg & Johnston, 2001).

Unfortunately, not enough is known about the differences in the presentation of childhood PTSD across developmental levels or compared to adults. Indeed, concerns have been raised regarding the ability of younger children to conceptualize symptoms of affect and memory (Salmon & Bryant, 2002). Furthermore, questions have been raised about age-specific symptoms and symptom requirements for children (Salmon & Bryant, 2002).

Subsequent to a traumatic event, Posttraumatic Stress Disorder (PTSD) may not always develop. Some people may never develop PTSD. However, some people may develop symptom patterns that are similar to, but not fully consistent with, a PTSD diagnosis, which may constitute a diagnosis of Acute Stress Disorder.

**Acute Stress Disorder**

*Diagnostic Criteria*

Acute Stress Disorder (ASD) resembles Posttraumatic Stress Disorder (PTSD), but is different in crucial ways. The main difference between ASD and PTSD is the duration of symptoms (American Psychiatric Association, 2000). To be diagnosed with ASD, one must develop criterion symptoms within 4 weeks of a traumatic event and these symptoms must last 2 days to 4 weeks (American Psychiatric Association, 2000). Posttraumatic Stress Disorder cannot be diagnosed unless an individual is experiencing
symptoms for at least 4 weeks, which is why many of those diagnosed with PTSD initially were or could have been diagnosed with ASD.

To be assessed for ASD, an individual must have experienced a traumatic event that consisted of witnessing, experiencing, or being faced with an experience that threatened death or serious injury to oneself or others (American Psychiatric Association, 2000). The person also must have experienced intense fear, helplessness, or horror in response to the trauma. Symptoms must cause noticeable and clinical impairments in functioning and be unrelated to substances, general medical conditions, or other disorders.

An important criterion for ASD is dissociation, which may consist of emotional numbing or detachment, derealization, depersonalization, dissociative amnesia, or a decrease in one’s awareness (American Psychiatric Association, 2000). A person must also reexperience symptoms in at least one fashion, which can include but is not limited to flashbacks, reactions to trauma cues, repetitive dreams, and recurrent thoughts. In addition, unlike PTSD, reexperiencing symptoms in ASD may not necessarily be experienced as distressing to an individual (Bryant & Harvey, 2000). Finally, a person must be noticeably avoiding objects, people, or places that remind him or her of the event and express increased anxiety and physiological arousal.

Prevalence and Course

According to the DSM-IV-TR, incident rates of ASD in the population have not been determined (American Psychiatric Association, 2000). However, single studies on ASD provide rates of 14-33% in those exposed to severe traumatic events. The DSM-IV-TR does not offer any specific information on the course of ASD besides the fact that ASD arises during or subsequent to trauma and lasts 2 days to 4 weeks. If symptoms continue
after the 4-week criterion, then Posttraumatic Stress Disorder may be considered. Similar to PTSD, the occurrence of ASD depends on many factors such as trauma severity, family history, personality, and degree of social support. In terms of possible cultural variations in ASD, dissociative symptoms of ASD may occur in greater frequencies among those cultures that discourage typical overt stress responses.

Posttraumatic Stress Disorder or possibly ASD may manifest in individuals who have experienced traumatic experiences. This study will focus on a sample of traumatized adolescents. According to the literature, PTSD is prevalent in youths who have experienced traumatic experiences such as maltreatment, so a main focus of this study will concern PTSD and child maltreatment.
CHAPTER 2

LITERATURE REVIEW

Posttraumatic Stress Disorder and Child Maltreatment

As a result of the trauma faced by children who have been maltreated, the development of PTSD has been a main focus in recent literature (Wolfe & McEachran, 1997). Children who have been sexually maltreated are at an increased risk of developing PTSD (Wekerle & Wolfe, 1996). However, PTSD development in physically maltreated or neglected children may be less prominent than in sexually maltreated children (Pelcovitz, et al., 1994). Frequently, children experience more than one type of maltreatment, making the association among maltreatment type and PTSD development difficult to study. Furthermore, in the general maltreatment literature, there is a focus on identifying specifics of the maltreatment experience such as severity and duration that have been associated with PTSD development and intensity (Wolfe & McEachran, 1997).

Increased severity of sexual maltreatment is related to a greater prevalence of PTSD diagnosis (Kiser et al., 1991; McLeer, Dixon, Henry, Ruggiero, Escovitz, Niedda, & Scholle, 1998; Wolfe et al., 1994). Furthermore, in maltreatment situations, the additional presence of force has been related to PTSD symptomatology (Basta & Peterson, 1990; Elwell & Ephross, 1987). Severity of physical injuries has also been positively associated with greater development of PTSD (Kilpatrick et al., 1989).
Kiser and colleagues (1991) examined 163 maltreated children and adolescents prior to treatment. The majority of physically and/or sexually maltreated participants had developed PTSD or PTSD symptoms. Similar to the Kilpatrick study (1989), PTSD development was associated with greater maltreatment severity. No specific maltreatment type was significantly associated with PTSD onset. However, 70.8% of youths who had been physically and sexually maltreated, 90% of individuals physically maltreated for more than 5 years, and 64.3% of severely sexually maltreated youths had a diagnosis of PTSD or displayed symptoms similar to PTSD.

Kiser et al (1991) examined a clinical sample in a day treatment program. Thus, generalizability was limited. Although results are somewhat mixed, sexual maltreatment does seem to result in greater PTSD rates and physical maltreatment appears to be a risk factor in PTSD diagnosis and symptom development. Because youths are vulnerable to the development of PTSD, questions concerning how PTSD develops in individuals who have experienced trauma should be addressed.

*Theoretical Models of Posttraumatic Stress Disorder*

Several theoretical models have emerged regarding the development of Posttraumatic Stress Disorder. The dominant models of PTSD are cognitive or information-processing in nature, but their applicability to younger children with different diagnostic presentations is relatively unknown (Fletcher, 1996; Yule, 1992). The primary biological and cognitive theoretical models of PTSD will be presented. Also featured will be a cognitive model specifically pertaining to youths (Ehlers & Clark, 2000).
PTSD Biological Models

Individuals with PTSD often demonstrate psychobiological changes (Fairbank, Ebert, & Caddell, 2001; Friedman, Charney, & Deutch, 1995). Specifically, individuals with PTSD, compared to those without PTSD, show increased blood pressure and heart rates and similar physiological responses, as well as different brain activity levels, when exposed to cues of trauma (Pitman, Shalev, & Orr, 2000; Shin et al., 1999). Some cognitive neuroscience theorists propose that fear is processed by way of various subcortical and higher level cortical pathways projecting to the amygdala. Activation of the amygdala is inhibited if there are no fear cues, but the presence of threatening cues activates fear responses (Brewin, 2003; Conway & Pleydell-Pearce, 2000; Davey, 1993; Wheeler, Stuss, & Tulving, 1997).

In studying the neurobiology of fear responses, there is evidence that upon experiencing extreme stress (i.e., trauma), the neurotransmitter norepinephrine and CRF-HPA (corticotropin-releasing factor-hypothalamic-pituitary-adrenal) axis system become engaged as adaptive responses to the trauma (Bremner, Davis, Southwick, Krystal, & Charney, 1993). The engagement of these systems provides energy to the brain and muscles, including our attentional and memory systems. However, these adaptive reactions to severe stress can result in long-term changes in the former neurological systems. To summarize, individuals with PTSD have demonstrated abnormalities in several brain systems involving dopamine, benzodiazepine, CRF-HPA axis, and opiate (Bremner, et al., 1993). The past trauma seems to have been imprinted into ones brain systems, and continues to foster increased startle and unnecessary vigilance which were adaptive during trauma situations, but now are futile.
PTSD Cognitive and Information-Processing Models

Many cognitive models of PTSD are based on the proposal that emotions, meanings, and cognitions related to emotional events (i.e., trauma events) are stored together in memory networks (Lang, 1977; Salmon & Bryant, 2002). Other theorists label these memory networks as fear networks (Foa, Steketee, & Rothbaum, 1989). These networks are formed with the occurrence of a traumatic event and they store information and hold representations of the trauma. Accordingly, these networks are strongly associated with reminders of the trauma event and the activation of fear or anxiety (Foa, Steketee, & Rothbaum, 1989). When external and internal stimuli reminiscent of the trauma appear, these memory networks of trauma are activated and related fear occurs (Bowers & Sivers, 1998; Salmon & Bryant, 2002).

With the presence of various internal and external stimuli linked to trauma, trauma-related networks are easily accessed, and anxiety and other symptoms then occur. Individuals with PTSD are believed to have an attentional bias for threatening stimuli, which means there is a lower threshold for interpreting innocuous stimuli as threatening (Bryant & Harvey, 1995; Salmon & Bryant, 2002). Information processing theorists generally posit that the fear network depends upon one’s ability to manage traumatic memories and regulate emotions associated with the trauma memory. Cognitive theorists propose that modification of the fear network is needed to ameliorate PTSD symptoms or related anxiety. In other words, threat associations in the memory network need to be weakened with continuous activation and thus habituation of anxiety, followed by the replacement of faulty threat-based belief systems with more adaptive schema (Foa & Kozak, 1986).
Applicability of PTSD Cognitive Models to Youths

Given that children have many developmental differences with respect to the experience and resolution of trauma, questions have been raised about the applicability of PTSD cognitive and information processing theories to children (Salmon & Bryant, 2002). Evidence indicates that even young children are able to remember traumatic events after long periods of time (Salmon & Pipe, 1997). However, younger children do encode information more slowly than older youths or adults, which results in less information available for retrieval (Brainerd, Reyna, Howe, & Kingma, 1990). Younger children also have a bias toward more arousing stimuli during a traumatic event (Eisenberg, Fabes, & Guthrie, 1997).

Older youths encode events with more detail and are less vulnerable to forgetting than young children (Schneider & Bjorklund, 1998). Previous developmental experience and knowledge also affects a youth’s understanding of a traumatic event and the details remembered, leaving some youths prone to less detailed and lasting event representations or errors in memory or appraisals of the event (Pollak, Cicchetti, & Klorman, 1998; Salmon & Bryant, 2002; Steward, O’Connor, Acredolo, & Steward, 1996). These factors may leave a youth with more or less distress depending on the interpretation and understanding of the traumatic event.

Differences in the cognitive strategies utilized between adolescents and younger children are supported (Eisenberg, 1998; Harris, 1994; Thompson, 1994). Cognitive inhibition, or intentional thought suppression, improves with increasing age (Howe, 2000). Older youths are able to utilize a number of cognitive strategies when confronting difficult situations.
Indeed, older youths are better able to use cognitive coping strategies such as reappraisal, cognitive avoidance, thinking pleasant thoughts during distress, and shifting attention away from distress (Eisenberg, 1998; Harris, 1994; Thompson, 1994). Using these strategies influences how emotional responses are eventually expressed (i.e., internally or externally) (Eisenberg, 1998). For example, affective responses can be displayed overtly with aggression (Eisenberg, 1998). With increasing age, youths are more able to employ coping strategies to monitor their emotional responses (Eisenberg, 1998; Salmon & Bryant, 2002).

Gomes-Schwartz and colleagues (1985) assessed children and adolescents who had been sexually maltreated. Adolescents displayed depression, anxiety, and obsessive thoughts; school-age children showed more fearfulness, destructiveness, and aggression; preschool children demonstrated greater cognitive impairment and severe stress reactions. This study supports notions that reactions to trauma may differ depending on the developmental stage of the youth.

Avoidant cognitive strategies such as thought suppression seem to be displayed increasingly with age. Unfortunately, these cognitive strategies can also maintain or predict the occurrence of reexperiencing symptoms (Aaron, Zaglul, & Emery, 1999; Guthrie & Bryant, 2000; Harvey & Bryant, 1998). By middle childhood, children begin to display mature thought management and affect regulation concerning traumatic experiences (Salmon & Bryant, 2002). By middle childhood, internalized feelings of shame, pride, or depression from trauma may become more apparent (Harter, 1998). These feelings seem to increase in middle childhood when one begins to make
comparisons with others, leading to negative self-appraisals related to the trauma experience.

Older youths are also able to retrieve information from memory spontaneously (Schneider & Bjorklund, 1998). By middle adolescence, cognitive functioning is more advanced, so the majority of existing adult-based cognitive and information processing theoretical models are more applicable with increasing age (Salmon & Bryant, 2002). This poses a concern for many studies, such as Kiser (1991), which, although well done, combined children and adolescents in the sample. If cognitions and emotional modulation does, as evidence suggests, change with adolescence, potential differences in PTSD expressions have not been adequately explored.

*Ehlers and Clark (2000) Cognitive Model Pertaining to PTSD and Youth*

Ehlers and Clark (2000) proposed that PTSD is maintained by a sense of current threat. The perception of current threat occurs when an individual’s processing of trauma is influenced by extreme negative appraisals of the trauma as well as disturbances in autobiographical memory. This sense of current threat brings upon efforts to reduce feelings of distress and threat, which subsequently help maintain PTSD. Furthermore, perceived threat is accompanied by symptoms characteristic of PTSD, such as reexperiencing, arousal, and anxiety.

The first aspect of the Ehlers and Clark (2000) model occurs when a trauma memory is improperly elaborated and integrated with other autobiographical memories as a result of two factors: inadequate processing during the trauma and cognitive avoidance following the event. This deficit in autobiographical memory thus maintains a current sense of threat and persistent PTSD. According to this model, several cognitive variables...
indicate that incomplete processing has occurred: a) "data driven processing," in which sensory details of the event are largely processed, as opposed to the meaning of the event, b) "absence of self-referent processing," where a person is unable to clearly organize the event into other personal memories, and c) "dissociation," when the person subjectively reports instances of depersonalization or being in a dream-like state (Ehlers & Clark, 2000; Ehlers, Mayou, & Bryant, 2003). Memories pertaining to the trauma are not processed completely and are not sufficiently integrated in the context of functional autobiographical memories or in time. All of this leads to the perception of current threat. Furthermore, as a result of inadequate processing, a lack of association with consequent information occurs, so symptoms of reexperiencing are easily triggered by the presence of similar physical cues (Ehlers & Clark, 2000; Ehlers, Mayou, & Bryant, 2003).

A second aspect that influences PTSD maintenance and development is negative appraisals (Ehlers & Clark, 2000; Ehlers, Mayou, & Bryant, 2003). In the Ehlers and Clark cognitive model (2000), for instance, believing that the world is a dangerous place or beliefs concerning something bad happening are examples of negative appraisals of the trauma, which also lead to a current sense of threat and maintain unrealistic fear or avoidance. In addition, individuals may believe that they are to blame for the event, or that they will never be the same after the event, which most likely leads to PTSD symptoms.

According to this model, some negative appraisals directly influence maladaptive emotions such as anger, guilt, sadness, depression, or shame, which only help maintain PTSD reactions (Ehlers & Clark, 2000; Ehlers, Mayou, & Bryant, 2003). For instance, negative appraisals as a result of trauma, such as feelings that one is in some way
responsible for the occurrence of the event, can lead to guilt or anger concerning a sense of unfairness. The negative appraisal that permanent life change occurred as a result of trauma seems to lead to increased sadness (Ehlers & Clark, 2000; Ehlers, Mayou, & Bryant, 2003). Furthermore, anxiety is a result of possible future loss, certainty of loss is related to depression, and negative appraisals concerning violation of one’s personal beliefs or standards lead to shame. Ehlers and Clark (2000) maintain that the aforementioned negative appraisals not only lead to these various emotions, but also to various dysfunctional behaviors such as thought suppression, avoidance, rumination, and dissociation. They posit that these dysfunctional behaviors are activated to control one’s sense of threat or to cope with the trauma, but these behaviors are not adaptive and only serve to maintain persistent PTSD.

PTSD Cognitive Impact and Attributional Models

One theory that specifically addresses the cognitions involved in PTSD with youths is the cognitive impact model (Janoff-Bulman, 1985). The main theme of this theory concerns the thought processes and schemas of one who has experienced a traumatic event. Specifically, with the impact of a traumatic event, the victim begins to reevaluate and question previously held cognitions. Basic beliefs about oneself, the world, and reality are disturbed after a traumatic experience, leading a youth to reevaluate his or her sense of personal safety and danger in the world. The youth is left with feelings of threat and insecurity and may adopt a negative self-image as a result of self-blame and feelings of helplessness. Some critics of this theory question its premises, which assume that all youths hold ideal beliefs concerning safety and security prior to maltreatment (Morrissette, 1999). Furthermore, the model proposed by Janoff-Bulman (1985) does not
attend to younger children's developmental differences in cognition as it directly applies to adults and older youths (Morrissette, 1999).

Despite potential limitations, Janoff-Bulman's theoretical perspective on reactions to trauma may be relevant for assessing the reactive cognitions of traumatized individuals. Victimization experiences can cause individuals to reevaluate and challenge their previous cognitive assumptions and expectancies about themselves and the world (Janoff-Bulman & Frieze, 1983). Generally, three core beliefs are challenged by the impact of a traumatic event: Benevolence of the world (feelings of invulnerability, the world is safe), meaningfulness of the world (the world as understandable and meaningful, why things happen), and a self-worth (positive self-perception) (Janoff-Bulman, 1992; Janoff-Bulman & Frieze, 1983). With trauma, the invulnerability assumption is damaged, and an individual may feel overly vulnerable to the recurrence of victimization or disaster and see the world as unsafe and threatening (Janoff-Bulman & Frieze, 1983).

Healthy individuals often feel as if they understand the world and that the world is somewhat controllable and just. With trauma, this meaningful world assumption is shattered as an individual may not understand why the event happened and may question the meaning of the world (Janoff-Bulman & Frieze, 1983). To cope with trauma and confusion, one may try to find a reason for the event happening. Most people perceive themselves as good and worthy, but with trauma the general feeling of positive self-perception may be more fragile as an individual may self-blame and develop a negative self-image of helplessness, weakness, and lack of control. The destruction of one's basic assumptions about the world and themselves can lead to many psychological problems such as depression or PTSD.
Attributions of self-blame also seem to be attempts to understand why one was victimized and to gain a better understanding of this different world after the trauma (Janoff-Bulman, 1992). Information related to a trauma usually contrasts with one’s basic assumptions about the self, world, and others. Thus, a person’s reality is threatened as a result of traumatic information being poorly integrated with existing schemas. A traumatized individual must learn to redefine the event and one’s assumptions, and to positively cope to decrease the effects of negative cognitions (Janoff-Bulman & Frieze, 1983).

**Associations between Cognitions and PTSD**

Several PTSD theoretical models have been examined in research studies. In an examination of the Ehlers and Clark (2000) cognitive model, 86 children (55% boys, 45% girls) aged 5-16 years (M = 12.3 years, SD = 2.86) who had been involved in road traffic accidents were assessed (Ehlers, Mayou, & Bryant, 2003). Symptom severity of PTSD was predicted by data-driven processing during the trauma and negative trauma appraisals (i.e., alienation from others, anger). Maladaptive cognitive styles, or maladaptive coping techniques such as rumination, thought suppression, and persistent dissociation, were also correlated with PTSD severity. Indeed, these cognitive variables predicted PTSD symptoms for three months following the trauma. In children who made negative appraisals of the trauma, PTSD was predicted up to 6 months.

This study provided support that several cognitive strategies play a role in the maintenance and development of PTSD in youth (Ehlers, Mayou, & Bryant, 2003). Furthermore, in an examination of elementary school children affected by Hurricane
Andrew, the use of blame and anger as coping strategies was linked to high levels of PTSD symptoms, more so than other coping strategies (La Greca, Vernberg, Silverman, & Prinstein, 1996; Vernberg, Silverman, La Greca, & Prinstein, 1996). The model proposed by Ehlers and Clark (2000) provides information as to why some youths are affected by PTSD and why some are not.

Youths who use maladaptive coping strategies such as negative appraisals seem to be at a greater risk for developing PTSD (Ehlers, Mayou, & Bryant, 2003). However, the measurement of cognitive variables in the Ehlers (2003) study could have been improved. Furthermore, the youths who participated in this study resided in the United Kingdom (UK), which may limit generalizability to youths in the United States. The youths involved were victims of traffic accidents, a traumatic event, but not one that contains all of the dynamics involved in child maltreatment, which could affect cognitions differently. In this study, the age range was 5-16 years, which is very broad and so cognitive differences in reactions to the trauma that may have existed between children and teenagers were not examined.

Negative interpretations of trauma similar to the ones mentioned in Janoff-Bulman’s theory (1992) have been shown to predict PTSD symptoms (Ehlers, Mayou, & Bryant, 2003). In sexually maltreated youths, for example, those without PTSD reported more self-blame, while youths with PTSD reported more guilt related to maltreatment (Wolfe, Sas, & Wekerle, 1994). In this study, however, the distinction between guilt about the maltreatment and self-blame may not have been great. Furthermore, for those with PTSD, guilt about maltreatment predicted PTSD even when controlling for IQ, sex, age, and specifics of the maltreatment (Wolfe, Sas, & Wekerle, 1994).
The Posttraumatic Cognitions Inventory (PTCI), which measures self-blame and negative cognitions about the world and oneself, has been shown to differentiate individuals who have been traumatized and subsequently develop or do not develop PTSD (Foa, Tolin, Ehlers, Clark, & Orsillo, 1999). Even after controlling for depression, anxiety, sex, age, race (Caucasian vs. non-Caucasians), and type of incident, differences in PTSD and no-PTSD groups were evident. With traumatized individuals, the PTCI also has been found to predict PTSD severity, anxiety, and depression. Attributions related to maltreatment have also been shown to predict psychological symptoms in youths (Spaccarelli, 1995).

This scale seems to be very useful for assessing the cognitive processes and schemas of traumatized individuals (Foa, Tolin, Ehlers, Clark, & Orsillo, 1999). Again, the use of negative cognitive strategies after traumatic incidents seems related to the incidence of PTSD symptoms. However, this study was not very representative in terms of race/ethnicity, as 72% of this sample was Caucasian. One drawback inherent in this study concerned the comparison conducted between Caucasians versus non-Caucasians, which was not a very valid analysis to examine racial/ethnic differences as minority groups vary among each other.

Anger, Child Maltreatment, and PTSD

Similar to increases in maladaptive cognitions, increased anger has also been demonstrated in maltreated children. Youths with histories of maltreatment are more likely to behave aggressively and respond with anger or aggression to friendliness or distress in other youths (Egeland & Sroufe, 1981; Hoffman-Plotkin & Twentyman, 1984;
Main & George, 1985). Abuse severity and specifics have been associated with a youth’s tendency to respond aggressively (Birt & Wolfe, 1995). Specifically, youths who had experienced sexual and physical maltreatment exhibited higher levels of aggression compared to youths with varying maltreatment experiences. When confronted with stressors typically encountered throughout childhood, children who experienced emotional as well as sexual maltreatment reported higher levels of anger compared to youths with differing maltreatment experiences.

Specifically, anger problems appear related to general problems in affect dysregulation (van der Kolk, 1996). Issues with affect dysregulation are commonly seen in traumatized individuals. Children who have been raised by maltreating or neglectful parents may live in a state of chronic hyperarousal, which in turn affects a child’s ability to modulate strong emotions. Along with disorganized attachment styles and developmental problems in self-regulatory processing, maltreated youths struggle with problems of self-definition (Cole and Putnam, 1992; van der Kolk, 1996). Self-definition problems include issues with one’s sense of self (i.e., problems with autobiographical memories and body image, a sense of separateness), poor affect modulation (i.e., aggression), and relationship problems in terms of intimacy, suspiciousness, trust, and isolation (van der Kolk, 1996).

Consequently, youths who have been maltreated have great difficulties in social interactions, which may be laden with displays of anger, withdrawal, submission, fearfulness, or fearlessness (Cole & Putnam, 1992). Furthermore, these youths are at increased risk for experiencing long-term problems with anger regulation, anxiety, and sexual impulses (van der Kolk, Roth, Pelcovitz, & Mandel, 1993). Specifically, the
younger one is at the time of trauma, and the longer the trauma duration, the greater the risk of developing the above issues. Extreme hyperarousal, anger, rage, sadness, loss of impulse control, attentional problems, and attentional biases are among the many ways that self-regulation deficits can be manifested (Pitman, Orr, & Shalev, 1993).

Individuals who have been traumatized develop patterns of reacting to stressors with intense emotions. This becomes a problem when intense reactions cease to have value to current situations (van der Kolk, 1996). Children who have been physically maltreated are more sensitive to threat cues than children who have not been abused by responding more quickly and disengaging more slowly when shown angry faces (Pollak & Tolley-Schell, 2003). An attentional bias for anger cues in maltreated children could translate into problems interacting with others and perceiving and regulating emotions. Pollak and Tolley-Schell (2003) provided support for the link between anger modulation difficulties and trauma, though they only gauged sensitivity to anger and not expression of anger, which is important in discerning how these children interact with others. This study also only included children aged 8-11 years, which does not address these issues with adolescents.

Reactions to stressors after the trauma may be linked to continuous feelings of perceived threat, which are not applicable to current situations but nonetheless readily engage anger (Novaco & Chemtob, 2002). Emotional reactions from others and one’s own intense emotions continue to retraumatize an individual as he or she interprets feelings reminiscent of the trauma on an interpersonal level (van der Kolk, 1996). To cope with this hyperarousal, traumatized individuals may withdraw from daily experiences, avoid stimuli similar to the trauma, or display emotional numbing to
experiences related to the trauma and life in general (Litz & Keane, 1989; van der Kolk, 1996).

Cognitively, feelings of anger seem to maintain PTSD (Paunovic, 1998). Anger may hinder emotional processing and result in unrealistic appraisals of blame related to the trauma. Related to anger-maintained PTSD, an individual’s central beliefs may be altered in terms of trust in others, oneself, and meaningfulness in the world. Ruminations about injustices increase in frequency as a result of anger feelings, which also affect a traumatized person’s ability to realistically evaluate present threats.

Spielberger and colleagues (1985) defined anger as a complex construct consisting of three distinct but related aspects. One definition of anger involves feelings of “mild irritation or annoyance to intense fury and rage” (p. 6, Spielberger, 1985). The construct of anger is at the core of Spielberger’s theory but he also included the constructs of hostility and aggression as subtypes of the main construct of anger (Spielberger, Reheiser, & Sydeman, 1995). Hostility has been defined as a set of attitudes, including feelings of anger that also provoke aggression toward people or things (Spielberger, Jacobs, Russell, & Crane, 1983). Aggression extends to behaviors and involves destruction or hostile acts toward people or inanimate objects. Spielberger defined these aspects of anger (anger, hostility, and aggression) as the AHA! Syndrome and the interwoven process that encompasses feelings, motivation, and behaviors related to anger.

The experience and expression of anger can vary across individuals (Spielberger, Reheiser, & Sydeman, 1995). For example, women may inhibit anger more so than men, due to cultural expectations (Nadelson & Zimmerman, 1993). Therefore, anger may be
expressed in various ways, making it useful to identify the various facets of the anger experience. One component of anger expression, state anger, depends on frustrations such as confrontations and injustices. Thus, state anger varies over time, being dependent upon the latter experiences, and can consist of feeling annoyed to intense rage (Spielberger, et al., 1983; Spielberger, et al., 1995). Subjective feelings of state anger are also accompanied by autonomic nervous system arousal. Trait anger is defined as how often one feels state anger over time and how prone one is to experience situations as anger-provoking.

Individual differences also exist in the expression of anger (Spielberger, et al., 1995). Anger-in and Anger-out have been identified as variables of anger expression (Spielberger, et al., 1985). Anger-in refers to how often one experiences and suppresses feelings of anger, whereas Anger-out refers to how often feelings of anger are verbally or physically expressed. Empirical evidence supports the constructs of anger-in and anger-out as two independent facets of anger expression when measured by anger expression scales (Knight, Chisholm, Paulin, & Waal-Manning, 1988; Spielberger, 1985; Spielberger, 1988). An additional factor of anger expression has been identified, Anger-Control, which refers to how often one controls outward expressions of anger (Spielberger, 1988). The construct of anger-control has been shown to yield moderately high negative correlations with the construct of anger-out, providing evidence that some individuals who attempt to control angry feelings are somewhat able to (Spielberger, 1988; Spielberger et al., 1995).

A large body of PTSD research has been devoted to examining combat veterans afflicted with PTSD, and anger is a prevalent symptom of the difficulties many of these
veterans face post-combat (Boulanger, 1986; Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar, & Weiss, 1990; Novaco & Chemtob, 2002). Specifically, veterans with PTSD have reported more hostility and violent acts than veterans without PTSD (Kulka, et al., 1990). Combat veterans with PTSD report lowered anger control and greater levels of anger than combat veterans without PTSD (Pitman, Orr, Forgue, de Jong, & Claiborn, 1987). Furthermore, the associations between anger and PTSD in veterans are not dependent on factors such as extent of combat exposure, impulsivity, or anxiety (Chemtob, Hamada, Roitblat, & Muraoka, 1994).

The construct of anger was responsible for 40% of PTSD variance in analyses of 143 Vietnam combat veterans after controlling for age, education, and combat exposure (Novaco & Chemtob, 2002). In addition, veterans with PTSD differed on all anger indices from non-PTSD veterans, which included the Anger expression scale (Spielberger et al., 1985) and the Mississippi Scale Anger/Aggression index (Keane, Caddell, & Taylor, 1988). Vietnam veterans with PTSD produced higher mean scores on all anger indices except for the Anger control subscale of the Anger expression scale, which was significantly lower than the no-PTSD group.

Novaco and Chemtob (2002) concluded that anger was a key element in combat-related PTSD and is a form of coping in veterans where perceived threats activate the engagement of increased readiness for danger, which easily triggers anger (Novaco & Chemtob, 2002). This study sample included a sufficient number of Asian-American participants, but the authors failed to perform separate pertinent analyses on this group. One analysis with respect to ethnicity, “Caucasian vs. non-Caucasian” did not yield significant differences.
Sutker and colleagues (2002) examined the psychological effects of war and hurricane trauma in 312 military personnel who were involved in the Gulf War and exposed to Hurricane Andrew in 1992. Individuals diagnosed with PTSD who had faced war trauma reported a greater number of traumatic events and more severe psychological disturbances as a result of Hurricane Andrew. Those troops with war-related PTSD, compared to those without, exhibited more severe anger, depression, anxiety, PTSD symptomatology, physical symptoms, and lower self-esteem.

Individuals who faced war trauma displayed increased levels of anger, current posttraumatic symptoms, lower self-esteem, heightened fears, physical complaints, and depression (Sutker et al., 2002). This study indicated that the number of traumatic events as well as war exposure contributed to the development of trauma-related psychopathology. This study also contributed to the literature identifying anger as a major component in combat-related PTSD.

Anger as a component in PTSD has not been associated only with combat veterans. Anger has been identified as a method of emotional disengagement from trauma or, at the very least, as a coping method after a traumatic event (Feeny, Zoellner, & Foa, 2000). Anger has also been related to PTSD in female assault, crime, and disaster victims (Andrew, Brewin, Rose, & Kirk, 2000; Feeny, Zoellner, & Foa, 2000; Freed, Bowler, & Fleming, 1998). Findings have documented anger as being related to chronic PTSD, and anger shortly following trauma as linked to subsequent PTSD severity in females who had experienced assault (Feeny, Zoellner, & Foa, 2000). Theoretically, continuous levels of anger after a trauma appear to hinder healthy emotional processing of the trauma by
inhibiting fear and preventing the victim from disengaging from survival mode (Feeny, Zoellner, & Foa, 2000).

Individuals with PTSD display significantly more severe affect dysregulation (i.e., anger modulation difficulties, aggression), dissociation, and somatization than individuals with a past but not a current PTSD diagnosis (van der Kolk, Pelcovitz, Roth, Mandel, McFarlane, & Herman, 1996). Furthermore, groups with a past but not a current diagnosis of PTSD manifest more symptoms than those who never had PTSD, with a number of these individuals continuing to experience associated symptoms (i.e., affect dysregulation, somatization, and dissociation). Greater levels of anger modulation, dissociative problems, and self-destructive and suicidal behaviors were noted when specifically examining individuals who had experienced physical/sexual maltreatment at or before age 14 years compared to older victims of physical/sexual maltreatment or victims of other traumas (i.e., disaster). van der Kolk and colleagues (1996) provided support for the notion that individuals experiencing symptoms severe enough to warrant a diagnosis of PTSD continue to experience associated pathology even after remission. The implication that interpersonal maltreatment occurring early in life may produce more severe psychological effects, including difficulties with anger, than trauma occurring later in life needs to be examined more closely in terms of PTSD and types of anger.

Birt and Wolfe (1995) reported that maltreatment severity in children was related to the duration and intensity of physical arousal in response to anger-provoking situations. Furthermore, child victims of sexual and physical maltreatment reportedly displayed high levels of aggression. Clearly, a link between anger and childhood trauma is supported. Extending to youths who witness domestic violence, one review highlighted a number of
studies showing that increased anger and associated arousal (i.e., impulse control, irritability) frequently occur after these experiences (Lehmann, 2000).

The construct of anger has predicted and been associated with PTSD diagnoses and symptom severity in children and adolescents who have experienced a number of traumas (e.g., maltreatment, road traffic accidents to witnessing mother assault) (Birt & Wolfe, 1995; Ehlers, Mayou, & Bryant, 2003; Lehmann, 1997). Furthermore, significant levels of anger have been exhibited in adults diagnosed with PTSD who had suffered child sexual maltreatment (Elhai, Frueh, Gold, Gold, & Hamner, 2000). Anger has been implicated as a cognitive factor and psychological predictor in the maintenance and severity of PTSD (Ehlers, Mayou, & Bryant, 2003; Ehlers, Mayou, & Bryant, 1998; Feeny, Zoellner, & Foa, 2000; Novaco & Chemtob, 2002; Paunovic, 1998; Riggs, Dancu, Gershuny, Greenberg, & Foa, 1992; Sutker, Corrigan, Sundgaard-Riise, Uddo, & Allain, 2002). The relationship between PTSD and anger has been extensively studied in victims of trauma. However, questions still remain concerning the specific aspects of anger expression (e.g., state anger, anger control) that are involved in the maintenance and severity of PTSD. The role of anger in the development of PTSD in adolescents also needs to be examined more thoroughly.

Dissociation, Child Maltreatment, and PTSD

Coping mechanisms other than anger may also be employed by trauma victims, including dissociation. Researchers generally support the notion that a failure to incorporate trauma memories into autobiographical memory is a main issue in PTSD development and maintenance; therefore, dissociation has been extensively studied in
individuals with PTSD (van der Kolk, van der Hart, & Burbridge, 1995). Dissociation, like anger, has been thought to delay recovery by allowing an individual to emotionally disengage from trauma memories (Foa & Rothbaum, 1998; Putnam, 1989). Dissociation has been consistently identified as a fundamental aspect in the onset and maintenance of PTSD. Pierre Janet (1889) labeled the construct of dissociation as difficulty integrating memories of one’s traumatic experience into preexisting schemas, in which these memories are kept separate from other experiences. For one to experience a dissociative episode, one must experience significant bodily arousal during trauma (van der Kolk, van der Hart, & Burbridge, 1995).

Traumatic experiences are thus stored as affect or sensory parts and are not integrated fully into one’s existing schemas (van der Kolk & Fisler, 1995). As a result of dissociation, memories of the traumatic experience are triggered into consciousness when cues activate response patterns. These reminders or cues can trigger responses such as physical sensations, visual images, ruminations, or re-enactments of the trauma. Common reports stemming from childhood trauma consist of the ability to “disappear” when under stress (van der Kolk, 1996). Dissociation can be conceptualized as the capability to feel as if one has left the body and is watching what is happening to oneself from a distance to limit one’s experience of distress, or to protect oneself from being aware of the experience during a traumatic event.

The dissociative experience described above is commonly referred to as a “split” of the self into two entities: the observing and experiencing self (van der Kolk, 1996). Dissociative experiences can occur not only at the time of the traumatic event but continually afterward (Bremner, Southwick, Brett, Fontana, Rosenheck, & Charney,
1992; Bremner, Steinberg, Southwick, Johnson, & Charney, 1993, Marmar, Weiss, Schlenzer, Fairbank, Jordan, Kulka, & Hough, 1994). Although the distinction is not always clear in the literature, three primary types of dissociation have been identified (van der Hart, van der Kolk, & Boon, 1996; van der Kolk, van der Hart, & Marmar, 1996).

First, primary dissociation consists of experiences such as intrusive recollections, nightmares, or flashbacks; these dissociative symptoms are also most commonly associated with PTSD. These symptoms seem to occur as a result of the emotional and sensory aspects of the traumatic experience remaining separate from general consciousness. The experience is thus stored only within somatosensory elements and does not comprise a complete autobiographical memory (van der Kolk & Fisler, 1995). Primary dissociation is further characterized by limiting one’s cognitive awareness of the trauma, enabling an individual to function as if the traumatic event did not occur (Spiegel, Hunt, & Dondershine, 1988; van der Kolk, van der Hart, & Marmar, 1996).

In contrast, secondary dissociation refers to one feeling as if they have split from one’s physical body, to the point where the individual is able to observe the trauma while it is occurring, as if they were a third party observer, not experiencing the totality of the event (van der Kolk, van der Hart, & Marmar, 1996). In secondary dissociation, sometimes labeled peritraumatic dissociation, individuals are able to numb themselves from emotions associated with the trauma (Marmar, Weiss, Schlenzer, Fairbank, Jordan, Kulka, & Hough, 1994; van der Kolk, van der Hart, & Marmar, 1996). The third type of dissociation, tertiary dissociation, occurs most often with the development of disorders such as Dissociative Identity Disorder (van der Kolk, van der Hart, & Marmar, 1996).
This type of dissociation consists of the development of distinct and separate ego states, identities, or alters of one's personality, in which states may vary in awareness and unawareness of trauma experienced. Tertiary dissociation is usually associated with extreme physical, sexual, or psychological maltreatment in childhood (Coons, 1996; Putnam, 1996a; Boon & Draijer, 1993).

Despite the previous classifications of dissociative experiences in response to trauma, further constructs of dissociation have been identified and can be assessed in some dissociation measures (Armstrong, Putnam, Carlson, Libero, & Smith, 1997). Dissociative amnesia consists of memory lapses as a result of disruptions in information processing of the trauma. Absorption or imaginative involvement includes improper discrimination between fantasy and reality due to enmeshment in fantasy activities. Passive influence is when one experiences loss of control over body and sensations. Depersonalization and derealization occur when one feels distinct and separate from one's body and the world.

Dissociation is not always described as pathological. Indeed, dissociation can be described on a continuum of intensity from normal to pathological (Armstrong, Putnam, Carlson, Libero, & Smith, 1997). Generally, children are believed to have greater capacities in terms of dissociation than adults (Hicks, 1985). When traumatized children employ dissociation as a coping strategy, the method may become an automatic response to stress. Normative instances of dissociation, such as depersonalization and absorption, may begin to decrease from childhood to adolescence and continue to decrease into adulthood (Armstrong, Putnam, Carlson, Libero, & Smith, 1997; Ross, Ryan, Anderson, & Ross, et al., 1989). Although instances of dissociation may be normal in adolescents
and children, chronic dissociative experiences concerning memory, affect, or behavior does hinder healthy functioning (Armstrong, Putnam, Carlson, Libero, & Smith, 1997). Most evidence indicates little to no gender difference in dissociative symptoms (Putnam, Horenstein, & Peterson, 1996).

Dissociation as a result of trauma can thus manifest in various levels from more extreme tertiary dissociation to normal instances of dissociation (van der Kolk, van der Hart, & Marmar, 1996). Nonetheless, despite the level, the link between trauma and dissociation is continually present (Armstrong, Putnam, Carlson, Libero, & Smith, 1997; Feeny, Zoellner, & Foa, 2000; van der Kolk, van der Hart, & Marmar, 1996). Although the experience of dissociation may serve to prevent negative emotional states from affecting an individual during or after trauma, there are many maladaptive consequences (van der Kolk, van der Hart, Marmar, 1996). Individuals are at an increased risk of developing PTSD when trauma is not conglomerated with other autobiographical memories or cognitions.

Dissociation may be useful during a traumatic experience but, if continued, may interfere with daily functioning (van der Kolk, 1996). The suggestion that dissociation is related to psychopathology in general, and not PTSD in particular, also deserves consideration (Feeny, Zoellner, & Foa, 2000). Feeling disconnected from others, and subjectively feeling unable to experience emotions, is a result of dissociation.

Dissociation in children has been associated with behavioral and school performance problems (Trickett, McBride-Chang, & Putnam, 1994). Furthermore, deficits in intimacy and aggression modulation may develop as a result of dissociation related to trauma (van der Kolk, 1996). Generally, individuals who have experienced trauma are not only at risk
of developing PTSD but of dissociative disorders as well (Putnam, 1996; van der Kolk, van der Hart, Marmar, 1996). Individuals with dissociative disorders also tend to have various PTSD-like symptoms that include self-mutilation, substance abuse, suicide attempts, nightmares, and flashbacks (van der Kolk, 1996).

Dissociation can be consistently linked to child maltreatment. For instance, in the Brunner et al. (2000) study, adolescent victims of neglect, sexual maltreatment, physical maltreatment, and severe life events displayed high levels of dissociation compared to those with no maltreatment history (Brunner, Parzer, Schuld, Volker, & Resch, 2000). Furthermore, moderate and severe forms of trauma yielded similar levels of dissociation in adolescents. Brunner and colleagues (2000) found no gender differences in dissociative symptoms. The Brunner study used an appropriate sample of adolescents (aged 11-19 years, mean = 15.3, SD = 1.7). However, these adolescents were psychiatric patients, which may have affected the severity of dissociative symptoms compared to maltreated adolescents not admitted to psychiatric facilities. Youths in this study had been diagnosed with several disorders and the relation between PTSD and dissociation was unclear.

Dissociative symptoms are reportedly high in sexually maltreated children, according to both parent and child reports (Malinosky-Rummell & Hoier, 1991; Putnam, Helmers, Horowitz, & Trickett, 1995). Greater rates of sexual maltreatment have also predicted the utilization of dissociative methods (Malinosky-Rummell & Hoier, 1991). Greater dissociation is associated with duration, severity, and early onset of maltreatment in adolescents, children, and adult survivors (Friedrich, Jaworski, Hexsuchl, & Bengston, 1997; Putnam, 1996b). Dissociative symptoms have been positively associated with early stress, psychological maltreatment, and physical violence or maltreatment in childhood,
with those who experienced both psychological and physical maltreatment having the highest dissociation scores (Sanders, McRoberts, & Tollefson, 1989). Extreme dissociative symptomatology is seen with diagnoses of Dissociative Identity Disorder (DID), formerly Multiple Personality Disorder.

The development of DID, the most extreme form of dissociation, has been associated with childhood trauma such as sexual and physical maltreatment and, to a lesser extent, neglect (Coons, 1996). Adolescents with DID also tend to have high rates of comorbidity with depressive symptoms, posttraumatic stress symptoms, and aggression. Adolescents with DID typically experience high rates of dissociative symptoms such as amnesia, identity disturbances, depersonalization, derealization, and fugue. Adolescents and adults tend to experience the previous types of dissociation more so than children (Coons, 1996; Putnam, Horenstein, & Peterson, 1996).

Although dissociation can be a coping mechanism or self-defense against traumatic and fear-based reactions, it does put individuals at risk for developing chronic PTSD (van der Kolk, van der Hart, & Marmar, 1996). Dissociation in general, and peritraumatic dissociation in particular, have been found to specifically predict PTSD development (Marmar, Weiss, Schlenger, Fairbank, Jordan, Lulka, & Hough, 1994). Individuals with PTSD tend to develop significant levels of dissociative symptoms (Bremner, Steinberg, Southwick, et al., 1993).

Dissociation during and after trauma may be a strong long-term predictor of PTSD development and maintenance (Ehlers, Mayou, & Bryant, 2003; van der Kolk, Pelcovitz, Roth, Mandel, McFarlane, & Herman, 1996). Thus, dissociation during or immediately after the trauma does tend to predict or be related to PTSD severity or development.
(Ehlers, Mayou, & Bryant, 1998; Gilboa-Schechtman, & Foa, 2001). Peritraumatic dissociation has been identified as the greatest predictor of PTSD six months after a trauma experience (van der Kolk, Pelcovitz, Roth, Mandel, McFarlane, & Herman, 1996).

Overall, the literature appears to be consistent in several ways. Dissociation levels in general are correlated with sexual maltreatment and assault, physical maltreatment, and witnessing domestic violence in childhood (Brunner, Parzer, Schuld, Volker, & Resch, 2000; Coons, 1996; Feeny, Zoellner, Fitzgibbons, & Foa, 2000; Sanders, McRoberts, & Tollefson, 1989). According to some experts, two main predictors of dissociation are sexual maltreatment and a dysfunctional familial environment in childhood (Putnam, 1996).

Dissociation, like anger, seems to interact as a form of emotional disengagement from a trauma experience (Feeny, Zoellner, & Foa, 2000). Although anger and dissociation are common reactions after a traumatic experience, the persistence of these feelings leads to greater dysfunction. Whether serving as coping or defensive functions, anger and dissociation play significant roles in childhood maltreatment and, consequently, PTSD. Despite what is known, gaps are still prevalent concerning the relationship between PTSD and dissociation in terms of cultural, gender, and age differences in symptom presentations.

**Depression, Child Maltreatment, and PTSD**

Depressive disorders and symptomatology in relation to PTSD and child maltreatment or sexual/physical assaults have also been examined (Allen & Tarnowski,
Several studies have implicated the role of depression in the development of PTSD, while other studies have examined depressive symptoms in relation to maltreatment variables. In general, depression and maltreatment have been positively correlated.

In an examination of recently immigrated children's exposure to violence and the subsequent development of PTSD, depressive symptoms and PTSD yielded high correlations (Jaycox, Stein, Kataoka, Wong, Fink, Escudero, & Zaragoza, 2002). Furthermore, the positive relationship between violence exposure and depressive symptoms was strong. Girls in this study displayed greater levels of PTSD and depressive symptoms compared to boys, although boys were more likely to report violent experiences. The youths examined in the Jaycox et al. (2002) study were aged 8 to 15 years (M = 11.4, SD = 1.8).

Depression has also been found to predict chronic PTSD and is related to poor recovery in female assault victims (Feeny, Zoellner, Fitzgibbons, & Foa, 2000). Independent of violent traumatic experiences, trauma victims in general may show higher levels of depression. Residents in a town severely affected by a toxic spill who were subsequently diagnosed with PTSD, for example, exhibited greater levels of depression than those residents without PTSD (Freed, Bowler, & Fleming, 1998).

Depression, trauma, and PTSD are related, but differences in the intensity of depression perhaps exist with respect to type of trauma. Female victims of sexual assault, for example, display greater levels of depression compared to female victims of nonsexual assault (Gilboa-Schechtman & Foa, 2001). Another study reported that incest
survivors exhibit greater levels of depression than controls (Lundberg-Love, Marmion, Ford, Geffner, & Peacock, 1992). Individuals in the military who had been exposed to war trauma reported greater levels of posttraumatic symptoms as well as depression, compared to those personnel who were not exposed to war trauma (Sutker, Corrigan, Sundgaard-Riise, Uddo, & Allain, 2002). Moreover, the number of traumatic events reported was positively associated with higher levels of depression. Individuals with PTSD, compared to those without, also show greater levels of depression (Linning & Kearney, 2004; Sutker, Corrigan, Sundgaard-Riise, Uddo, & Allain, 2002).

In an examination of school-aged sexually abused girls in need of mental health services, diagnoses of depression and PTSD were noted (Sadowski et al., 2003). This sample demonstrated high rates of major depressive disorder (57%) and of PTSD (73%). These findings demonstrated that the effects of abuse can lead to various impairments and cause the victims to be more vulnerable to both affective symptoms and anxiety symptoms.

Physical maltreatment in children has shown to produce greater rates of clinical depression compared to neglected children (Toth, Manly, & Cicchetti, 1992). Adolescents who had experienced both psychological and physical maltreatment reported more depression than those experiencing only one form of the abuse (Gross & Keller, 1992). Furthermore, psychological maltreatment alone predicted depressive levels, whereas physical maltreatment alone did not. Greater levels of depression have also been found in children who experienced maltreatment or neglect at an earlier age than other children who had been maltreated (Moran & Eckenrode, 1992). Despite the multitude of studies examining depression and maltreatment, however, controversies still exist.
concerning the effects of certain types of maltreatment in relation to depression: for example, whether sexual maltreatment produces greater depressive symptoms than neglect.

High rates of depression have been found in sexually maltreated children compared to nonmaltreated children (Lanktree, Briere, Zaidi, 1991; McLeer, et al., 1998). Psychiatric inpatients reporting histories of sexual maltreatment display greater suicidal ideation and depression than inpatients without histories of sexual abuse (Sansonnet-Hayde, Haley, Marriage, & Fine, 1987). The experience of sexual and other forms of maltreatment has also been related to suicidality in college women compared to those who had experienced only one form of maltreatment or none (Bryant & Range, 1996).

Wolfe and colleagues (1994) assessed sexually maltreated boys and girls (mean age = 12.4 years) regarding PTSD and depression. Children with PTSD demonstrated greater levels of depression and guilt related to maltreatment compared to children without PTSD. In addition, girls were more likely to be diagnosed with PTSD than males. Youths in this study were aged 6 to 16 years, which muddles possible age differences in symptom presentations between children and adolescents. However, the researchers did state that youths diagnosed with PTSD were significantly older than those without.

Despite the evidence implicating various types of trauma and depression, a comparison of four types of PTSD (i.e., PTSD trauma through observation, verbal mediation, direct experience, or combination) did not yield significant results (Saigh, 1991). In a study of sexually maltreated youths, those diagnosed with PTSD or no-PTSD did not differ in terms of depression (McLeer, Deblinger, Atkins, Foa, & Ralph, 1988). In another study of sexually maltreated youths, maltreatment-related variables such as
frequency or victim-perpetrator relationship did not predict depressive levels (Ruggiero, McLeer, & Dixon, 2000).

Although there are variations in findings, substantial evidence links various types of maltreatment, depression, and possibly PTSD (Lanktree, Briere, Zaidi, 1991; McLeer, Dixon, Henry, et al., 1998; Sadowski et al., 2003; Wolfe et al., 1994). Questions still remain concerning differences in depressive symptomatology among age groups, among different cultural groups, and among types of maltreatment. Currently, various studies cite associations between child maltreatment and the diagnosis of PTSD.

A number of symptoms are consistently cited in the literature as being related to PTSD in terms of maintenance or onset. Despite this knowledge, there are still several aspects concerning cultural variations in PTSD and its related symptoms that are unknown. Taking into account these questions, brief cultural overviews will be provided, followed by findings involving racial and ethnic literature concerning trauma, maltreatment, and PTSD.

Culture, Child maltreatment, and PTSD

Cultural Beliefs and Variations

Although within group differences do exist, many research findings document how ethnic and racial minority family values differ from those of Caucasian families. On a general note, African-American families typically view family systems and extended family networks as great sources of emotional support. In addition, family unity is highly valued in many African-American families (Hines, Garcia-Preto, McGoldrick, Almeida, & Weltman, 1992).
In contrast to many Caucasian families, which often foster minimal interdependence, traditional Hispanic families emphasize responsibility and mutual obligation in the family system (Hines, Garcia-Preto, McGoldrick, Almeida, & Weltman, 1992). Gender role adherence may be stricter in some traditional Mexican-American families (Diaz-Guerrero, 1955; Martinez Jr., 1993). With this pressure, traditional Mexican women may have higher levels of depression and distress (Martinez Jr., 1993).

Respect and obedience in youths is also expected in many Hispanic families (Sue & Sue, 2003). Asian-American families also seem to hold collectivist orientations toward family relations (Sue & Sue, 2003). Unlike Western society, which encourages youths to become more autonomous, Asian-American adolescents are expected to support and respect family members and attain goals that will help the family (Fuligni, Burton, Marshall, Perez-Febles, Yarrington, Kirsh, & Merriwether-DeVries, 1999; Sue & Sue, 2003).

Cultural findings concerning anxiety. Recent interest has considered the role of increased somatic symptoms in the expression of anxiety among diverse youths (Canino, 2004; Pina & Silverman, 2004; & Varela et al., 2004). Specifically, in a clinically anxious population, Hispanic-American youths reported greater somatic symptoms according to parent reports than Caucasian and Cuban-American youths. Parental language preference (parents chose to complete assessments in English or Spanish) appeared to foster differences among the ethnic groups. For example, in the English language group (parents chose to complete assessments in English) somatic symptoms produced greater distress among Hispanic-American youths compared to the Cuban-American youths (Pina & Silverman, 2004). However, in the Spanish language group
(parents chose to complete assessments in Spanish), Cuban-American youths appeared to experience greater distress concerning somatic symptoms than Hispanic-American youths. More research is needed to specifically interpret these findings and the meaning of somatization in Hispanic youths, although the authors of this study stressed the importance of assessing somatic symptoms in Hispanic youths. Also left unresolved was whether the difference between the Spanish and English language preference groups was a function of acculturation.

Pina and Silverman (2004) also highlighted the possibility that anxiety may be expressed (self-reports) and interpreted in different ways among certain ethnic groups (i.e., asking families to interpret anxiety scenarios). With a sample of Mexican, Mexican-American, and Caucasian children, anxiety and cultural values were explored (Varela et al., 2004). In examining self-reported anxiety symptoms, Mexican and Mexican-American youths reported similar frequencies of physiological and worry symptoms, which were higher than those reported by the Caucasian youths.

In examining parent interpretations of anxiety-related scenarios, Mexican and Mexican-American parents were more likely to yield somatic, non-anxious themed explanations than Caucasian parents, with Mexican parents also providing fewer anxious/nonsomatic explanations than Caucasian parents (Varela, et al., 2004). Mexican-American and Caucasian youths provided more somatic, non-anxious themed explanations for scenarios than Mexican children. Interestingly, fewer worry symptoms were reported by Mexican-American youths with greater assimilation to European-American culture. The authors cautioned clinicians to examine acculturation levels, possible familial biases, and meanings of anxiety symptoms when working with
Mexican-American families as these beliefs may influence or interact with a child’s expression and reporting of anxiety.

Lambert and colleagues (2004) examined African-American youths (i.e. the Child Anxiety Sensitivity Inventory; Silverman, Fleisig, Rabian, & Peterson, 1991), in which physical concerns represented the most meaningful factor. This sample of African-American children also exhibited greater levels of anxiety sensitivity that could be considered clinical than past samples of Caucasian youths (Silverman, Fleisig, Rabian, & Peterson, 1991). However, Ferrell and colleagues (2004) examined Caucasian and African-American children with social phobia and discovered similar symptom patterns and recovery after a standardized treatment.

Recent research has found within group differences and similarities among Asian-Americans in terms of anxiety (Austin & Chorpita, 2004). This research highlighted the importance of recognizing that Asian-Americans vary with respect to ethnicity and consist of Chinese-American, Filipino, Native Hawaiian, Japanese-American, and other significant diverse groups. However, this research involving ethnic groups in Hawaii paralleled past research concerning the manifestations of anxiety in Caucasian children. More relevant to the current study, the next section will focus on the literature concerning more specific constructs related to PTSD in diverse children.

*Cultural variations in PTSD-related symptoms and emotions.* Questions also arise as to whether diverse children differ from Caucasian children in terms of various PTSD-related symptom presentations. Cultural variations in emotional patterns also raise the question of whether higher rates of depression in some cultures represent higher rates of
the disorder or cultural variations in normative differences of emotional presentations (Guarnaccia, Good, & Kleinman, 1990; Manson, 1997).

Lower levels of adaptive functioning and higher levels of emotional disturbances (i.e., depression, anxiety) are demonstrated in Hispanic children compared to African-American children in psychiatric-based samples when controlling for SES, possibly due to family, social or cultural factors (Canino, Gould, Prupis, & Shaffer, 1986). Some researchers posit that depression in traditional Mexican-Americans is increased as a result of greater beliefs in external control, which are not as greatly held in Anglo-American culture (Mirowsky & Ross, 1984). This greater belief in external control is also related to increased hopelessness, with women believing more in external control and having increased depression. Women who are members of a minority group may also be at a greater risk for mental illness than Caucasian middle-class women (Frezza et al., 1990).

In terms of anger expression, ethnicity literature is scarce. However, one study indicated that Caucasian youths reported greater expressions of anger through verbal aggression than Mexican-American youths, but no differences were found in the extent of physical aggression utilized (Deffenbacher & Swaim, 1999). Male youths in this study reported greater physical aggression than females. On a general note, anger expression was associated with anxiety and depression in this sample of youth. This study yielded information on possible variations in anger expression between Caucasians and Hispanics, although the study could have been improved by using a more standardized anger expression scale that measured more facets of anger expression.

Regarding emotional expressions in African-Americans, African-American males have been found to hold anger in more so than Caucasians, while African-American
females have been found more likely to express overt anger (Gentry, 1972; Gentry, Chesney, Kennedy, Hall, Gary, & Harburg, 1983; Stevenson, Reed, Bodison, & Bishop, 1997). Other studies have supported anger suppression in African-American females and males, especially when this anger is directed toward Caucasians (Baughman, 1971). However, these previous findings were noted in experimental settings, so external validity may be limited. Many studies have, however, noted the suppression of anger in African-American males and children, possibly in response to societal injustices or with respect to increased awareness of racial dynamics (Steele, Elliot, & Phipps, 2003; Stevenson, Reed, Bodison, & Bishop, 1997). However, increased appreciation of one's culture in African-American men does lead to more appropriate expressions and control of anger.

Culture and Trauma

Mixed findings arise in the examinations of the relationship of culture and child maltreatment effects. Some studies have not found racial or ethnic differences in child maltreatment or similar traumas (Mannarino, Cohen, & Gregor, 1989; Mennen, 1994; Vernberg, Silverman, La Greca, Prinstein, 1996). In an assessment of Hispanic and African-American boys who had been sexually maltreated, for example, no differences in depression symptomatology were found, but both groups did display mild depression (Moisan, Sanders-Phillips, Moisan, 1997). Unfortunately, the previously cited study did not compare Caucasian or Asian-American males.

Caucasian women have reported higher rates of sexual assault than Hispanics, but United States-born Hispanics did not differ from Caucasian women in rates of sexual assault (Sorenson & Siegel, 1992). Reported sexual maltreatment rates have been lower
among Asian-American women than Caucasians and African-Americans (Russell, 1986). Not enough is known about Asian-American children’s reactions to trauma and child maltreatment, partly due to these reasons. Asian-American women have also been found hesitant to end abusive relationships due to cultural obligations (Rimonte, 1989).

In an examination of African-American and Caucasian child sexual maltreatment victims, females were matched on education, marital status, and having children, but not SES (Wyatt, 1990). In this study, no major differences were found between the two races with respect to the short-term effects of maltreatment. However, African-American women reported greater long-term effects in terms of avoiding men who resembled their perpetrator than Caucasian women. In contrast to Wyatt (1990), other studies demonstrate that diverse children who have experienced maltreatment experience more severe and chronic symptoms than Caucasian children (Sanders-Phillips, Moisan, Wadlington, Morgan & English, 1995; Stein, Golding, Siegel, Burnam, & Sorenson, 1988).

In terms of perpetuating violence, Caucasian youths who had been maltreated and neglected did not have higher rates of violent offenses than nonmaltreated Caucasian youths, but African-Americans who were maltreated (including neglect) did have higher rates than African-American nonmaltreated children (Rivera & Widom, 1990). For both African-Americans and Caucasians, maltreated males are at greater risk to commit violent offenses as adults, more so than nonmaltreated males and maltreated females. Furthermore, sexually maltreated Caucasian children have been found to display less behavioral and depressive symptoms, and higher self-esteem, than African-American and Hispanic children (Russell, 1986).
In the Moisan et al. (1997) study of sexually maltreated boys, differences in depression were not found, but Hispanics reported greater symptoms of hopelessness, self-dislike, anhedonia, loneliness, and poorer self-image than African-Americans. Furthermore, African-American boys reported more crying and somatization symptoms and had greater trait anger scores and anger after sexual maltreatment than Hispanic boys. Extended family members were more often the maltreatment perpetrators in Hispanic boys, whereas African-American boys were more likely to be maltreated by an immediate family member. While some anger expression differences were noted, only trait anger was measured in this study, which limited information on other differences in anger expression in these youth.

Generally, females express greater depressive symptoms than males, and support for this has also been found among ethnic and racial minority groups (Jenkins, 1996). In an examination of school-aged Hispanic children, for example, girls displayed greater symptoms of PTSD and depression than boys, even after treatment (Kataoka, Stein, Jaycox, Wong, Escudero, Tu, Zaragoza, & Fink, 2003). In a study of sexually maltreated Hispanic and African-American girls, Hispanics reported significantly greater levels of depressive symptoms and family conflict than African-American girls (Sanders-Phillips, Moisan, Wadlington, Morgan, & English, 1995).

In the Sanders-Phillips et al. (1995) study, depression was related to family conflict in African-American and Hispanic girls. However, family conflict directly predicted depression in African-American girls whereas, in Hispanics, family conflict was more predicted by abuse associated with intercourse, which in turn predicted depression. The researchers posited that Hispanic girls may have experienced greater levels of depression
as a result of disclosing sexual maltreatment, which could have created greater problems within the family (Padilla, 1988; Sanders-Phillips, Moisan, Wadlington, Morgan, & English, 1995). African-American girls responded to the abuse more by withdrawal compared to Hispanic girls. The girls in this study were aged 8-13 years. To explore these constructs in older youth would be beneficial. Contributing to literature citing ethnic differences in trauma responses, a few studies also lend support to greater mental health ailments in response to trauma in African-American and Hispanic women than Caucasians (Russell, 1986; Sorenson & Siegel, 1992).

Some researchers posit that, in racial and ethnic groups, depression may be associated with the stress of racism, conflicting values between one's culture and dominant society, and socioeconomic factors (Allen, Denner, Yoshikawa, Seidman, & Aber, 1996). According to this theory, ethnic differences in depressive-like symptoms would be expected, with minority groups exhibiting greater levels of depression and depressive-like symptoms. In a study of Hispanic female adolescents who had been sexually maltreated, high degrees of internal attributions were noted such as self-blame and shame regarding the maltreatment, in addition to sadness, anger, and anxiety (McGurk, Cardenas, & Adelman, 1993).

In a study involving Asian-Americans, sexually maltreated Asian-American youths displayed less anger and inappropriate sexual acts, but greater suicidal ideation and attempts, than African-Americans, Hispanics, and Caucasians (Rao, DiClemente, & Ponton, 1992). In this same sample, family support following maltreatment disclosure differed among ethnic groups, with Asian-American caretakers expressing disbelief at the experience of sexual maltreatment more so than Hispanics, African-Americans, and
Caucasians, descending respectively. Thus, Asian-American youths’ greater levels of 
suicidal ideation could be related to cultural variations in shame concerning the 
occurrence of maltreatment.

Some experts believe PTSD should be cautiously or not diagnosed in non-Western 
populations (Chakraborty, 1991; Jenkins, 1996). However, others believe that many 
PTSD symptoms are universal across cultures, while also acknowledging that there may 
be some differences and variations in response to trauma or overlap with other diagnoses 
according to one’s culture (Friedman & Marsella, 1996; Marsella, Friedman, & Spain, 
1996). Although variations in symptoms and frequency of PTSD may exist, little concrete 
evidence has been reported (Marsella, Friedman, Gerrity, & Scurfield, 1996; Marsella, 
Friedman, & Spain, 1996). However, PTSD has been found in various other cultures 
outside of Western society (Sack, Seeley, & Clarke, 1997).

Many studies have found gender differences in rates of PTSD. Across ethnicities, 
rates of PTSD symptoms are higher in females than males in African-American, 
Hispanic, and Caucasian women, even when exposure severity is controlled (Norris, 
Perilla, Ibanez, & Murphy, 2001). These gender effects were greatest in Hispanic women 
and Caucasians than African-Americans, respectively. Furthermore, Hispanic women 
displayed disproportionate levels of guilt compared to these other groups.

From the National Vietnam Veterans Readjustment Study (NVVRS), after controlling 
for war trauma exposure, no PTSD prevalence differences were found between Caucasian 
and African-American veterans. However, Hispanic veterans had slightly higher rates of 
PTSD than Caucasian veterans (Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar, & 
Weiss, 1990). Before controlling for war zone trauma in this sample, differences were
found in PTSD rates: Hispanics (28%), African-Americans (19%), and Caucasians (14%). Other studies have not only listed femaleness as a risk factor for PTSD, but also belonging to an ethnic minority group (Davidson, 1993; Fontana & Rosenheck, 1993).

In a study of elementary school children three, seven, and ten months after Hurricane Andrew, African-American and Hispanic children did not differ in PTSD scores but did display more PTSD symptoms than Caucasian children, even with exposure controlled (La Greca, Silverman, Vernberg, & Prinstein, 1996). In other studies of elementary-aged children affected by Hurricane Andrew, African-American children showed greater posttraumatic symptom scores over time than Caucasian and Hispanic children (Garrison, Bryant, Addy, Spurrier, Freedy, & Kilpatrick, 1995; La Greca, Wasserstein, & Silverman, 1998). Hispanic children who were experiencing parental conflict showed greater PTSD symptoms after Hurricane Andrew than Caucasian children in similar positions and than Hispanic children in families with less parental conflict (Wasserstein & La Greca, 1998). In the latter study, the extent to which family interactions affected the stress levels in Hispanic children was greater than in Caucasian children.

Not a great deal of information is available regarding the extent of dissociative symptoms in minority children. Okano (1997) defines Japanese families as subject to diagnoses of dissociative amnesia, as the cultural values emphasizing shame can lead individuals to suppress one’s desires and cause relationship stress. Dissociative symptoms have been observed in Japanese women who had been sexually abused (Berger, et al; 1994).
Limitations of Current Research on Culture and Trauma

The handful of studies that have examined the role of culture in child maltreatment effects have had numerous flaws. Socioeconomic status (SES) may be confounding race and ethnicity effects and, in some of the studies mentioned, SES was not controlled. Not controlling for SES is an issue because several researchers have posited that race alone does not predict poorer mental health, but that poverty is a better predictor (Gonzales & Kim, 1997). Thus, youths from minority groups that typically have lower SES, such as African-Americans, Hispanic-Americans, American Indians, Alaskan Natives, and some subgroups of Asian-Americans, may be threatened more by psychological ailments than Caucasians.

However, minorities can face discrimination, prejudice, and other unique stressors. Thus, in support of studies not controlling for SES, these variables do also affect minority psychological health regardless of SES status (Gonzales & Kim, 1997; Goodyer, 1988). African-American children may also witness more violence than other children (Bell & Jenkins, 1991). In other studies, very low numbers of various ethnic/racial groups were compared to larger Caucasian samples. Other studies compared Caucasians to one “minority/non-Caucasian” group that was comprised of multiple ethnic/racial groups combined (e.g., Hispanics plus African-Americans, etc.). Many studies examined elementary school children, who may differ symptomatically from older youth. Keeping these limitations in analyses in mind, this study sought to improve upon previous study designs to assess the role of culture on the effects of maltreatment and trauma in adolescents.
Summary of Symptom Expressions in Response to Child Maltreatment

The current literature base concerning PTSD and trauma has been consistently associated with symptom displays of depression, dissociation, maladaptive cognitions, and increased anger. These constructs have been more so examined in adult victims of childhood maltreatment and/or adult sexual/physical assault. However, insufficient information exists concerning traumatized youths (Birt & Wolfe, 1995; Ehlers, Mayou, & Bryant, 2003; Kiser et al., 1991; Putnam, 1996; Toth, Manly & Cicchetti, 1992). Knowing more about the effects of maltreatment, which is a pervasive problem in our society, is still needed to better aid affected youths who display these symptoms.

Purpose of Study

This study sought to clarify the role of Posttraumatic Stress Disorder and its related symptoms in adolescents. The major findings in this area have been shown in adults, while the PTSD and maltreatment literature base in youths is still fairly new. As for research with maltreated and traumatized youths, age effects have often been confounded in many studies, in that pre-adolescents and adolescents are combined in samples. Because cognitive differences arise with age, this study examined older youths. Depressive symptoms and coping styles such as anger expression, maladaptive cognitions, and dissociation were examined more closely and accurately.

The need for researchers to take into account ethnic and cultural effects in psychological constructs has become increasingly apparent. Racial and ethnic factors have either been ignored or confounded by researchers making comparisons with insufficient sample sizes, or worse by lumping various minority groups together with
comparisons of “Caucasian vs. non-Caucasian.” This study aimed to correct some of these methodological shortcomings and more thoroughly examined possible ethnic variations in PTSD and its related symptoms in maltreated and traumatized youths.

**Hypotheses**

This study primarily examined various psychological effects of PTSD within the context of ethnicity. These psychological effects included depression, dissociation, anger, and maladaptive cognitions. In doing so, two main hypotheses were evaluated. First, levels of PTSD symptomatology, depression, dissociation, anger, and maladaptive cognitions were expected to significantly differ among African-American, Caucasian, Hispanic, and Multiracial adolescents. This hypothesis was based on preliminary data from the literature that supports some ethnic and cultural differences with respect to PTSD-related symptoms (Brunner, Parzer, Schuld, Volker, & Resch, 2000; Friedman & Marsella, 1996; Garrison, Bryant, Addy, Spurrier, Freedy, & Kilpatrick, 1995; La Greca, Silverman, Vernberg, & Prinstein, 1996; La Greca, Wasserstein, & Silverman, 1998; Marsella, Friedman, & Spain, 1996; McGurk, Cardenas, & Adelman, 1993; Moisan, Sanders-Phillips, Moisan, 1997; Moisan, Wadlington, Morgan, & English, 1995; Norris, Perilla, Ibanez, & Murphy, 2001). However, this literature is sparse and has not evaluated ethnic differences in this population in an ad hoc manner.

Second, ethnicity was expected to significantly moderate a relationship between (1) severity of PTSD as measured by symptomatology, and (2) the expression of related symptoms (i.e., depression, dissociation, anger, and maladaptive cognitions). Based on the little literature available, Hispanics were expected to demonstrate a stronger
moderating influence in this sequence overall compared to African-Americans, Caucasians, and Multiracials (Moisan, Sanders-Phillips, Moisan, 1997; Moisan, Wadlington, Morgan, & English, 1995). However, moderating influences with respect to more specific variables were expected as well. For example, the relationship between PTSD symptomatology and depression was expected to be moderated more by Hispanic ethnicity (Canino, Gould, Prupis, & Shaffer, 1986; Moisan et al., 1997; Sanders-Phillips et al., 1995). In addition, the relationship between PTSD symptomatology and anger was expected to be moderated more by African-American race (Moisan et al., 1997; Steel, Elliot, & Phipps, 2003; Stevenson, Reed, Bodison, & Bishop, 1997).
CHAPTER 3

METHODOLOGY

Participants

Participants included 82 adolescents who were referred to Child Haven in Las Vegas, Nevada. Subjects were 32 females and 50 males (N = 82) aged 11 to 17 years (M = 13.76, SD = 1.48). Participants consisted of 30 Caucasians (36.6%), 25 African-Americans (30.5%), 17 Hispanics (20.7%), and 10 Multiracial individuals (12.2%). Refer to table one for the ethnic composition of male and female participants.

Thirty-five participants reported that their parents had never married, 23 reported divorced parents, 10 indicated that their parents were currently married, 9 reported separated parents, and 3 reported widowed parents (N = 82). Participants were asked if they were ever previously removed from their home and placed into foster care (yes = 34, no = 46) or resided with a grandparent or other relative for more than 3 months (yes = 38, no = 46).

Youths were asked about familial income, though most children could not answer this question. Youths were also asked about weekly hours worked by each parent and parental occupation to obtain more information on socioeconomic status. Reported mean weekly work hours by each parent were below full time work status for mothers (M = 15.5) and fathers (M = 28.8). Many adolescents reported that their parent(s) were not currently
employed or were disabled (N = 44) or employed in a minimum wage paying type job. Thus, the majority of youths in the sample appeared to be in the low SES bracket and this did not differ according to ethnicity. In addition to their home situation, each youth was asked about other demographics to garner as much information about this shelter based sample as possible (see Table two).

During each semistructured interview (Anxiety Disorders Interview Schedule, Silverman & Albano, 1996 & Children’s PTSD Inventory, Saigh, 1998), participant information was gathered concerning their exposure to potentially traumatic events. The mean number of traumatic events experienced was 3.4 and only one participant reported no traumatic event (range = 0 to 7). Traumatic events were classified according to 8 categories (see Table three). The adolescents were also asked if they had ever witnessed domestic or other violence such as neighborhood violence.

Youths were diagnosed as PTSD negative (n = 23) or PTSD positive (subclinical to chronic cases or PTSD) (n = 58). See table four for the composition of PTSD diagnoses by gender and ethnicity. Youths were also given PTSD symptom cluster scores, based on how many symptom clusters (0 to 6) they were experiencing ($M = 4.36, SD = 1.65$, Range = 0 to 6) (Silverman & Albano, 1996). These six symptom clusters were: Exposure to a traumatic event, Situational reactivity, Reexperiencing, Avoidance and numbing, Increased arousal, and Significant distress. In the interview addendum, each participant who reported maltreatment was further asked about the details of the abuse.

The gender of youths reporting physical maltreatment was fairly equal (male = 26, female = 20). The ethnicity of those physically maltreated is presented in table five. The majority of youths who reported alleged physical maltreatment said the perpetrator was
their father (n = 19). Other participants identified the physical maltreatment perpetrator as a mother (n = 14), male guardian/stepfather (n = 14), older sibling (n = 7), extended relative (n = 7), family friend (n = 3), stepmother (n = 2), or stranger (n = 2). One participant did not want to specify the perpetrator who was a member of their immediate family (n = 1). Some participants reported multiple abusers (M = 1.53, SD = .77, range = 1 to 4).

The participants reporting alleged sexual violations/maltreatment were largely female (n = 13), with one male participant. The ethnic composition of those reporting sexual violations/maltreatment is presented in table five. Respectively, those adolescents reporting alleged sexual maltreatment/violations reported their abusers as a family friend/acquaintance (n = 4), a stranger (n = 4), a stepfather/mother’s boyfriend (n = 4), an extended relative (n = 4), an older sibling (n = 2), or their father (n = 2). Of the 13 females and 1 male who reported experiencing a sexual violation, 8 participants reported one perpetrator and 6 reported multiple perpetrators (range = 1 to 4, M = 1.64, SD = .93).

Thirty participants reported witnessing domestic violence (male = 13, female = 17). See table five for the ethnic composition of those participants affected by domestic violence. Additionally, there were 48 participants who reported witnessing other violence such as gang fights or shootings (male = 30, female = 18). The ethnic composition of those participants reporting that they had witnessed neighborhood violence is presented in table five.

**Measures**

The Children’s PTSD Inventory (CPTSD-I; Saigh, 1997) is a semi-structured interview designed to correspond to DSM-IV PTSD diagnostic criteria. This measure is
appropriate for youths aged 7 to 18 years (Saigh, Yasik, Oberfield, et al., 2000). The CPTSD-I contains 5 subtests: potential exposure to traumatic incidents/stress exposure, reexperiencing symptoms, avoidance and numbing symptoms, increased arousal, and significant distress.

This instrument attempts to establish the duration of distress for particular symptoms. Items are scored based on a dichotomous scale of: “1” for presence and “0” for absence of the particular symptom in question (Saigh, et al., 2000). In addition, the CPTSD-I provides 5 potential diagnoses pertaining to PTSD: PTSD Negative, Acute PTSD, Chronic PTSD, Delayed Onset PTSD, and No Diagnosis. Critiques of the correspondence between the Children's PTSD Inventory and DSM-IV PTSD diagnostic criteria yielded mean ratings (On a 0-100 Likert-type scale) of 86.6 to 90.0 for each of the 5 subtests.

Saigh and colleagues (2000) administered the CPTSD-I to a sample of stress-exposed (n = 82) and unexposed youth (n = 22). This sample had a mean age of 13.8 years (range = 7-18; SD = 2.88) and was derived from Bellevue Hospital. Based on this sample, a high estimate of internal consistency was observed at the diagnostic level with a Cronbach alpha of .95. Furthermore, internal consistency estimates of the 5 subtest levels ranged from alphas of .53 to .89.

Excellent estimates of interrater reliability have been reported for the CPTSD-I. Saigh and colleagues (2000) reported a Cohen's kappa of .96, which indicated excellent agreement between raters at the diagnostic level. Four subtests yielded Cohen's kappas of .84 to 1.00, indicating excellent inter-rater reliability. One exception was a kappa coefficient of .66 concerning the Situational Reactivity subtest, which indicated fair to good agreement in terms of interrater reliability.
In addition, excellent estimates of test-retest reliability were obtained, yielding 97.6% agreement at the diagnostic level, with a Cohen’s kappa of .91 (Saigh et al., 2000). Test-retest reliability for the subtests, with the exception of Significant Impairment yielded kappa’s ranging from .78 to 1.00, at the excellent level. A kappa of .66 was obtained for the Significant Impairment subtest, at the fair to good agreement range in terms of test-retest reliability.

Yasik and colleagues (2001) examined the validity of the CPTSD-I compared to three criterion measures. Results indicated high correspondence between the Children’s PTSD Inventory and the criterion measures. Pearson product-moment correlation coefficients with the CPTSD-I were obtained in terms of diagnostic efficiency and ranged from .93 to .95 with the Diagnostic Interview for Children and Adolescents-Revised PTSD module (DICA-R; Reich, Leacock, & Shanfeld, 1994), Structured Clinical Interview for DSM PTSD module (SCID; First, Gibbon, Williams, & Spitzer, 1996), and clinician-derived diagnoses. Furthermore, the overall symptomatology endorsed on the CPTSD-I correlated highly with the extent of symptoms endorsed on the DICA-R \( r = .92 \) and SCID \( r = .91 \) PTSD modules. 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).

Convergent and discriminant validity were also examined with the use of the Revised Children’s Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985), Children’s Depression Inventory (CDI, Kovacs, 1992), Junior Eysenck Personality Inventory (JEPI, Eysenck, 1963) and the parent version of the Child Behavior Checklist (CBCL; Achenbach, 1991) (Yasik et al., 2001). The Children’s PTSD Inventory correlated
significantly with the CBCL, RCMAS, and the CDI. Because the latter two measures examine variables that are associated with PTSD, this provides evidence of sound convergent validity. The Children’s PTSD Inventory did not significantly correlate with the JEPI Extraversion scale, which yielded evidence for discriminant validity.

The Anxiety Disorders Interview Schedule for Children (ADIS-C; Silverman & Albano, 1996) is a semi-structured interview designed to yield DSM-IV anxiety disorder symptoms and diagnoses in children and adolescents aged 7 to 15 years. The ADIS-C provides DSM-IV diagnoses based on youth reporting. The ADIS-C is based on a yes/no response format aided by a “feelings thermometer” to rate the frequency and extent of impairment and interference in a youth’s life.

Silverman and Nelles (1988) reported an overall kappa coefficient of .84 for the original child schedule of the ADIS. These coefficients indicated that the ADIS-C yielded a high level of agreement in diagnostic categories, as well as a diagnostic composite of .78 regarding the child and parent interviews. Clinician agreement of the severity of the primary diagnosis yielded a correlation coefficient of .71 (ADIS-C).

The ADIS-C has demonstrated its ability in yielding reliable DSM-IV diagnoses and symptoms based on youth information (Silverman, Saavedra, & Pina, 2001). The ADIS-C also has excellent reliability in terms of symptom scales. Kappa coefficients for specific diagnoses ranged from .63 to .80 for the ADIS-C. Furthermore, test-retest reliability of the symptom scales over 2 administrations ranged from .78 to .95 for the ADIS-C.

In examining age differences in reliability for the ADIS-C, despite the reverse in separation anxiety and overanxious disorder sections, older youths (aged 12-17 years)
tended to report more reliably than children aged 6 to 11 years (Silverman & Eisen, 1992). The previous study lends support to the use of the ADIS-C with older youths (i.e., those aged 15 to 17 years). Overall, The ADIS-C has been shown to be a valid, reliable measure for use with youths.

The Children's Depression Inventory (CDI) (Kovacs, 1992) The CDI is a 27-item self-report questionnaire for children and adolescents aged 7 to 17 years. The CDI measures a range of depressive symptomatology that had occurred in the past two weeks. The CDI yields a total depression score as well as five subscale scores: Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia, and Negative Self-Esteem. Each item is based on a three-point response format of 0 (absence of a symptom) to 2 (definite symptom).

Reliability coefficients ranging from .71 to .89 have been reported, which indicates that the CDI demonstrates good internal consistency (Kovacs, 1992). Furthermore, the CDI has shown resilience throughout its incorporation, proving to be a useful measure in assessing depressive symptoms (Kovacs, 1992). Smucker and colleagues (1986) examined reliability of the CDI. Using a sample of youths (594 males, 658 females) aged 8 to 16 years (M = 11.67; SD = 1.91), internal consistency reliability was reported in the acceptable range, with coefficient alphas from .83 to .89.

After a 3-week interval readministration of the CDI, test-retest correlation coefficients ranged from .74 and .77 for fifth grade females and males, respectively (Smucker, Craighead, & Wilcoxon Craighead, 1986). In addition to support of the CDI as a reliable instrument, race and gender has not shown to be significant factors in depression scores (Helsel & Matson, 1984).
Carey and colleagues (1987) examined the construct and discriminant validity of the CDI with a sample of clinical inpatients and matched nonreferred subjects (N = 306) with an age range of 9-17 years (M = 13.9 years, SD = 2.2). In the Carey (1987) study, CDI factor scores reliably discriminated between the clinical and nonreferred subjects. However, this study also concluded that the CDI should not be used as a sole criterion for diagnosis.

The Posttraumatic Cognitions Inventory (PTCI) (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) is a 36-item self-report questionnaire. The PTCI measures trauma-related thoughts and beliefs related to symptoms in traumatized individuals. The PTCI yields 3 factors in addition to a total negative cognitions score: Negative cognitions about self, Negative cognitions about the world, and Self-Blame. Each item is rated on a 7-point Likert-type scale ranging from 1 (totally disagree) to 7 (totally agree). Currently, there are no specific age requirements developed for this scale.

Cronbach's alphas for the total and factor scores have been reported: Total score, α = .97; Negative cognitions about self, α = .97; Negative cognitions about the world, α = .88; and Self-blame, α = .86 (Foa et al., 1999). Test-retest reliability ranged from .74 to .89 after a one-week interval, and .80 to .86 after a 3-week interval. Construct validity has also been shown, as high to moderate correlations have been reported with the Personal Beliefs and Reactions Scale (PBRS; Resick et al., 1991).

The PBRS correlates with PTSD severity and was designed to examine constructs such as self-blame, undoing, and negative beliefs about rape in rape victims who have chronic PTSD (PBRS; Resick et al., 1991). The PTCI scales correlate with PTSD
severity, depression, and general anxiety (Foa et al., 1999). The PTCI also yielded higher scores with traumatized individuals versus nontraumatized individuals.

The Adolescent Dissociative Experiences Scale (A-DES; Armstrong, Putnam, Carlson, Libero, & Smith, 1997). The A-DES (Armstrong et al., 1997) was designed for youths aged 12 to 18 years. The Adolescent Dissociative Experiences Scales is a 30-item self-report measure designed to assess both normal and pathological dissociation in adolescents (Armstrong et al., 1997). The A-DES takes approximately 10 minutes to administer.

This test adopted a multifaceted approach to dissociation, examining four domains of dissociation in addition to a total score: Dissociative amnesia, Absorption and imaginative involvement, Passive influence, and Depersonalization and derealization (Armstrong et al., 1997). The Dissociative amnesia domain assesses memory lapses related to dissociation while Absorption and imaginative involvement examines possible confusion between reality and fantasy. Furthermore, the Passive influence domain assesses the experience of losing control over one’s body or sensations and the Depersonalization and derealization items examine feelings of being apart from one’s body or world.

In addition, two subtests assess specific effects of depersonalization such as being disconnected from oneself and information concerning one’s interpersonal relationships. The A-DES scoring is based on a continuous response format on an 11-point scale that ranges from “0 = never” to “10 = always”. The individual is asked to circle the number that best describes how often a particular experience happens to him or her.

73

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Armstrong and colleagues (1997) examined the psychometric properties of the A-DES in 102 adolescents (males = 56, females = 46) aged 12 to 18 years. From this sample, 73 of the adolescents were inpatients, 12 were outpatients, and 17 were students enrolled at a school for youths with learning and emotional disorders. The adolescents were also screened for potential diagnoses and given a trauma assessment.

Using Spearman-Brown analyses, adequate split-half reliability for the A-DES was reported at .92 (Armstrong et al., 1997). Full-scale reliability was reported with a Cronbach’s alpha coefficient of .93, with subscale alphas ranging from .72 to .85. These alpha values indicated that the reliability of the full scale A-DES is internally consistent. The A-DES did differ by abuse status, particularly with Tukey’s range test indicating that the “no abuse” group (M = 2.09, SD = 1.65) scored lower than the “physical and sexual abuse” group (M = 3.68, SD = 1.82). Furthermore, the Dissociative disordered group scored significantly higher than a normal sample of adolescents as well as adolescents with various other disorders (p < .05), which lent support to the validity of the A-DES and indicating that this measure can be used to screen for pathological dissociation.

Farrington and colleagues (2001) further examined the psychometric properties of the A-DES among nonclinical youths at a secondary school in the United Kingdom. The sample comprised of 810 adolescents (males = 414, females = 396) aged 11 to 16 years. In analyses of A-DES scores a one-factor solution was supported, indicating no support for the subscales mentioned by Armstrong and colleagues (1997). Good internal reliability was reported with a Cronbach’s alpha of .94 for the total sample as well as with both boys and girls (Farrington et al., 2001). Split-half reliability was also good, with a Spearman-Brown split-half reliability of .90.
The State Trait Anger Expression Inventory Revised (STAXI-2) (Spielberger, 1999) is a 57-item questionnaire in self-report format. The STAXI-2 measures the expression and control of anger. Specifically, the STAXI-2 yields an Anger index, State anger, Trait anger, Anger-out, Anger-in, and the Control of anger out and anger in scales.

In addition to the prior scales, this inventory yields three components of State anger: Feeling angry, Feel like expressing anger verbally, and Feel like expressing anger physically. Two components of Trait anger have also been identified: Angry reaction and Angry temperament. Response format of the STAXI-2 is based on a 4-point Likert-type scale ranging from 1 (almost never) to 4 (almost always). The STAXI-2 is recommended for use with adolescents and adults.

This measure is a revised version of the State Trait Anger Expression Inventory (Spielberger, 1988; Spielberger, 1999). The STAXI was revised as a result of extensive research, being expanded from the 44 items in the STAXI to 57 items in the STAXI-2. The STAXI-2 has an alpha coefficient of .76 for the Anger index from a sample of normal males (N = 620) and females (N = 952) with alpha values ranging from .72 to .94 for males and .75 to .93 for females for the remaining scales/subscales (Spielberger, 1999).

Procedure

The measures and procedures were in accordance with UNLV policies regarding research with human subjects. The Office for the Protection of Research Subjects, Institutional Review Board (IRB), Social and Behavioral Sciences committee approved protocol #0405-1250 on June 4, 2004.
Participating youths completed two semi-structured interviews and four self-report questionnaires. Assent to participate from each adolescent was obtained prior to data collection. With assent, youths were advised not to answer any question they felt uncomfortable with, and that they could withdraw from the study at any time. A trained research assistant interviewed each adolescent with the ADIS School refusal, separation anxiety and PTSD sections, as well as the CPTSD-I.

Following the interviews, youths completed four self-report measures with the assistance of a research assistant. Self-report questionnaires were completed in one or two sessions, depending on fatigue reported by the adolescent. If excessive fatigue was noted, a follow-up session to complete the remaining self-report measures was scheduled as soon as possible.

Youths were interviewed and completed questionnaires at the shelter. Completion of the assessment took approximately 90-120 minutes per adolescent. Using the ADIS PTSD section and the Children’s PTSD Inventory, participants were placed into one of two classifications: PTSD negative or Acute/Chronic PTSD. Those in the PTSD negative group confirmed 3 or less PTSD symptom clusters while those in the PTSD acute or chronic group confirmed the experience of 4 to six PTSD symptom clusters.

If any discomfort was expressed during this process, a graduate student was available for support. Furthermore, if a youth expressed any intent to harm others or themselves, appropriate actions were taken. Adolescents were encouraged to ask questions during the session(s) and were debriefed after completion. One additional follow-up debriefing was conducted with each youth, one week after the initial assessment. Forms were kept confidential and coded by a number to ensure anonymity of the participant.
CHAPTER 4

DATA ANALYSIS

General Comparisons

Pearson correlational analyses were conducted to examine the relationship between posttraumatic stress disorder (PTSD) symptomatology and dissociation, depression, anger, and negative cognitions for the entire sample. PTSD symptomatology was represented by PTSD symptom cluster scores using the ADIS (PTSD section) and the Children's PTSD Inventory (CPTSD-I). As noted, these semistructured interviews explore six diagnostic areas (exposure, situational reactivity, reexperiencing, avoidance/numbing, arousal, and distress symptoms). Participants' scores can range from 0 to 6 depending on confirmation of symptom areas, with higher scores indicating more PTSD symptomatology. The remaining variables were depression (CDI total score), dissociation (A-DES total score), anger (STAXI-2: state, trait, and anger Expression), and negative cognitions (PTCI total score).

Significant correlational relationships were found between 1) PTSD symptomatology and 2) depression ($p < .001$), state anger ($p = .009$), trait anger ($p = .017$), anger expression ($p = .008$), and negative cognitions ($p < .001$) (see Table 8). A trend was found in the relationship between PTSD symptomatology and dissociation ($p = .052$).

Multivariate Analyses of Variance (MANOVA) were conducted to examine the relationship between posttraumatic stress disorder (PTSD) symptomatology and
dissociation, depression, anger, and negative cognitions for the entire sample. The independent variable was PTSD symptom cluster scores from the ADIS (PTSD section) and the Children’s PTSD Inventory. As noted, these semistructured interviews explore six diagnostic areas (exposure, situational reactivity, reexperiencing, avoidance/numbing, arousal, and distress symptoms). Participants’ scores can range from 0 to 6 depending on confirmation of symptom areas, with higher scores indicating more PTSD symptomatology. The dependent variables were depression, dissociation, anger, and negative cognitions. The dependent variables of dissociation, state anger, and trait anger did not demonstrate significant statistical findings with respect to the independent variable of PTSD symptomatology.

The dependent variable of depression was significant with respect to the independent variable of PTSD symptomatology, \( F(6, 77) = 4.96, p < .001 \). Specifically, significantly higher CDI mean scores were evident between those with the highest PTSD scores \( (M = 16.5) \) compared to those with the lowest PTSD scores \( (M = 3.5) \). As PTSD scores increased, CDI scores generally increased.

The dependent variable of negative cognitions demonstrated significant findings with regards to the independent variable of PTSD symptomatology, \( F(6, 77) = 7.58, p < .001 \). Specifically, significantly higher PTCI mean scores were evident between those with the lowest PTSD scores \( (M = 48) \) compared to those with the highest PTSD scores \( (M = 125.3) \). The dependent variable of anger expression demonstrated significant findings with respect to the independent variable of PTSD symptomatology, \( F(1, 78) = 2.48, p = .031 \). Specifically, significantly higher STAXI anger expression mean scores were
evident between those with the lowest PTSD scores \( (M = 77) \) compared to those with the highest PTSD scores \( (M = 84) \).

PTSD symptomatology and diagnoses were examined across racial and ethnic groups. See table four for subclinical/clinical and negative cases of PTSD according to the CPTSD-I scores by ethnicity and race. A chi-square analysis was also performed on ADIS PTSD scores in which rates of PTSD, negative and PTSD, positive (acute, chronic, delayed onset) were compared across ethnicity/race. The chi square analysis was not significant.

_Hypothesis One_

Regarding hypothesis one, that levels of PTSD symptomatology, depression (CDI total score), dissociation (A-DES total score), anger (STAXI state, trait, and expression anger scores), and maladaptive cognitions (PTCI total score) would significantly differ among three ethnic groups, analyses of variance and T-tests were conducted. Demographic comparisons were also made to identify differences among the ethnic groups. No significant differences were found with respect to Caucasian and Hispanic adolescents.

_Multivariate Analyses of Variance for the independent variables of depression, dissociation, anger, and cognitions_

Multivariate Analyses of Variance (MANOVA) were conducted for the dependent variables of symptoms and the independent variable of race/ethnicity. Dissociation, anger, and cognitions did not significantly differ with respect to ethnicity. The dependent
variable of depression (CDI total score) showed a trend toward significance ($p = .087$) and was thus examined by subscales for further exploration.

African-Americans ($M = 2.21, SD = 2.62$) exhibited less anhedonia symptoms than Multiracial participants ($M = 5.20, SD = 3.85$), $F(3, 80) = 2.67, p = .053$. Furthermore, each ethnic/racial group appeared to differ slightly in all CDI scores with African-American participants tending to report the lowest scores (see Table six). African-American participants ($M = .833, SD = 1.12$) also reported less negative self-esteem symptoms (CDI subscale E) than Multiracial participants ($M = 2.90, SD = 2.96$), $F(3, 80) = 2.87, p = .042$. As with anhedonia scores, each racial/ethnic group appeared to differ slightly in negative self-esteem scores.

**Independent Samples Tests among the independent variables of race/ethnicity and the dependent variables of symptoms**

Independent sample t-tests were performed to more specifically compare each racial/ethnic group within the dependent variables of PTSD related symptoms. In conducting an independent samples t-test comparing the means of depression, state anger, anhedonia, negative mood, and negative self-esteem scores of African-American participants specifically versus Multiracial participants, significant effects were found. Specifically, African-Americans ($M = 7.16, SD = 6.2$) reported less symptoms of total depression than Multiracial participants ($M = 15.3, SD = 13.0$), $t(32) = 9.24, p = .005$. A trend in t-test results indicated that the African-American group ($M = 22.16. SD = 10.50$) reported less symptoms of state anger (STAXI State Anger) than the Multiracial participants ($M = 29.2, SD = 15.3$), $t(33) = 4.01, p = .054$. 

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An independent samples $t$-test was performed comparing the mean negative mood symptom score for the African-American participants ($M = 1.67, SD = 1.76$) with that for the Multiracial participants ($M = 3.3, SD = 3.83$). This test was found to be statistically significant, $t(32) = 14.79, p = .001$. This indicated that African-American participants reported less negative mood symptoms than Multiracial participants. When comparing means, African-American participants reported less negative self-esteem symptoms ($M = .833, SD = 1.13$) than Multiracial participants ($M = 2.9, SD = 2.96$), $t(32) = 22.01, p < .001$. When comparing means, a trend was found in which African-American participants also reported less anhedonia ($M = 2.21, SD = 2.62$) symptoms than Multiracial participants, ($M = 5.2, SD = 3.85$), $t(32) = 3.5, p = .070$.

An independent samples $t$-test was performed comparing the mean negative mood symptom score for African-American participants ($M = 1.67, SD = 1.76$) with that for Hispanic participants ($M = 2.58, SD = 2.73$). This test was found to be statistically significant, $t(39) = 4.88, p = .033$. This indicated that African-American participants reported less negative mood symptoms than Hispanic participants.

An independent samples $t$-test was performed comparing the mean negative mood symptom score for the African-American participants ($M = 1.67, SD = 1.76$) with that for the Caucasian participants ($M = 2.33, SD = 2.91$). This test was found to be statistically significant, $t(52) = 5.91, p = .018$. This indicated that African-American participants reported less negative mood symptoms than Caucasian participants. When comparing means, a significant effect was also found for negative self-esteem symptoms. Specifically, African-American participants ($M = .833, SD = 1.13$) reported less negative
self-esteem symptoms than Caucasian participants ($M = 1.5, SD = 2.04$), $t (52) = 5.30, p = .025$.

_Hypothesis two_

Regarding hypothesis two, that ethnicity was expected to significantly moderate a relationship between (1) severity of PTSD as measured by symptomatology (symptom cluster scores of 0 to 6), and (2) the expression of related symptoms (i.e., depression, dissociation, anger, and maladaptive cognitions), moderated multiple regression analyses were used. The ethnic statuses of Caucasian or Hispanic did not serve as a moderator in any relationship between PTSD and related symptoms.

_Hypothesis Two: Data Analysis Method_

Moderation is implied when the relation between an independent and dependent variable changes as a function of the moderating variable. To test for moderation, separate multiple regression analyses were conducted with respect to the dependent variables of depression, dissociation, anger, and maladaptive cognitions.

In these analyses, the independent (PTSD symptomatology) and dependent variables were continuous in nature. The hypothesized moderator, ethnicity, was coded as a binary variable (0 and 1 for absence or presence of a specific ethnicity). The procedure of dummy coding binary variables as moderators has been advocated by Aguinis (2004). Specifically, dummy coding binary moderators with 0 or 1 values is an arbitrary and uncomplicated way to interpret moderated multiple regression results when making comparisons between groups. Moderated multiple regression analyses (MMR) were conducted via a series of hierarchical regressions using F tests for statistical significance.
Specific steps comprised the MMR analyses. First, two regression equations were conducted (Aguinis, 2004; Frazier, Tix, & Barron, 2004). The first regression equation (labeled model one) tested the first order effects (the amount of PTSD variance caused by the dependent variable and the hypothesized moderator). A significant model one effect indicates that every one-point increase in the independent variable predicts a particular increase in the dependent variable, while the hypothesized moderator is held constant.

The second regression equation (labeled model two) computed the first order effects and a product term (calculated by the independent variable and the proposed moderator). For moderation to be implied, the first regression equation (model one) must be examined (F-test) and the second regression equation (model two) must be significant (T-test) and explain more PTSD variance (in terms of R Square) than the first regression equation. If model two displays a significant R square change, then moderation is implied such that the moderating variable can explain a greater amount of variance in the dependent variable than the variance explained by the relationship between the independent variable and the dependent variable. The slopes of the levels of the moderator (African-American, Hispanic, Caucasian, Multiracial) must vary according to model two, showing that the relationship between PTSD and the dependent variable for one group or level is stronger or weaker than the other.

For all moderational analyses, ethnicity was dummy coded 0 or 1 for comparisons. For the African-American comparison, African-Americans were coded “1” (N = 24) and other participants were coded “0” (N = 57). For the Caucasian comparison, Caucasians were coded “1” (N = 30) and other participants were coded “0” (N = 51). For the Hispanic comparison, Hispanics were coded “1” (N = 17) and other participants were
coded “0” (N = 64). For the Multiracial comparison, Multiracial individuals were coded “1” (N = 10) and the other participants were coded “0” (N = 71).

Due to the multitude of significant findings presented below, it may be useful to refer to tables 9 and 10. Tables 9 and 10 represent significant findings with respect to the moderating roles of African-American and Multiracial ethnic/racial statuses. Nonsignificant findings with respect to moderational analyses were not presented.

*Moderated multiple regression analysis: African-American status will be a moderator in the relationship between depression and PTSD symptoms.*

Regression equations were used to assess if the status of African-American ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of depression (CDI Total score). African-American participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, a significant amount of the variance in depression was explained by PTSD scores and ethnicity (R Square = .224; F (2, 76) = 10.96, p < .001). Furthermore, when holding race/ethnicity constant, depression increased by 2.31 points when PTSD scores increased by one point. Model two indicated an R squared change of .034; F (1, 75) = 3.397, p = .069, supporting a trend towards the moderating effect of ethnic status. Ethnic status explained 3.4% of the variance in depression scores above and beyond variance explained by PTSD scores and ethnic status.

The regression coefficient for model two was: depression = -2.31 + 3.05PTSD + 5.94ethnic status − 2.14 PTSD*ethnic status. Model two’s regression equation indicated
that there was a -2.14 difference between the slope of depression increase on PTSD between African-Americans and other participants, that the slope regressing PTSD on depression was less steep for African-Americans than for other participants (Caucasians, Hispanics, and Multiracial). The relationship between PTSD and depression was less strong for African Americans (\(M = 7.17, SD = 6.28\)) than for the other adolescents (\(M = 11.6, SD = 9.52\)) in this study.

*Moderated multiple regression analysis: Multiracial ethnicity status will be a moderator in the relationship between depression and PTSD symptoms.*

Regression equations were used to assess if the status of multiracial ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of depression symptoms (CDI total score). Multiracial participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, a significant amount of the variance in depression was explained by PTSD scores and ethnicity \((p < .001)\). Model one indicated that for every 1-point increase in PTSD scores depression scores were predicted to increase by 2.37 points, given that multiracial status was held constant.

Model two indicated an R squared change of .063; \(F (1, 75) = 6.73, p = .011\), supporting a moderating effect of ethnic/race status. Ethnic status explained 6.3% of the variance in depression scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: depression = 1.101 + 1.95PTSD − 17.97ethnic status + 4.89PTSD*ethnic status. Model two’s regression
equation indicated that there was a 4.89 point difference between the slope of depression score increase on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was steeper for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically depression scores was stronger for Multiracial participants ($M = 15.3, SD = 13.0$) than for other adolescents ($M = 9.55, SD = 8.01$) in this study.

*Moderated multiple regression analysis: African-American status will be a moderator in the relationship between dissociation and PTSD symptoms.*

Regression equations were used to assess if the status of African-American ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of dissociation (A-DES Total score which is calculated in the form of decimal points and is different from the sum). African-American participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, there was a nonsignificant amount of variance in dissociation explained by PTSD scores and ethnicity ($p > .05$). Model two indicated an $R$ squared change of $.057; F (1, 75) = 4.75, p = .033$, supporting a moderating effect of ethnic status. Ethnic status explained 5.7% of the variance in dissociation scores above and beyond variance explained by PTSD scores and ethnic status.

The regression coefficient for model two was: dissociation = $.313 + .538$PTSD + 2.72ethnic status $- .683$PTSD*ethnic status. Model two’s regression equation indicated
that there was a \(-0.683\) difference between the slope of dissociation increase on PTSD between African-Americans and other participants, that the slope regressing PTSD on dissociation was less steep for African-Americans than for other participants (Caucasians, Hispanics, and Multiracial). The relationship between PTSD and dissociation was less strong for African-Americans \((M = 2.46, SD = 2.04)\) than for other adolescents \((M = 2.80, SD = 2.35)\) in this study.

\textit{Post-Hoc Item Analyses: Specific Moderational Analyses With Regards To CDI Items}

As a result of the noteworthy amount of findings related to depressive and dissociative symptoms, further analyses were conducted to determine if ethnicity/race was a moderator in the relationship between the independent variable of PTSD symptoms and the dependent variables of specific CDI subscales or items and subscales from the Adolescent-Dissociative Experiences Scale \((CDI; Kovacs, 1992; A-DES; Armstrong, Putnam, Carlson, Libero, & Smith, 1997)\). Specific items of the remaining measures were not examined as significant findings were mainly displayed in the area of depression. Due to the multitude of findings presented below, it may be useful to refer to tables 9, 10, and 11 for significant findings with respect to the moderating roles of African-American and Multiracial ethnic statuses. Tables 9, 10, and 11 only feature significant analyses and non significant findings were not represented.
Moderated multiple regression analysis: African-American status will be a moderator in the relationship between absorption and imaginative involvement and PTSD symptoms.

Regression equations were used to assess if the status of African-American ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of absorption and imaginative involvement symptoms (A-DES subscale B which is calculated in the form of decimal points and is different from the sum). African-American participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, there was a nonsignificant amount of variance in absorption/imaginative involvement explained by PTSD scores and ethnicity. Model two indicated an R squared change of .052; \( F(1, 75) = 4.07, p = .047 \), supporting a moderating effect of ethnic status. Ethnic status explained 5.2% of the variance in absorption/imaginative involvement scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: absorption/imaginative involvement = .624 + .508PTSD + 2.77ethnic status – .718PTSD*ethnic status. Model two’s regression equation indicated that there was a - .718 difference between the slope of absorption/imaginative involvement increase on PTSD between African-Americans and other participants, that the slope regressing PTSD on these symptoms was less steep for African-Americans than for other participants (Caucasians, Hispanics, and Multiracial). The relationship between PTSD and specifically absorption/imaginative involvement dissociation scores was less strong.
for African-Americans ($M = 2.52, SD = 1.98$) than for other adolescents ($M = 2.89, SD = 2.45$) in this study.

*Moderated multiple regression analysis: African-American status will be a moderator in the relationship between dissociated identity and PTSD symptoms.*

Regression equations were used to assess if the status of African-American ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of dissociated identity symptoms (A-DES subscale D1 which is calculated in the form of decimal points and is different from the sum). African-American participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, a significant amount of the variance in dissociated identity was explained by PTSD scores and ethnicity ($p = .002$). Model one indicated that increases in PTSD scores predicted increases in dissociated identity symptoms, given that African-American race is held constant.

Model two indicated an $R^2$ change of $0.042$; $F(1, 71) = 3.73, p = .057$, supporting a trend toward a moderating effect of ethnic/race status. Ethnic status explained 4.2% of the variance in dissociated identity scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: dissociated identity $= -1.20 + .787$PTSD $+ 2.22$ethnic status $- .725$PTSD*ethnic status. Model two’s regression equation indicated that there was a $-.725$ difference between the slope of dissociated identity score increase on PTSD between African-Americans and other participants, that the slope regressing PTSD on these symptoms was
less steep for African-Americans than for other participants (Caucasians, Hispanics, and Multiracial). The relationship between PTSD and specifically dissociated identity scores was less strong for African-Americans ($M = 1.27, SD = 1.81$) than for other adolescents ($M = 2.37, SD = 2.84$) in this study.

*Moderated multiple regression analysis: African-American status will be a moderator in the relationship between dissociated relatedness and PTSD symptoms.*

Regression equations were used to assess if the status of African-American ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of dissociated relatedness symptoms (A-DES subscale D2 which is calculated in the form of decimal points and is different from the sum). African-American participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, a nonsignificant amount of the variance in dissociated relatedness was explained by PTSD scores and ethnicity. Model two indicated an $R^2$ change of .050; $F(1, 71) = 3.99$, $p = .050$, supporting a moderating effect of ethnic/race status. Ethnic status explained 5.0% of the variance in dissociated relatedness scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: dissociated relatedness = .032 + .616PTSD + 3.25ethnic status – .776PTSD*ethnic status. Model two’s regression equation indicated that there was a - .776 difference between the slope of dissociated relatedness score increase on PTSD between African-Americans and other participants, that the slope regressing PTSD on these symptoms was less steep for African-Americans than for other participants (Caucasians, Hispanics, and
Multiracial). The relationship between PTSD and specifically dissociated relatedness scores was less strong for African-Americans ($M = 2.62, SD = 2.30$) than for other adolescents ($M = 2.8, SD = 2.65$) in this study.

*Moderated multiple regression analysis: Multiracial ethnicity status will be a moderator in the relationship between negative mood and PTSD symptoms.*

Regression equations were used to assess if the status of multiracial ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of negative mood depressive symptoms (CDI subscale A score). Multiracial participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, a significant amount of the variance in negative mood was explained by PTSD scores and ethnicity ($p = .001$). Model one indicated that for every 1-point increase in PTSD scores negative mood scores were predicted to increase by .621 points, given that multiracial status was held constant.

Model two indicated an R squared change of .040; $F (1, 75) = 3.71, p = .058$, supporting a trend towards a moderating effect of ethnic/race status. Ethnic status explained 4.0% of the variance in negative mood scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: negative mood = -.088 + .519PTSD − 4.63ethnic status + 1.19PTSD*ethnic status. Model two’s regression equation indicated that there was a 1.19 point difference between the slope of negative mood score increase on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was steeper for
Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically negative mood scores was stronger for Multiracial participants ($M = 3.3, SD = 3.8$) than for other adolescents ($M = 2.17, SD = 2.53$) in this study.

*Moderated multiple regression analysis: Multiracial ethnicity status will be a moderator in the relationship between anhedonia and PTSD symptoms.*

Regression equations were used to assess if the status of multiracial ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of anhedonia symptoms (CDI subscale D score). Multiracial participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, a significant amount of the variance in anhedonia was explained by PTSD scores and ethnicity ($p < .001$). Model one indicated that for every 1-point increase in PTSD scores anhedonia scores were predicted to increase by .863 points, given that multiracial status was held constant.

Model two indicated an R squared change of .041; $F (1, 75) = 4.37, p = .040$, supporting a moderating effect of ethnic/race status. Ethnic status explained 4.1% of the variance in anhedonia scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: anhedonia = .053 + .744PTSD − 4.87ethnic status + 1.39PTSD*ethnic status. Model two’s regression equation indicated that there was a 1.39 point difference between the slope of anhedonia score increase on PTSD between Multiracial participants and other participants, that the
slope regressing PTSD on these symptoms was steeper for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically anhedonia scores was stronger for Multiracial participants ($M = 5.2, SD = 3.8$) than for other adolescents ($M = 3.25, SD = 2.94$) in this study.

*Moderated multiple regression analysis: Multiracial ethnicity status will be a moderator in the relationship between negative self-esteem and PTSD symptoms*

Regression equations were used to assess if the status of multiracial ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of negative self-esteem symptoms (CDI subscale E score). Multiracial participants (coded 1) were compared to all other participants (coded 0) in these analyses.

In examining model one of the moderated multiple regression equation, there a significant amount of the variance in negative self-esteem was explained by PTSD scores and ethnicity ($p < .001$). Model one indicated that for every 1-point increase in PTSD scores depression scores were predicted to increase by .475 points, given that multiracial status was held constant.

Model two indicated an $R^2$ change of .083; $F(1, 75) = 9.14, p = .003$, supporting a moderating effect of ethnic/race status. Ethnic status explained 8.3% of the variance in negative self-esteem scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: negative self-esteem = -.323 + .370PTSD − 4.23ethnic status + 1.22PTSD*ethnic status. Model two’s regression equation indicated that there was a 1.22 point difference between the slope of
negative self-esteem score increase on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was steeper for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically negative self-esteem scores was stronger for Multiracial participants ($M = 2.90, SD = 2.96$) than for other adolescents ($M = 1.26, SD = 1.68$) in this study.

*Moderated multiple regression analysis: CDI item 3.*

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of CDI item 3 which assessed for ineffectiveness in terms of making mistakes (i.e., *I do most things O.K., I do many things wrong*, or *I do everything wrong*) (higher scores equal more reported). In examining model one of the moderated multiple regression equation using Multiracial ethnic status as the possible moderator, a nonsignificant amount of the variance in item 3 scores was explained by PTSD scores and ethnicity.

Model two indicated an R squared change of .045; $F(1, 74) = 3.65, p = .060$, supporting a trend towards a moderating effect of ethnic status. Multiracial ethnic status explained 4.5% of the variance in CDI item 3 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: $CDI$ item 3 $= 3.919E-02 + 3.576E-02PTSD - .989ethnic status + .252PTSD\*ethnic status$. Model two's regression equation indicated that there was a .252 point difference between the slope of CDI item 3 response increases on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms
was steeper for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically CDI item 3 scores was stronger for Multiracial participants ($M = .40, SD = .843$) than for other adolescents ($M = .211, SD = .532$) in this study.

*Moderated Multiple Regression analysis: CDI item 7.*

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of CDI item 7 which assessed for negative self esteem (i.e., *I hate myself, I do not like myself, or I like myself*) (higher scores equal more reported negative self esteem).

In examining model one of the moderated multiple regression equation using Multiracial ethnic status as the possible moderator, a significant amount of the variance in item 7 scores was explained by PTSD scores and ethnicity ($p = .002$). Model one indicated that for every 1-point increase in PTSD scores CDI item 7 scores were predicted to increase by only 9.089E-02 points, given that Multiracial ethnic status was held constant.

Model two indicated an R squared change of .074; $F (1, 74) = 7.02, p = .010$, supporting a moderating effect of ethnic/race status. Multiracial ethnic status explained 7.4% of the variance in CDI item 7 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: CDI item 7 = -9.37E-02 + 6.35E02PTSD – 1.07ethnic status + .312PTSD*ethnic status. Model two’s regression equation indicated that there was a .312 point difference between the slope of CDI item 7 response increases on PTSD between Multiracial participants and other

95

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participants, that the slope regressing PTSD on these symptoms was steeper for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically CDI item 7 scores was stronger for Multiracial participants ($M = .60, SD = .843$) than for other adolescents ($M = .183, SD = .457$) in this study.

*Moderated Multiple Regression analysis: CDI item 8.*

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of CDI item 8 which assessed for negative mood (i.e., *All bad things are my fault, Many bad things are my fault, or Bad things are usually not my fault*) (higher scores equal more reported negative mood).

In examining model one of the moderated multiple regression equation using Multiracial ethnic status as the possible moderator, a significant amount of the variance in item 8 scores was explained by PTSD scores and ethnicity ($p = .001$). Model one indicated that for every 1-point increase in PTSD scores CDI item 8 scores were predicted to increase by .108 points, given that Multiracial ethnic status was held constant.

Model two indicated an $R^2$ change of .091; $F(1, 74) = 8.99, p = .004$, supporting a moderating effect of ethnic status. Multiracial ethnic status explained 9.1% of the variance in CDI item 8 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: CDI item 8 = $- .121 + 7.682 \times 10^{-2} \text{PTSD} - 1.30 \text{ethnic status} + .354 \text{PTSD*ethnic status}$. Model two's regression equation indicated that there was a .354 point difference between the slope of
CDI item 8 response increases on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was steeper for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically CDI item 8 scores was stronger for Multiracial participants ($M = .60, SD = .961$) than for other adolescents ($M = .211, SD = .444$) in this study.

*Moderated Multiple Regression analysis: CDI item 9.*

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of CDI item 9 which assessed for suicidal ideation (*I do not think about killing myself, I think about killing myself but I would not do it, or I want to kill myself*).

In examining model one of the moderated multiple regression equation using African-American status as the possible moderator, a significant amount of the variance in item 9 scores was explained by PTSD scores and ethnicity ($p = .001$). Model one indicated that for every 1-point increase in PTSD scores CDI item 9 scores were predicted to increase by .105 points, given that African-American status was held constant.

Model two indicated an R squared change of .095; $F(1, 72) = 9.48, p = .003$, supporting a moderating effect of ethnic/race status. African-American racial status explained 9.5% of the variance in CDI item 9 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: $CDI \text{ item 9} = -.436 + .166PTSD + .611\text{ethnic status} -.189PTSD*\text{ethnic status}$. Model two’s regression equation indicated that there was a -.189 point difference.
between the slope of CDI item 9 response increases on PTSD between African-American participants and other participants, that the slope regressing PTSD on these symptoms was less steep for African-American participants than for other participants (Caucasians, Hispanics, and Multiracial). The relationship between PTSD and specifically CDI item 9 scores was weaker for African-American participants ($M = 8.696E-02$, $SD = .288$) than for other adolescents ($M = .3036$, $SD = .501$) in this study.

Furthermore in examining model one of the moderated multiple regression equation using Multiracial status as the possible moderator, a significant amount of the variance in item 9 scores was explained by PTSD scores and ethnicity ($p = .001$). Model one indicated that for every 1-point increase in PTSD scores CDI item 9 scores were predicted to increase by .111 points, given that Multiracial status was held constant.

Model two indicated an $R^2$ change of .038; $F(1, 72) = 3.46, p = .067$, supporting a trend toward the moderating effect of ethnic/race status. Multiracial ethnic status explained 3.8% of the variance in CDI item 9 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: $CDI \text{ item 9} = -.169 + 9.377E-02PTSD - .781 \text{ethnic status} + .194PTSD*\text{ethnic status}$. Model two’s regression equation indicated that there was a .194 point difference between the slope of CDI item 9 response increases on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was steeper for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically CDI item 9 scores was stronger for Multiracial participants ($M = .4$, $SD = .699$) than for other adolescents ($M = .217$, $SD = .415$) in this study.
Moderated Multiple Regression analysis: CDI item 14.

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of CDI item 14 which assessed for negative self esteem in the form of judgments about looks (i.e., I look O.K., There are some bad things about my looks, or I look ugly) (higher scores equal more reported negative self esteem).

In examining model one of the moderated multiple regression equation using African-American status as the possible moderator, a significant amount of the variance in item 14 scores was explained by PTSD scores and ethnicity ($p = .014$). Model one indicated that for every 1-point increase in PTSD scores CDI item 14 scores were predicted to increase by .107 points, given that African-American status was held constant.

Model two indicated an R squared change of .039; $F (1, 73) = 3.36, p = .071$, supporting a trend towards a moderating effect of ethnic/race status. African-American racial status explained 3.9% of the variance in CDI item 14 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: CDI item 14 = -.274 + .160PTSD + .487ethnic status - .158PTSD*ethnic status. Model two’s regression equation indicated that there was a -.158 point difference between the slope of CDI item 14 response increases on PTSD between African-American participants and other participants, that the slope regressing PTSD on these symptoms was less steep for African-American participants than for other participants (Caucasians, Hispanics, and Multiracial). The relationship between PTSD and
specifically CDI item 14 scores was weaker for African-American participants ($M = .208$, $SD = .414$) than for other adolescents ($M = .464$, $SD = .686$) in this study.

Furthermore, in examining model one of the moderated multiple regression equation using Multiracial ethnic status as the possible moderator, a significant amount of the variance in item 14 scores was explained by PTSD scores and ethnicity ($p = .013$). Model one indicated that for every 1-point increase in PTSD scores CDI item 14 scores were predicted to increase by .111 points, given that Multiracial ethnic status was held constant.

Model two indicated an $R^2$ change of .050; $F (1, 73) = 4.30, p = .042$, supporting a moderating effect of ethnic status. Multiracial ethnic status explained 5.0% of the variance in CDI item 14 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: CDI item 14 = $-1.74E-02 + 8.54E-02PTSD - 1.148ethnic status + .290PTSD \times ethnic status$. Model two’s regression equation indicated that there was a .290 point difference between the slope of CDI item 14 response increases on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was more steep for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically CDI item 14 scores was stronger for Multiracial participants ($M = .60$, $SD = .843$) than for other adolescents ($M = .357$, $SD = .590$) in this study.

Moderated Multiple Regression analysis: CDI item 18.

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores
ranging from 0 to 6) and the dependent variable of CDI item 18 which assessed for anhedonia in the form of eating patterns (i.e., *Most days I do not feel like eating*, *Many days I do not feel like eating*, or *I eat pretty well*) (higher scores equal more reported anhedonia).

In examining model one of the moderated multiple regression equation using Multiracial ethnic status as the possible moderator, a significant amount of the variance in item 18 scores was explained by PTSD scores and ethnicity ($p = .012$). Model one indicated that for every 1-point increase in PTSD scores CDI item 18 scores were predicted to increase by .107 points, given that Multiracial ethnic status was held constant.

Model two indicated an $R^2$ change of $.067$; $F (1, 73) = 5.99, p = .017$, supporting a moderating effect of ethnic status. Multiracial ethnic status explained 6.7% of the variance in CDI item 14 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: CDI item 18 = $8.82E-02 + 7.09E-02PTSD - 1.45$ethnic status $+ .410PTSD*ethnic status$. Model two’s regression equation indicated that there was a .410 point difference between the slope of CDI item 18 response increases on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was more steep for Multiracial participants than for other participants (Caucasians, Hispanics, and African-American). The relationship between PTSD and specifically CDI item 18 scores was stronger for Multiracial participants ($M = .90$, $SD = .99$) than for other adolescents ($M = .371$, $SD = .663$) in this study.
Moderated Multiple Regression analysis: CDI item 20.

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of CDI item 20 which assessed for anhedonia (i.e., *I do not feel alone, I feel alone many times, or I feel alone all the time*) (higher scores equal more reported anhedonia).

In examining model one of the moderated multiple regression equation using Multiracial ethnic status as the possible moderator, a significant amount of the variance in item 20 scores was explained by PTSD scores and ethnicity (*p = .000*). Model one indicated that for every 1-point increase in PTSD scores CDI item 20 scores were predicted to increase by .154 points, given that Multiracial ethnic status was held constant.

Model two indicated an R squared change of .038; *F* (1, 74) = 3.69, *p = .059*, supporting a trend towards a moderating effect of ethnic status. Multiracial ethnic status explained 3.8% of the variance in CDI item 20 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: CDI item 20 = -.248 + .131PTSD - .895ethnic status + .261PTSD*ethnic status. Model two’s regression equation indicated that there was a .261 point difference between the slope of CDI item 20 response increases on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was more steep for Multiracial participants than for other participants (Caucasians, Hispanics, and African-Americans). The relationship between PTSD and specifically CDI item 20 scores
was stronger for Multiracial participants ($M = .70, SD = .948$) than for other adolescents ($M = .309, SD = .550$) in this study.

*Moderated Multiple Regression analysis: CDI item 25.*

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of CDI item 25 which assessed for negative self-esteem in the form of feeling loved (i.e., *Nobody really loves me, I am not sure if anybody loves me, or I am sure that somebody loves me*) (higher scores equal more reported negative self esteem). In examining model one of the moderated multiple regression equation using Multiracial ethnic status as the possible moderator, a significant amount of the variance in item 25 scores was explained by PTSD scores and Multiracial ethnicity ($p = .003$). Model one indicated that for every 1-point increase in PTSD scores CDI item 25 scores were predicted to increase only by $5.076E-02$ points, given that Multiracial ethnic status was held constant.

Model two indicated an $R^2$ change of $0.099; F(1, 74) = 9.64, p = .003$, supporting a moderating effect of ethnic status. Multiracial ethnic status explained 9.9% of the variance in CDI item 25 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: $CDI\ item\ 25 = 5.06E-03 + 2.649E-02PTSD - .933\text{ethnic status} + .277\text{PTSD*ethnic status}$. Model two’s regression equation indicated that there was a $.277$ point difference between the slope of CDI item 25 response increases on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was more steep for Multiracial participants than for other participants (Caucasians, Hispanic, and African-
American). The relationship between PTSD and specifically CDI item 25 scores was stronger for Multiracial participants ($M = .50$, $SD = .707$) than for other adolescents ($M = .113$, $SD = .318$) in this study.

_Moderated Multiple Regression analysis: CDI item 27._

Regression equations were used to assess if the status of ethnicity was a moderator in the relationship between the predictor of PTSD symptoms (symptom cluster scores ranging from 0 to 6) and the dependent variable of CDI item 27 which assessed for interpersonal problems in the form of relationship conflict (i.e., _I get along with people, I get into fights many times, or I get into fights all the time_) (higher scores equal more reported interpersonal problems). In examining model one of the moderated multiple regression equation using Multiracial ethnic status as the possible moderator, a nonsignificant amount of the variance in item 25 scores was explained by PTSD scores and ethnicity ($p = .619$).

Model two indicated an R squared change of .058; $F (1, 74) = 4.66, p = .034$, supporting a moderating effect of ethnic status. Multiracial ethnic status explained 5.8% of the variance in CDI item 27 scores above and beyond variance explained by PTSD scores and ethnic status. The regression coefficient for model two was: CDI item 27 = 

$\text{CDI item 27} = 0.348 - 2.65 \times 10^{-2} \text{PTSD} - 1.04 \text{ethnic status} + 0.259 \text{PTSD} \times \text{ethnic status}$. Model two’s regression equation indicated that there was a .259 point difference between the slope of CDI item 27 response increases on PTSD between Multiracial participants and other participants, that the slope regressing PTSD on these symptoms was more steep for Multiracial participants than for other participants (Caucasians, Hispanic, and African-American). The relationship between PTSD and specifically CDI item 27 scores was
stronger for Multiracial participants ($M = .40, SD = .516$) than for other adolescents ($M = .225, SD = .483$) in this study.
CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Discussion of Results

This study examined how posttraumatic stress disorder (PTSD) was related to anger, depression, dissociation, and maladaptive cognitions in a diverse group of adolescents who had experienced trauma. Specifically, ethnicity and race were examined as potential moderators of the relationship between PTSD symptomatology and related symptoms. The sample in this study was a shelter-based population of adolescents who were mainly from low-income households.

Nearly all of the adolescents in this study had experienced some type of trauma, with nearly half experiencing some type of physical maltreatment, a minority reporting sexual maltreatment, and some reporting domestic violence. In the current study, higher levels of PTSD symptomatology were associated with a greater number of depressive symptoms, negative cognitions, anger, and to a lesser extent, reports of dissociation. PTSD symptomatology was not as strongly associated with increased dissociation symptoms.

The lack of a significant correlation of high PTSD scores and dissociation may reflect the premise that dissociation is more often linked to sexual abuse (Putnam, 1996). Increased dissociative symptoms may not be a prevalent symptom in all types of trauma but may be more likely to occur only in specific types of trauma. Whereas the present
sample consisted of adolescents who had experienced various traumas that mainly consisted of maltreatment, reports specifically of sexual maltreatment were rare. Dissociation may also be more common in childhood than adolescence, as rates of dissociation have been noted to decrease from childhood to adolescence (Armstrong, Putnam, Carlson, Libero, & Smith, 1997; Ross, Ryan, Anderson, & Ross, et al., 1989). The relationship between PTSD symptomatology and experiences of dissociation was not as strong as the relationship between PTSD symptomatology and other related symptoms. However, dissociative symptoms in relationship to PTSD symptomatology in the present sample were not uncommon either.

PTSD symptoms reported after the experience of a trauma were strongly related to increased feelings of depression, more trauma-related thoughts and beliefs, and more feelings of anger. Ehlers and Clark (2000) proposed that, after a trauma, youths may maintain PTSD by continually having extreme negative appraisals of the trauma. Continually utilizing negative appraisals of the trauma may help an adolescent immediately cope with the event but, in the long run, prevents that trauma from being fully processed, thus maintaining PTSD symptoms. Ehlers and Clark (2000) posited that negative appraisals could consist of feelings of anger, depression, and beliefs that the world is a dangerous place or thinking something bad will happen again.

This study lent support to Ehlers and Clark’s (2000) cognitive model of PTSD in that those youths with higher levels of PTSD symptomatology were also more likely to endorse greater symptoms of depression, more trauma-related thoughts and beliefs, and more feelings of intense anger. These youths may be utilizing some of these negative
appraisals to cope with trauma, but these appraisals may also serve to prevent an adolescent from fully processing the trauma and being healthy psychologically.

**Ethnicity, Race, and PTSD Related Symptoms**

Within-group differences appeared among individuals in particular ethnic and racial groups. Many previous findings also reflect between-group differences among Caucasians, African-Americans, and Hispanics with respect to variables such as family and cultural values and the expectations of youths (Hines et al., 1992; Sue & Sue, 2003). More recently, researchers have attempted to determine if these general cultural differences extend to ethnic differences in the expression of psychopathology.

In one recent instance of possible ethnic differences in the expression of anxiety, researchers reported that Hispanic-American youths indicate more somatic symptoms and worry than Caucasian youths (Pina & Silverman, 2004; Varela et al., 2004). Furthermore, African-American youths may display anxiety in different ways compared to Caucasian youths, though data are still mixed (Ferrell, 2004; Lambert et al., 2004). The present study examined possible ethnic or racial differences in the expression of PTSD-related symptoms with a sample of African-American, Caucasian, Hispanic, and Multiracial adolescents.

Hypothesis one posited that levels of PTSD symptomatology, depression, anger, dissociation, and maladaptive cognitions would differ among African-American, Caucasian, Hispanic, and Multiracial individuals. African-Americans generally reported less depressive symptoms overall than the other ethnic groups, with Caucasians and Hispanics appearing fairly similar, and Multiracial individuals reporting the most symptoms (see Table seven). For instance, African-Americans demonstrated less total
depressive symptoms, anhedonia, negative self-esteem, negative mood, and state anger than those individuals identifying themselves as Multiracial. African-Americans also reported less negative self-esteem symptoms than Caucasian adolescents as well as less negative mood symptoms than Caucasian and Hispanic adolescents.

Despite disparate findings across studies, one's experience of being an ethnic minority may place him or her at greater risk for psychological symptoms than Caucasians due to the stress of racism or conflicting values with society (Allen et al., 1996; Frezza et al., 1990). Many studies have documented ethnic differences among groups after trauma. Several studies have supported findings in which depression may be more salient in Hispanic individuals and youths compared to Caucasians (Mirowsky & Ross, 1984; Sanders-Phillips et al., 1995). One study found that African-American boys may express more anger and less depression than Hispanics after maltreatment (Moisan et al., 1997).

However, the literature base is still mixed and studies that do not find ethnic or racial differences in youths after trauma are often not highlighted. In contrast, the present study found that African-American adolescents appeared to be less symptomatic in many areas, especially in terms of depression. Furthermore, estimated SES levels appeared to be similar across the sample and rates of maltreatment were comparably weighted across ethnic and racial groups. Thus, the groups were comparable in terms of demographics.

**Moderational Findings between PTSD and other Symptoms**

When a categorical variable has been identified as a moderator, the relationship between an independent and dependent variable changes as a function of that moderating variable. Regarding hypothesis two, this study examined whether the presence of the
potential moderating variable, or ethnicity and race, either strengthened or weakened the relationship between the independent variable of PTSD symptomatology and the dependent variable of related symptoms. In other words, a main goal of this study was to see what the relationship was between PTSD and its related symptoms for varying ethnic and racial groups. While African-American adolescents displayed less depressive symptoms in general, African-American racial status actually yielded a weaker relationship between PTSD symptoms and depressive symptoms, while Multiracial ethnic status yielded a strengthened relationship.

For African-American adolescents who did report higher levels of PTSD symptomatology, there was not a strong positive relationship with depressive symptoms compared to other adolescents in this sample. Furthermore, the relationship between PTSD symptoms and dissociation was also weaker for African-American adolescents compared to other adolescents. The expression of PTSD may thus be slightly different in African-Americans than in other ethnic groups. Even when African-Americans reported more significant levels of PTSD, they differed in how PTSD was related to the expression of concurrent symptoms of depression and dissociation.

Why is depression and dissociation more adversely related to PTSD for African-Americans than other ethnic groups? Are African-Americans not as prone to dissociation or depression even when affected by PTSD? PTSD is strongly associated with comorbid symptoms and diagnoses of depression (Linning & Kearney, 2004). Therefore, the finding that African-American adolescents displayed different symptom patterns compared to past studies and compared to other adolescents in this sample is noteworthy.
African-American adolescents who experience a trauma and subsequently develop PTSD may display different symptom patterns than other ethnic groups. Specifically, African-American racial status was a moderator of general dissociative symptoms such that African-Americans displayed a weaker relationship between PTSD symptoms and dissociation from themselves as individuals or from their interpersonal relationships. African-American adolescents seemed to demonstrate more stability in their self-concepts, self esteem, and interpersonal relationships after experiencing trauma and subsequent PTSD symptomatology.

Compared to other adolescents, African-American adolescents exhibited a weaker relationship between PTSD symptoms and depression. African-Americans typically report a great deal of emotional support and unity within family systems and extended family networks (Hines et al., 1992; Sue & Sue, 2003). Furthermore, religion is important in a great number of African-American families, which provides additional emotional support (Sue & Sue, 2003).

African-American adolescents may rely on intermediate and extended family systems or neighborhood organizations (i.e., church) for support after the experience of trauma. This intermediate and extended social support system may help buffer against some of the negative effects of trauma in African-American adolescents, particularly with respect to depression. Having a strong social support base may also contribute to the less adverse effect on self-esteem after trauma for African-American adolescents compared to other adolescents.

In contrast to the weak relationship between PTSD symptoms and depression and dissociation for African-Americans, those adolescents identifying themselves as
Multiracial displayed multifaceted symptoms in relation to PTSD. In the sample of Multiracial adolescents, identifying oneself as from two ethnic backgrounds was implicated as a moderator for general depressive symptoms as well as for specific types of depressive symptoms such as negative mood, anhedonia, and negative self-esteem. In particular, Multiracial status strengthened the already significant relationship between PTSD symptomatology and depressive symptoms such that there was a stronger relationship between PTSD and depression for Multiracial participants.

The literature on Multiracial youths is very sparse. In fact, no prominent trauma studies that focused on ethnicity and race even utilized Multiracial participants as a subgroup. There is currently a controversy in the literature concerning mixed results regarding Multiracial or Biracial individuals. Generally, Multiracial status has been associated with poor self-worth and identity confusion; however, some studies have not supported this assumption (Cauce et al., 1992).

For instance, some researchers have concluded that Multiracial adolescents are as well-adjusted as adolescents from other non-Caucasian ethnic groups or that there is more differentiation among Multiracial adolescents than similarity (Cauce, et al., 1992; Phillips, 2004). Other recent studies have shown that Multiracial adolescents do not necessarily exhibit low self-esteem but do exhibit low self-esteem when compared to their African-American peers. Multiracial adolescents may also report lower levels of ethnic identity than non-Caucasian ethnic groups (Bracey, Bamaca, Umana-Taylor, 2004).

To elaborate, previous studies have indicated that Multiracial status may pose specific identity concerns, such as a challenge to form a “single cohesive identity” composed of
an individual’s distinct two ethnic backgrounds (Taylor-Gibbs, & Moskowitz-Sweet, 1991, p. 587). Specific to the current study, the potential for such increased identity concerns coupled with the experience of trauma may make adolescence a particularly difficult time for Multiracial youths and serve to foster negative self-esteem or depressive symptoms. Furthermore, Multiracial individuals may be frequently considered “ethnic minorities” even if they have one parent who is European-American or may feel as if they border two separate races or ethnicities (Root, 1991). Multiracial individuals and youths have reported feeling conflicted as to what ethnic/racial background to be loyal to or shame in not integrating one parent’s culture into their personal identity (Sue & Sue, 2003).

Multiracial youths may be raised by monoracial parents who fail to understand the identity concerns faced by their son or daughter (Sue & Sue, 2003). Social support outside of the family may not be optimal either, as Multiracial individuals report experiences of prejudice when trying to identify with either of their parental ethnic/racial groups, resulting in a constant feeling of marginality from both groups (Sue & Sue, 2003). In the present sample of adolescents, the majority reported living with only one biological parent; this situation may foster feelings of conflicting loyalties to separated parents.

The Multiracial adolescent may also try to identify with only one half of their racial heritage and may feel shame or lowered self-esteem. With the possibility of a Multiracial adolescent feeling isolated from either ethnic group and lacking a stable identity, the experience of trauma may significantly impact the youth. The adolescent may also be more prone to questioning whether some part of their ethnicity may have caused the
trauma. Each of the previous issues identified could bring about more struggles with self-concept concerns and possibly lead to depressive symptoms.

There is difficulty in deconstructing why Multiracial status yielded a strengthened relationship between the experience of PTSD symptomatology and depression, whereas African-American adolescents in this study did experience PTSD symptoms but not necessarily depressive symptoms. Although slight differences were apparent, on multiple dimensions the Caucasian and Hispanic adolescents in this study seemed to exhibit similar symptom patterns with respect to PTSD-related symptoms. Thus, in general, trauma and subsequent PTSD symptomatology were associated with higher depressive symptoms and negative cognitions related to the trauma. However, Multiracial and African-American adolescents may slightly differ in the “typical” presentation of PTSD and these related symptoms.

**Clinical Implications**

The present study has direct relevance for assessment, interventions, and future research in the area of traumatized youths. As a result of this study, researchers interested in possible ethnic differences among traumatized youths should be better informed as how to address concerns particular to various ethnic groups. Although the experience of a trauma affects each individual differently, an adolescent who has experienced a trauma faces the risk of developing PTSD as well as comorbid symptoms often associated with PTSD.

Currently, there is a trend toward deconstructing psychological symptom expressions among ethnic groups for possible ethnic variations. Hopefully by being aware of such
differences or similarities, clinicians will be able to help diverse individuals with greater efficiency. Unfortunately, much of this literature has been conducted with adult samples, so more cultural research in the area of child maltreatment and trauma has been advocated (Korbin, 2002). The present study has taken researchers and clinicians a step closer toward answering the complex, multilayered inquiry concerning the symptom expression of PTSD in diverse youths.

In the present study, regardless of ethnicity or race, the experience of a trauma seemed to put adolescents at risk of developing PTSD and comorbid depression, increased anger, negative cognitions, and to a lesser extent, possibly dissociation. In this shelter-based sample, being of one particular ethnic or racial group or an ethnic minority did not significantly alter the expression of PTSD-related symptoms after a trauma compared to other ethnic groups or Caucasians. While there seemed to be more similarities than differences among ethnic groups, specific groups of adolescents may be more prone to develop some of these comorbid symptoms in relation to PTSD than other groups.

Future assessment frameworks aimed at adolescents should be designed with respect to these differential concerns. Those conducting psychological assessments should remember that, although African-American adolescents in this study appeared slightly more resilient after the experience of trauma than other groups, these youths are still at risk of developing traditional diagnostic PTSD symptoms. Possible PTSD symptoms in African-American youths should be carefully assessed for these adolescents may still appear to have intact self-concepts and relationships that may guard against depression but not necessarily PTSD.
Including an assessment of social support networks when working with African-American adolescents may prove useful for understanding the factors involved in the youth’s environment, which could hinder or foster treatment. When conducting assessments with African-American adolescents, care must be taken to ask about various types of social support networks such as church groups and extended family networks, which may provide emotional support for the youth.

Conversely, great care must be taken to assess for depressive symptoms and self-esteem issues in Multiracial youths who have experienced trauma, even if these symptoms are not overtly apparent. Taking the time to assess an individual’s ethnic identification and sources of emotional support may prove beneficial in understanding the unique situation of the adolescent. Furthermore, it is important to be open to assessing the feelings and self-identification of the adolescent while not making the mistake of assuming the adolescent identifies solely with their “African-American” or “Hispanic” heritage just because they reside with one biological parent and not the other.

As the experience of trauma in adolescence carries the risk of developing PTSD symptoms, there is also a risk of developing negative cognitions and depression in relation to PTSD. Thus, future treatment models for traumatized adolescents should focus on such symptoms possibly from a cognitive-behavioral framework. Focusing on trauma-related negative cognitions will be effective for such a treatment model. Cognitive behavioral frameworks have also demonstrated applicability to depressive symptoms.

Furthermore, these general treatment frameworks can be of more benefit to diverse youths as a result of findings from the present study. To make the therapeutic experience more effective, clinicians should assess for aspects of resiliency in African-American
youths and then utilize these resilient traits and strengths to better promote resolution of PTSD symptoms. When formulating treatment plans, clinicians should consider the social support system of the youth or take the time to seek out additional social support networks (i.e., youth groups, volunteer organizations) within the adolescent’s neighborhood that may be sources of emotional support. In addition to individual therapy, African-American adolescents may benefit from family interventions that include important members from his or her intermediate and extended family. Clinicians should exercise great care and include relevant sources of emotional support in therapeutic interventions.

Of immediate concern is to focus on trauma symptoms and possible depressive symptoms related to the trauma experience. Multiracial youths may also benefit from additional plans to promote self-esteem and build personal identities, if applicable. Multiracial adolescents may be suited for interventions targeted toward exploring their different ethnic backgrounds and developing a stable self-concept after the traumatic experience. To provide optimal treatment, it may be useful to provide family sessions so that a monoracial parent may better understand possible concerns of their Multiracial adolescent. As Multiracial adolescents may feel marginalized by one or more of their racial backgrounds, seeking out additional social support systems for the youth to engage in may prove beneficial to increase sources of emotional support.

To prevent symptom relapse, the therapeutic plan must be comprehensive and include all aspects of the youth’s situation. For PTSD symptomatology, Multiracial youths in particular may benefit from more lengthy treatment plans with additional treatment sessions compared to other adolescents (Kearney, Linning, & Lemos, 2005). Clinicians
may encourage the adolescent to remain involved in many family and neighborhood activities to ensure adequate emotional support if future difficulties arise after treatment is terminated. Overall, clinicians must take care in administering a full assessment battery to each client to understand the unique environmental factors in the adolescent’s life. These precautions will also help to ensure that the subsequent treatment plan is adequate in decreasing trauma-related symptoms and that the treatment gains will be long-lasting.

Conclusions and Recommendations for Further Study

The findings of this study should also be taken with caution, as one limitation of the present study is that the sample involved shelter-based participants. That this particular sample was primarily low-income should also be considered. However, this variable often coincides with traumatized adolescents, and controlling for this demographic variable when examining PTSD symptoms may not reflect the environmental factors affecting most traumatized adolescents. Maltreatment and adolescent trauma occur in every demographic group. However, certain groups of adolescents are at a greater risk of experiencing trauma than others, and these groups often consist of low income or diverse adolescents (Connelly & Straus, 1992; Holden, Willis, & Corcoran, 1992). Another sample-based limitation was that not all ethnic groups were included in this study due to the small numbers of certain groups present when recruitment occurred.

Another limitation is the small sample size of some of the included ethnic groups. This limitation was particularly relevant when conducting moderational analyses. Small sample size and unequal groups can have an impact on the power of a moderational analysis using categorical variables and lead to lower effect sizes or failures to detect
relationships (Aguinis, 2004). The findings of this study may thus have been additionally hampered by the low number of participants.

Future research by the author will attempt to overcome the noted limitations. Additionally, it may be of interest to obtain parental reports on symptoms or behaviors of the adolescent and information with respect to family dysfunction. Unfortunately, a limitation of this study concerns reliance on adolescent self-report, which may not be fully valid or reliable. Including parental reports may strengthen the validity and reliability of symptom reports in future studies. Additionally, a measure of acculturation may also be useful as it is known that traditional categorization of ethnicity and race may ignore differences between individuals due to acculturation.

Not including a measure of acculturation in the present study limited the validity of the categorization of ethnic groups. Specifically, a measure of acculturation as an improvement to future studies will also help to determine what aspects or particular cultural values influence the specific racial and ethnic differences found in this study. This measurement may be useful instead of relying only on typical categorizations to explain these differences, which may be a classification scheme that is not appropriate for all adolescents. Overall, there is a lack of information about Multiracial youths and trauma, so future research will also have to focus more on this subgroup of adolescents.

Although the potential for psychopathology after the experience of a trauma is not guaranteed, certain groups of adolescents may be at a greater risk of experiencing PTSD and related symptoms than others. The next important step is to identify resiliency and risks factors applicable to these adolescents. Further examining the nature of the risks and strengths after trauma among all youths is crucial for improved assessment and treatment.
procedures. Hopefully, once psychologists are aware of such factors they can take steps to learn how to prevent PTSD and its related symptoms.
APPENDIX

TABLES

Table I
Ethnicity and Race of Participants by Gender

<table>
<thead>
<tr>
<th>Ethnicity/Race</th>
<th>Male</th>
<th>Female</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>18</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>African-American</td>
<td>15</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Hispanic</td>
<td>11</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Multiracial</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>(N)</td>
<td>50</td>
<td>32</td>
<td>82</td>
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</table>

Table II
Participants Exposure to Crime or Violence

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<tr>
<th>Type of exposure</th>
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<th>No</th>
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</thead>
<tbody>
<tr>
<td>Family member jailed</td>
<td>53</td>
<td>26</td>
</tr>
<tr>
<td>For violent crime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Witness of crime or violence</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Personal drug or alcohol use</td>
<td>33</td>
<td>48</td>
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Table III

Participants Self-Report of Experience of Trauma

<table>
<thead>
<tr>
<th>Type of Trauma</th>
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<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Illness</td>
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<td>62</td>
</tr>
<tr>
<td>Witnessing someone die or badly hurt</td>
<td>62</td>
<td>19</td>
</tr>
<tr>
<td>Been in a bad accident or fire</td>
<td>26</td>
<td>55</td>
</tr>
<tr>
<td>Been in a natural disaster</td>
<td>24</td>
<td>57</td>
</tr>
<tr>
<td>Robbed or attacked</td>
<td>38</td>
<td>43</td>
</tr>
<tr>
<td>Sexual violation</td>
<td>14</td>
<td>67</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>46</td>
<td>35</td>
</tr>
<tr>
<td>Other trauma</td>
<td>33</td>
<td>48</td>
</tr>
<tr>
<td>Witness domestic violence</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>Witness neighborhood violence</td>
<td>48</td>
<td>32</td>
</tr>
</tbody>
</table>

Note. Many participants reported more than one trauma event. These categories are not discrete.

Table IV

Rates of Posttraumatic Stress Disorder According to the CPTSD-I Scores, by Gender and Ethnicity/Race

<table>
<thead>
<tr>
<th>Ethnicity/Race</th>
<th>Sub-Clinical/Clinical PTSD score</th>
<th>Non-clinical PTSD score</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
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<tr>
<td>Caucasian</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>African-American</td>
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<td>8</td>
</tr>
<tr>
<td>Hispanic</td>
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<td>6</td>
</tr>
<tr>
<td>Multiracial</td>
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<td>3</td>
</tr>
<tr>
<td>N</td>
<td>31</td>
<td>27</td>
</tr>
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</table>
Table V

Types of Maltreatment by Ethnicity and Race

<table>
<thead>
<tr>
<th>Ethnicity/Race</th>
<th>Physical yes</th>
<th>Physical no</th>
<th>Sexual yes</th>
<th>Sexual no</th>
<th>Domestic Violence yes</th>
<th>Domestic Violence no</th>
<th>Neighborhood Violence yes</th>
<th>Neighborhood Violence no</th>
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</thead>
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<tr>
<td>Caucasian</td>
<td>16</td>
<td>14</td>
<td>5</td>
<td>24</td>
<td>11</td>
<td>19</td>
<td>13</td>
<td>15</td>
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<tr>
<td>African-American</td>
<td>12</td>
<td>13</td>
<td>3</td>
<td>22</td>
<td>7</td>
<td>18</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Hispanic</td>
<td>12</td>
<td>4</td>
<td>4</td>
<td>13</td>
<td>9</td>
<td>8</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Multiracial</td>
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<td>4</td>
<td>2</td>
<td>8</td>
<td>3</td>
<td>7</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>N</td>
<td>46</td>
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<td>14</td>
<td>67</td>
<td>30</td>
<td>52</td>
<td>48</td>
<td>32</td>
</tr>
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</table>
Table VI

Reports of CDI Symptoms by Ethnicity and Race

<table>
<thead>
<tr>
<th>Ethnicity/Race</th>
<th>CDI A</th>
<th>CDI B</th>
<th>CDI C</th>
<th>CDI D</th>
<th>CDI E</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.66</td>
<td>1.00</td>
<td>1.46</td>
<td>2.20</td>
<td>.833</td>
</tr>
<tr>
<td>SD</td>
<td>1.76</td>
<td>1.41</td>
<td>1.53</td>
<td>2.62</td>
<td>1.13</td>
</tr>
<tr>
<td>Caucasian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.33</td>
<td>.900</td>
<td>1.80</td>
<td>3.76</td>
<td>1.50</td>
</tr>
<tr>
<td>SD</td>
<td>2.91</td>
<td>.803</td>
<td>1.78</td>
<td>2.78</td>
<td>2.04</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.58</td>
<td>.882</td>
<td>2.82</td>
<td>3.82</td>
<td>1.47</td>
</tr>
<tr>
<td>SD</td>
<td>2.74</td>
<td>1.27</td>
<td>2.00</td>
<td>3.37</td>
<td>1.58</td>
</tr>
<tr>
<td>Multiracial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3.30</td>
<td>1.00</td>
<td>2.90</td>
<td>5.20</td>
<td>2.90</td>
</tr>
<tr>
<td>SD</td>
<td>3.83</td>
<td>1.49</td>
<td>2.60</td>
<td>3.85</td>
<td>2.96</td>
</tr>
</tbody>
</table>

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

Reports of Symptoms by Ethnicity and Race

<table>
<thead>
<tr>
<th>Ethnicity/Race</th>
<th>CDI Total</th>
<th>A-DES Total</th>
<th>PTCI Total</th>
<th>STAXI State Anger</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>7.16</td>
<td>72.8</td>
<td>85</td>
<td>22.16</td>
</tr>
<tr>
<td>$SD$</td>
<td>6.28</td>
<td>59.7</td>
<td>33.7</td>
<td>10.49</td>
</tr>
<tr>
<td>Caucasian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>10.3</td>
<td>73</td>
<td>92.1</td>
<td>23.5</td>
</tr>
<tr>
<td>$SD$</td>
<td>8.57</td>
<td>71.1</td>
<td>45.6</td>
<td>11.84</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>11.58</td>
<td>97</td>
<td>100.6</td>
<td>25.1</td>
</tr>
<tr>
<td>$SD$</td>
<td>8.76</td>
<td>65.7</td>
<td>39.4</td>
<td>11.73</td>
</tr>
<tr>
<td>Multiracial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>15.3</td>
<td>65</td>
<td>108.1</td>
<td>29.2</td>
</tr>
<tr>
<td>$SD$</td>
<td>13.0</td>
<td>69.4</td>
<td>42.03</td>
<td>15.3</td>
</tr>
</tbody>
</table>

*Note.* Numbers reported are means for each group.
### Table VIII

**Correlations Among PTSD Symptomatology and Related Symptoms**

<table>
<thead>
<tr>
<th>Related Symptoms</th>
<th>PTSD Symptomatology</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI Total Score</td>
<td></td>
</tr>
<tr>
<td>( r )</td>
<td>.45*</td>
</tr>
<tr>
<td>PTCI Total Score</td>
<td></td>
</tr>
<tr>
<td>( r )</td>
<td>.52*</td>
</tr>
<tr>
<td>STAXI-2: State Anger</td>
<td></td>
</tr>
<tr>
<td>( r )</td>
<td>.29*</td>
</tr>
<tr>
<td>STAXI-2: Trait Anger</td>
<td></td>
</tr>
<tr>
<td>( r )</td>
<td>.27**</td>
</tr>
<tr>
<td>STAXI-2: Anger Expression</td>
<td></td>
</tr>
<tr>
<td>( r )</td>
<td>.29*</td>
</tr>
<tr>
<td>A-DES Total Score</td>
<td></td>
</tr>
<tr>
<td>( r )</td>
<td>.22***</td>
</tr>
</tbody>
</table>

*Note.* \* = Correlation is significant at the 0.01 level (2-tailed). \** = Correlation is significant at the 0.05 level (2-tailed). \*** = Correlation is non significant \((p = .052)\).
Table IX

**Significant Moderational Findings for PTSD symptoms in African-American Participants**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>R^2 change</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI Total Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>.001</td>
</tr>
<tr>
<td>Model 2</td>
<td>.034</td>
<td>.069</td>
</tr>
<tr>
<td>A-DES Total Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>n. s.</td>
</tr>
<tr>
<td>Model 2</td>
<td>.057</td>
<td>.033</td>
</tr>
<tr>
<td>A-DES Subscale B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>n. s.</td>
</tr>
<tr>
<td>Model 2</td>
<td>.052</td>
<td>.047</td>
</tr>
<tr>
<td>A-DES Subscale D1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>.002</td>
</tr>
<tr>
<td>Model 2</td>
<td>.042</td>
<td>.057</td>
</tr>
<tr>
<td>A-DES Subscale D2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>n. s.</td>
</tr>
<tr>
<td>Model 2</td>
<td>.050</td>
<td>.050</td>
</tr>
</tbody>
</table>

*Note.* n. s. = non significant relationship
Table X

**Significant Moderational Findings for PTSD symptoms in Multiracial Participants**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>$R^2$ change</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CDI Total Score</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>.001</td>
</tr>
<tr>
<td>Model 2</td>
<td>.063</td>
<td>.011</td>
</tr>
<tr>
<td><strong>CDI Subscale A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>.001</td>
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<tr>
<td>Model 2</td>
<td>.040</td>
<td>.058</td>
</tr>
<tr>
<td><strong>CDI Subscale D</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>.001</td>
</tr>
<tr>
<td>Model 2</td>
<td>.041</td>
<td>.040</td>
</tr>
<tr>
<td><strong>CDI Subscale E</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>----</td>
<td>.001</td>
</tr>
<tr>
<td>Model 2</td>
<td>.083</td>
<td>.003</td>
</tr>
</tbody>
</table>

*Note. n. s. = non significant relationship*
Table XI

Significant Moderational Findings for PTSD Symptoms and CDI Items

<table>
<thead>
<tr>
<th>Moderator</th>
<th>R² Change</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent Variables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDI Item 9</td>
<td>.095</td>
<td>.003</td>
</tr>
<tr>
<td>CDI Item 14</td>
<td>.039</td>
<td>.071</td>
</tr>
<tr>
<td>Multiracial</td>
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<tr>
<td>Dependent Variables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDI Item 3</td>
<td>.045</td>
<td>.060</td>
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<tr>
<td>CDI Item 7</td>
<td>.074</td>
<td>.010</td>
</tr>
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<td>CDI Item 8</td>
<td>.091</td>
<td>.004</td>
</tr>
<tr>
<td>CDI Item 9</td>
<td>.038</td>
<td>.067</td>
</tr>
<tr>
<td>CDI Item 14</td>
<td>.050</td>
<td>.042</td>
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<tr>
<td>CDI Item 18</td>
<td>.067</td>
<td>.017</td>
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<tr>
<td>CDI Item 20</td>
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<td>.059</td>
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<td>CDI Item 25</td>
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<td>.003</td>
</tr>
<tr>
<td>CDI Item 27</td>
<td>.058</td>
<td>.034</td>
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</table>
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  Graduate Student Research Award. College of Liberal Arts Honors Convocation
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- September 2003 to May 2004
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- August 2002
  McNair Graduate Scholarship, University of Nevada, Las Vegas
- May 2002
  Honors for Academic Achievement, The College of Social and Behavioral Sciences,
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- May 2002
  Honors for achievement/academics, The Department of Psychology, California State
  University, San Bernardino
- May 2001
  Associated Student Incorporated Grant Award, California State University, San
  Bernardino
March 2001
Associated Student Incorporated Grant Award. California State University, San Bernardino.
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Department of Social and Behavioral Sciences Dean’s list. California State University, San Bernardino
Fall of 1998, 1999, & 2000
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