POSTTRAUMATIC SYMPTOMS AS A MEDIATOR BETWEEN CHILDHOOD ABUSE AND AGGRESSIVE BEHAVIOR IN LOWER SES AFRICAN-AMERICAN MEN

by

MARK RICHARD EVCES

(Under the direction of Arthur Horne)

ABSTRACT

The relationship between self-reported child abuse, posttraumatic stress disorder (PTSD) symptoms, and aggressive behavior was examined. One hundred and seventy seven men were interviewed in primary care and obstetrics/gynecology waiting rooms of a large, inner city hospital. Rates of abuse, PTSD, and aggressive behavior were higher than those found in normative epidemiological data. A significant, positive correlation was found between history of abuse, frequency of current PTSD symptoms, and frequency of aggressive behaviors. Posttraumatic stress disorder symptoms significantly mediated the relationship between measurements of child physical abuse and a non-weapon aggression. PTSD symptoms also trended towards mediating between measurements of child emotional abuse, and non-weapon aggression and theft behavior. These findings support previous “cycle of violence” studies that posit a relationship between traumatic childhood victimization and subsequent aggression by the victim. PTSD appears to be one pathway leading from early traumatic experiences to later aggressive behaviors.

INDEX WORDS: Posttraumatic stress disorder, child abuse, aggression

POSTTRAUMATIC SYMPTOMS AS A MEDIATOR BETWEEN CHILDHOOD ABUSE AND AGGRESSIVE BEHAVIOR IN LOWER SES AFRICAN-AMERICAN MEN

by

MARK RICHARD EVCES

B.S., Indiana University, 1995

M.Ed., The University of Georgia, 2003

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2008

POSTTRAUMATIC SYMPTOMS AS A MEDIATOR BETWEEN CHILDHOOD ABUSE AND AGGRESSIVE BEHAVIOR IN LOWER SES AFRICAN-AMERICAN MEN

by

MARK R EVCES

Major Professor: Arthur Horne

Committee: Rebekah Bradley
Linda Campbell
Alan Stewart

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
August 2008

DEDICATION

This dissertation is dedicated to my mother, Susan McDaniel Evces, whose limitless grace, strength, and love constantly inspire me.

ACKNOWLEDGEMENTS

Thank you to Dr. Andy Horne, my advisor and guide through graduate school. You taught me to dream big and stay focused on the important things. Also, thanks to my clinical supervisor, Dr. Linda Campbell whose constant encouragement, insight, and professional mentoring were essential to my graduate experience. And to Dr. Rebekah Bradley, whose energy, intelligence, and support allowed me to grow as a clinician and researcher. I am honored to count these individuals as both mentors and friends. I would also like to thank Dr. Kerry Ressler and the staff of the Grady Trauma Project, an NIH funded research project NIH 5 R01 MH071537-02: Dr. Ann Schwartz, Dr. Heather Jones, Project Coordinators Jay Mercer and Allen Graham, and the staff of the Project, including Nineequa Blanding, Josh Castleberry, Daniel Crain, Rachel Hershenberg, Eboni Johnson, Abby Powers, and the many undergraduates from Emory University who helped collect data for this project. Thanks is also due to the staff of the General Clinic Research Center at Grady Hospital. I would also like to thank my graduate cohort for support: Janae Taylor, Robyn Long, Noelle Savatta, Cary Pope, Jill Fuini, and Mahlet Endale. I am particularly indebted to Mahlet and her family for their kind and loving support throughout my graduate experience. Thanks also to the faculty and staff of the UGA Department of Counseling and Human Development for their hard work and assistance along this journey, and to fellow student Christopher Bell, my gym buddy and road trip accomplice. Finally, I want to thank my father, Dr. Charles Evces, and my siblings, Michael and Cathy Evces. Nothing is more important than you guys. Thanks for putting up with me. I will forever first and foremost be an Evces!

TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

Life in America's inner cities is often characterized by poverty and violence. Very little literature has examined the negative psychological effects of this environment on the attitudes and behaviors of minority individuals (Reynolds, O'Koon, Papademetriou, Szczygie, & Grant, 2001). Violence, in particular, has a negative effect on the lives of perpetrators, victims, and the communities in which they live. Violence often leads to the arrest and imprisonment of perpetrators and a myriad of possible negative outcomes for the victim, including death, serious injury, loss of feelings of safety, and other potentially debilitating physical and psychological effects. Communities beset by violence risk the loss of economic and social resources as fearful businesses and families leave or choose to avoid living or conducting business in the area. In a 1992 article, the surgeon general of the United States declared violence in America to be a public health emergency (Koop & Lundberg). While overall rates of violent crime are decreasing in the United States, violent injury is increasingly common in American cities (US Department of Justice, 2001). Systemic consequences include increased medical costs, and decreased productivity and quality of life (Miller, Cohen, & Kossman, 1993).

The impoverished and violent conditions of many urban areas can be attributed to a variety of systemic/sociological causes (Almgren, 2005). While the causes of violence are complex and interactive, the demographics of the perpetrator and victim are often the same. There is evidence that the majority of violent acts in urban

environments are committed by young adult men, and male gender, poverty, and Black race are risk factors associated with recurring violent injury (Rich & Grey, 2005). Men also generally experience higher rates of interpersonal violence than women, excluding sexual assault (US Department of Justice, 2004). Their violent injuries are often recurring events, suggesting that male victims of violence are more likely to be involved in subsequent violent encounters. For a significant number of inner city men, victimization begins during childhood. A 1997 U.S Department of Justice study found that one in ten male prisoners reported being sexually or physically abused as a child and that those prisoners were more likely to incarcerated for violent crimes. Child maltreatment rates are higher in areas of concentrated poverty (Coulton, Korbin, Su, and Chow, 1995; Freisthler, Merritt, LaScala, 2006). Community contextual factors such as racial segregation, scarce economic resources, and isolated, single parent families are associated with high maltreatment rates in inner city Cleveland (Coulton, Korbin, Su, and Chow, 1995) and Baltimore (Zuravin, 1989).

Previous research showed a significant relationship between child abuse and neglect and subsequent violent behavior by the victim (Widom & Maxfield, 2001). There are several reasons why early trauma and abuse might lead to violent behavior in men, including the effects of male gender identity (Lisak, Hopper, & Song, 1996), attachment (Kesner & McKenry, 1998), and social learning from family members (Mihalic & Elliott, 1997) and the media (Anderson & Bushman, 2002).

Victims of childhood abuse and/or other childhood trauma often suffer from symptoms of posttraumatic stress disorder (PTSD), a cluster of intrusive thoughts and memories, emotional numbing and avoidance, and increased arousal related to a

traumatic event. PTSD symptoms are thought to lead to increased violent behavior by victims of violent acts, hence the term “cycle of violence” to describe individuals, groups, and communities that experience recurring violence (Holmes & Sammel, 2005; Rich & Grey 2005; Widom & Maxfield, 2001). The “cycle of violence” seems particularly salient to impoverished inner city populations, as individuals often experience child abuse and/or other interpersonal trauma that might result in a greater likelihood of abusive and violent behavior. However, no studies could be located examining the relationship between child abuse, PTSD, and aggressive behavior in an inner city population.

Rather than pathologizing individuals living under a variety of stressful conditions, the “cycle of violence” literature seeks to understand violent behavior in terms of the role of previous traumatization on perpetrators of violence. PTSD is a potential pathway mediating the effect of early traumatization (i.e., child abuse) on subsequent aggressive behavior. Biophysiological changes linked to PTSD could “prime” an individual to react aggressively when threatened. Traumatic events, or those that the victim fears could lead to death, serious injury, or loss, can lead to prolonged activation of the sympathetic nervous system, causing symptoms of hypervigilance, emotional numbing, and intrusive thoughts of the traumatic event. These symptoms can lead to a heightened sense of threat, irritability, impaired decision-making, and decreased empathy. Men who have experienced traumatic stress as children sufficient to induce one or more of these symptoms might become more prone to act aggressively, either as a protective measure or a result of decreased ability to consider nonviolent interpersonal responses.

A recent qualitative analysis concluded that trauma-rich environments could lead to the creation of a “code of the street” in which men react aggressively to protect

themselves from further victimization (Rich & Gray, 2005). In this study, aggression, including physical aggression, was adopted as a way to manage social interactions in a trauma-prone or dangerous environment. Researchers found young adult, Black inner city trauma victims to have lack of faith in police, feel pressure to retaliate, and experience symptoms of traumatic stress to be the three most common contributors to trauma victims' disrupted sense of safety and substance use. Insecurity and substance use led, in turn, to increased weapon possession and retaliatory behaviors, increasing the probability of traumatic reinjury. In short, the "cycle of violence" literature suggests that a history of abuse and trauma can lead to post traumatic symptoms that might predispose men toward violent behavior.

Men are both the victims and the perpetrators of the majority of inner city violence, and while the transformation of victim to perpetrator involves several factors, posttraumatic symptoms might play a significant role.

Purpose

The purpose of this study was to examine the relationship between self-reported childhood abuse, posttraumatic disorder symptomotology, and self-reported aggressive behavior. Further knowledge of the relationship between posttraumatic stress and aggressive behavior could lead to a better understanding of the problems and possible solutions associated with inner-city violence perpetrated by men.

Statement of the Problem

America's inner cities are often violent and impoverished places in which difficult conditions persist despite targeted social policies and other community interventions. Much needed resources are unavailable to these areas due, in part, to a cycle of

violence that persists among young men. A double bind exists in which the traumatic environment fosters violent behavior and limits the community resources necessary to prevent violence, as families and businesses are discouraged from remaining in or relocating to the affected area. Despite the possible effect of traumatic events on the lives of inner city men, a literature review indicated that the extent of the relationship between child abuse, posttraumatic symptoms, and subsequent violent behavior among men in an urban community setting has not been examined from the psychological perspective. Therefore, the problem the present study investigated was the psychological aspect of a persistent cycle of violence in impoverished inner city areas.

General Hypotheses

The results of this study describe the rate and types of childhood trauma, PTSD symptoms, and aggressive behaviors of men living in a large inner city area. It examines the relationship between these trauma, traumatic symptoms, and rates and types of aggressive behaviors reported by these individuals. Based on the reviewed literature as well as the potential salience of these variables to a low-income African American population, the following hypotheses were proposed.

1. It was predicted that the men assessed for this study would report high levels of child abuse, frequency of PTSD symptoms, and aggressive behavior.
2. It was predicted that reported child abuse would significantly and positively correlate with frequency of PTSD symptoms.
3. It was predicted that frequency of PTSD symptoms would positively correlate with self-reported lifetime aggressive behaviors.

4. It was predicted that child abuse would positively correlate with self-reported lifetime aggressive behavior.
5. It was predicted that frequency of lifetime PTSD symptoms would significantly mediate the relationship between child abuse and self-reported lifetime aggressive behavior.

Delimitations

This study sampled men from primary care and ob/gyn clinic waiting rooms at a large, inner-city hospital. While the sample consisted of men living in the catchment area of the hospital, it is noted that some men living in this area were incarcerated for violent behavior at the time of this study and not available for participation. Men who were given jail or prison sentences as a result of serious violent offenses were not accessible to the researchers. Due to the exclusion of these incarcerated males from the study sample, the results of this study are not generalizable to the overall male population of the community. Rather, the results serve as an indicator of men who were living in the community at the time of the study. It is also noted that men who were recruited from health care waiting rooms were not always visiting the hospital for their doctor's appointments. Some men were accompanying partners, friends, or family members. As such, this study is limited in its scope to men who were not incarcerated at the time, able and willing to visit the hospital, and not seriously injured or deceased due to violent or other circumstances. It is also noted that posttraumatic symptoms can result in individuals remaining in their homes due to avoidance, hyperarousal, or intrusive thoughts. These individuals suffering from severe PTSD might not present at a

health care facility despite even serious health conditions. For this reason, individuals with severe cases of PTSD may be underrepresented in the sample.

Child abuse, PTSD symptomotology, and aggressive behavior data were collected using retrospective, self-report measures. Participants may fail to recall events or inaccurately recall them either unintentionally or in an effort to minimize the distress of recollecting painful memories. Participants might have also exaggerated recollections in an effort to elicit reactions from the researchers. They may also have minimized events in an effort to appear socially desirable.

Definitions and Operational Terms

For the purposes of this study, participants were asked to self-report acts of childhood abuse, trauma, and aggression.

Abuse is defined as an act that hurts or injures by maltreatment, including verbal, physical, or sexual activity. Childhood abuse is defined as the emotional, physical, or sexual abuse of a child. Childhood abuse can be differentiated from childhood neglect, which is the failure to care for or attend to a child properly. The definitions used for the presente study are the same as those provided by Berstein and Fink on page 2 of their 1998 Child Trauma Questionnaire Manual. Emotional abuse refers to “verbal assaults on a child’s sense of worth or well-being, or any humiliating, demeaning, or threatening behavior directed toward a child by an older person”; sexual abuse is defined as “sexual contact or conduct between a child and an older person; explicit coercion is a frequent but not essential feature of these experience”; physical abuse is defined as “bodily assaults on a child by an older person that pose a risk of, or result in, injury” .

The American Psychiatric Association defines trauma as any stressful event that involves actual or threatened death or serious injury, or a threat to one's physical integrity (American Psychiatric Association, 2000). When a traumatic event evokes intense fear, helplessness, or horror, a person may experience symptoms of posttraumatic stress disorder (PTSD). PTSD is characterized by intrusive thoughts of the event, avoidance of the event, and increased arousal that persist at least one month after the event.

Violence is defined as physical force exerted for the purpose of violating, damaging, or abusing (Merriam-Webster, 1989). Violence can be differentiated from aggression, which is defined as the act of initiating hostilities or invasion (Merriam-Webster, 1989). The central difference between these terms is the use of physical force, as aggression can include verbal and other non-physical forms of hostile or invasive behavior.

CHAPTER 2

LITERATURE REVIEW

The “cycle of violence” literature hypothesizes that child abuse can lead to aggressive behavior by the victim. PTSD is a potential pathway leading from traumatic childhood experiences to pathological responses to traumatic stress which increases the likelihood that an individual will act aggressively. Child abuse has been associated with PTSD (Kaysen, Resick, & Wise, 2003) and aggressive behavior (Widom, Schuck, & White, 2006). Rates of child abuse (Coulton, Korbin, Su, & Chow, 1995), PTSD (Schwartz, Bradley, Sexton, Sherry, & Ressler, 2005), and aggression (Department of Justice, 2004) are higher in lower SES, inner city populations . A few studies have examined the relationship between child abuse, PTSD, and aggression in the Vietnam veteran population, but no study was located in a review for the present study that has examined this relationship in an inner city civilian population.

Child Abuse and Posttraumatic Stress Disorder

The prevalence of child abuse is estimated to be from 1.5% to 31.2% of men in the general population of the United States (Finkelhor, Hotaling, Lewis, & Smith, 1990; Gorey, & Leslie, 1997; Kilpatrick & Acierno, 2003; MacMillan, Fleming, Trocme, Boyle, Wong, Racine, Beardslee, & Offord, 1997). These studies also find that males generally report more physical abuse and less sexual abuse than females. Child abuse has been found to be particularly prevalent among lower socioeconomic status (SES)

populations such as those commonly found in America's inner cities (Coulton, Korbin, Su, & Chow, 1995).

Child abuse and associated stress can result in the development of psychopathological responses (Swett, Surrey, & Cohen, 1990) including posttraumatic symptoms, psychological and physical stress reactions that can persist after the traumatic experience(s) and into adulthood (Kaysen, Resick, & Wise, 2003). Several studies have shown various ways in which child maltreatment can delay or alter normal brain developmental processes including dysregulation of the hypothalamic-pituitary-adrenal axis, and parasympathetic and catecholamine responses that are found in individuals suffering from PTSD (De Bellis, Keshavan, Clark, Casey, Giedd, Boring, Frustaci, & Ryan, 1999; Glaser, 2000). PTSD is one of many possible responses to childhood abuse. Other responses include depression, substance abuse, and anxiety disorders. A large number of survivors of child abuse experience no related negative mental health outcomes at all. However, the chronic nature of child maltreatment and the unique perspective of the abused child (i.e. confusion over harmful behavior from trusted attachment figures, normalizing of harmful behaviors, etc.) may result in increased susceptibility to PTSD in adult life rather than a discrete PTSD diagnosis during childhood.

Abused children show higher rates of PTSD than non-abused children (Briere & Elliott, 1994). Bremner, Southwick, Johnson, Yehuda, & Charney (1993) showed that PTSD in Vietnam veterans was associated with childhood physical abuse, while Yehuda, Kahana, Schmeidler, Southwick, Wilson, & Giller (1995) concluded veterans are more likely to suffer PTSD as a result of adult trauma if they have experienced early

trauma such as child abuse. Schnurr, Lunney, and Sengupta (2004) reanalyzed a sample from the National Vietnam
Veteran's Readjustment Study and found severe childhood punishment to be a risk factor for PTSD and the sole significant risk factor for chronic PTSD.

Child abuse has also been associated with adult PTSD in civilian populations (Widom, 1999). A recent study of an inner city population found that individuals reporting an unstable childhood family environment were more likely to meet DSM criteria for posttraumatic stress disorder and to report a greater number of posttraumatic symptoms (Schwartz, Bradley, Sexton, Sherry, & Ressler, 2005).

Child Abuse and Aggressive Behavior

In their 2006 article examining pathways from child abuse to violence, Widom, Schuck, and White reviewed literature associating child abuse with child, young adult and adult behavior problems, including aggression and violence across geographic region, measurement techniques, age of victim, and definition of abuse (Briere, J., & Runtz, Marsha, 1990; Smith & Thornberry, 1995; Widom, Schuck, & White, 2006; Zingraff, Leiter, Myers, & Johnsen, 1993). Holmes & Sammel **(**2005) found self-reported child physical abuse associated with self-reported violent behavior in adults. Ball (2005) found an increase in the predictive power of abuse and aggression when quality of abuse is examined. In an often cited "Cycle of Violence" report, Widom & Maxfield (2001) used Department of Justice data to find that childhood abuse and neglect increased the likelihood of committing a crime as a juvenile by 59% and as an adult by 28%. Abuse and neglect history increased the likelihood of committing a violent crime by 30%. Abused and neglected children were arrested at a younger age,

arrested more often, and committed twice as many crimes. Widom and Maxfield (2001) note the disturbing nature of this data when considered with research showing that early onset of delinquent behavior is linked to an increase in frequency and intensity of subsequent behavior problems. The study did not find increased rates of violent behavior for abused males, but this null finding was attributed to the increased frequency with which males are arrested for violent crimes. Childhood physical abuse and neglect of males was associated with increased frequency of arrest for violent behavior while sexual abuse was not. The authors speculated that the relative infrequency of reported male sexual abuse may have lead to failure to find a relationship between sexual abuse and violent behavior. Abuse was also associated with poor psychological outcomes (e.g. PTSD), poor educational outcomes, employment difficulties, and health and safety issues (e.g. substance abuse). African American children who suffered abuse and/or neglect were more likely to commit violent crimes while White children were not. The authors recommended further research to examine this difference, speculating that socioeconomic status may play a significant role.

Miller, Cohen, & Wiersema (1996) also reported a significant association between child abuse and violent behavior, but reported that adequate data on a causal connection between child abuse and subsequent violence were not yet available. Widom, Schuck, and White (2006) found that child maltreatment in males led directly to early aggressive behavior and indirectly to aggressive behavior via alcohol abuse. Other studies suggest genetic (Caspi, McClay, Moffitt, Mill, Martin, & Craig, 2002), social information processing (Dodge, Bates, & Pettit, 1990), instability of living arrangements

(Herrenkohl, Herrenkohl, & Egolf, 2003), and attachment (Kesner & McKenry, 1998) contributions to PTSD in adult males.

PTSD and Aggressive Behavior

While estimates of prevalence of PTSD in the general population vary with methodological differences, including differences in PTSD criteria as defined by DSM III and DSM IV, the prevalence of PTSD has been consistently estimated to be between 9 and 12 % in the general population, with males consistently reporting a lower rate than females (Breslau, Davis, Andreski, & Peterson, 1991; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). In inner city African American populations, however, trauma is thought to be underreported and PTSD underdiagnosed. Schwartz, et al. (2005) found significantly higher rates of severe trauma (83%) and PTSD (44%) in a sample of African Americans with low socioeconomic status visiting an urban mental health clinic. Breslau, Davis, Andreski, & Peterson, E. (1991) found a current PTSD rate of 9.2% in an inner city young adult population in Detroit using Health Maintenance Organization data, with a higher rate of PTSD in males than females.

Inner city, low SES populations are at greater risk of experiencing traumatic events and resultant PTSD symptoms as a result of living in economically disadvantage areas with high rates of violence (Mueser, Goodman, Trumbetta , Rosenberg, Osher, Vidaver, Auciello, & Foy, 1998; Solomon & Davidson, 1997). Underreporting of trauma exposure and traumatic stress in African Americans is exacerbated by the underdiagnosis of mental health disorders in general in the African American population (Leo, Sherry, & Jones, 1998). The impact of traumatization on inner city African American populations has only recently begun to be examined and must be considered

when addressing issues of mental health and violence in predominantly African American urban areas.

Research generally concludes that actuarial tables, not clinical judgments, are the best predictors of violence. Specifically, historical factors such as past violent behavior, sex, age, and substance abuse are the best predictors (Harris and Rice, 1997) of violence. Major mental disorders are also associated with increased risk of violence (Hodgins, 1998; see reviews by Mulvey, 1994, and Volavka, 1995). Research examining the specific effects of PTSD symptoms shows an association between PTSD and anger arousal, suggesting that "deficits in regulation of anger arousal and impulsivity, impaired cognitive appraisal processes, and stereotyped behaviors for coping with threat" lead to increased risk for violent behavior (Galovski & Lyons, 2004).

Widely accepted models of aggression suggest pathways linking traumatic stress to aggressive behaviors, both as immediate hostile reactions and as scripts that are formed, retained and activated in similar threatening situations during subsequent encounters with perceived stressors (Taft, Vogt, Marshall, Panuzio, & Niles 2007). Berkowitz's (1990) cognitive neo-associanistic model of anger and aggression hypothesizes that negative affect activates a network of anger feelings, thoughts, memories, physiological states, and expressive motor reactions. Aversive stimuli produce initial reactions to negative affect, which include parallel flight (escape) and fight (anger/aggression) reactions whose strengths are determined by various situational and individual factors. Given time or conscious effort, the individual can utilize higher order cognitive processes such as consideration of consequences of aggression to inhibit behavior. Other more complex emotional experiences such as guilt

or anxiety may also arise resulting in attention being shifted away from the initial “fight or flight” reaction.

Anderson and Bushman’s (2002) general aggression model (GAM) includes elements of cognitive, social learning, and excitation transfer theories. Cognitions, affect, and physiological arousal mediate individual and situational variables effects on aggression. GAM is based on cognitive constructs called “knowledge structures” which are associations of cognitions, affect, and behaviors that are created out of experiences and influence perception, interpretation, and behavioral responses. As in Berkowtiz’s model, these networks are automatically activated in response to environmental circumstances during “episodes” such as situations in which the individual experiences a threat. Individual factors affecting responses to stimuli include personal traits; sex; beliefs about aggression and its outcomes; attitudes towards self, people, and violence; values; and long-term goals. Situational factors include aggressive cues, provocation, frustration, drug use, and incentives for aggressing.

PTSD is characterized by intense feelings of anxiety and resultant avoidance behaviors. Negative affect associated with PTSD as well as comorbid depression (Kessler 1995) suggests that trauma can activate anger- and aggression-related networks of affect, cognition (i.e. thoughts and memories), and behavior. Studies show PTSD to be associated with increased aggression when controlling for combat exposure, suggesting that PTSD has an independent effect on aggression (Lasko, Gurvits, Kuhne, Orr, & Pittman, 1994; Taft, Vogt, Marshall, Panuzio, and Niles, 2007). Research shows higher rates of aggressive and violent behaviors, hostility, and anger management problems among male veterans with PTSD (Taft, Vogt, Marshall, Panuzio,

and Niles, 2007). To date, no studies have been found that have examined the pathway between PTSD and aggression in a civilian population.

PTSD is associated with violent behavior in populations of Vietnam veterans even when controlling for social learning of aggression that might occur during combat experiences (Galovski, & Lyons, 2004**;** Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar, et al. 1990**).** Symptoms of avoidance-numbing and physiological arousal in these samples were associated with violent behavior, while reexperiencing of traumatic events was not. These studies found low socioeconomic status and age to be the only sociodemographic variables consistently related to violence in most epidemiological studies performed on nonclinical and psychiatric populations. PTSD symptoms were significantly associated with violent behavior among inpatients with PTSD, even after controlling for effects of trauma exposure, substance use, and symptoms of depression (Galovski, & Lyons, 2004). McFall, Fontana, Raskind, & Rosenheck (1999) found that male Vietnam veterans with PTSD seeking inpatient services exhibited more violent behavior than veterans without PTSD.

Inner city trauma and violence

Violence erodes inner city social structures (Fullilove, Heon, Jimenez, Parsons, Green, & Fullilove, 1998) and leads to traumatic injury (Rich & Grey, 2005). Despite a steady decline in reported violent crime since 1994, violent injury has increased in urban environments (National Crime Victimization Survey Violent Crime Trends, 1973-2004). An estimated ninety percent of reported violent crime occurred in metropolitan areas in 2003 (Department of Justice, 2004), and many more violent crimes go unreported (Federal Bureau of Investigation, 2004). Males comprised 82.2 percent of arrestees for

violent crime in the United States in 2003 (Department of Justice, 2004). While reports of violent crime are declining, traumatic injuries continue to rise. This increase, combined with the recent finding of extremely high rates of traumatic experiences and PTSD in an inner city African American population, paint a picture of an inner city environment in which violence and trauma are common, underreported, and harmful. The persistence of such environments suggests a cycle of trauma and violence in which victims are transformed into perpetrators by the sequelae of traumatic stress.

Methodological Issues

Widom (1989) identified nine methodological problems common to studies of the "cycle of violence": variability in the definitions of child abuse, use of questionable retrospective or second-hand data, use of convenience or opportunity samples (e.g. psychiatric patients), ex post facto studies lacking predictive power, reliance on correlation rather than examining causation, failure to distinguish between abused and neglected children, lack of comparison or control groups, variability in the definition of outcome variables (e.g. delinquent behaviors versus aggressive behaviors versus violent behaviors), and dearth of literature examining long term consequences of child abuse and neglect.

This dissertation uses retrospective data in an ex post facto mediation analysis; however, several of Widom's (1989) methodological concerns are addressed, including using a common definition of abuse as described by the Child Trauma Questionnaire, the construction of a detailed outcome measure examining a range of aggressive behaviors, random sampling of a civilian population in primary care waiting rooms, and utilization of recent literature describing the long term effects of child abuse.

The United States is widely known as the most violent industrialized nation. Violence is associated with a large number of negative systemic and individual outcomes. A “cycle of violence” literature hypothesizes that childhood abuse can lead to subsequent aggressive behavior by the victim. A literature search yielded no studies examining abuse, PTSD, and aggressive behavior. This dissertation examines PTSD stymptomotology as a possible pathway leading from abuse to aggression. Research has shown that adults who were abused as children are more likely to develop PTSD. Adults with PTSD have been shown to act aggressively more frequently. However, no study has examined this relationship in an inner city population despite higher rates of abuse, PTSD, and violent crime. This dissertation examines the relationship between child abuse, PTSD, and aggression in an inner city male population, providing statistical evidence of the “cycle of violence” as well as the role of PTSD as a mediator of childhood abuse and aggressive behavior.

CHAPTER 3

METHOD

Description of the Sample

Subjects were recruited from the General Medical and Obstetric/Gynecological Clinics at Grady Healthcare System, a publicly funded, not-for-profit healthcare system that serves the low-income and homeless population in downtown Atlanta, a city of approximately 4 million people. The Clinics follow over 10,000 active patients. In 2003, there were 217 average daily visits, 4708 average monthly visits, and 56,482 yearly visits. The Clinic population is overwhelmingly minority (>80% African American and 5-10% Hispanic) and poor (87% with monthly household income < $1000). Data were collected as part of the Grady Trauma Project, a 5-year NIH-funded study of risk and resilience to PTSD at Grady Hospital (see Appendix 1).

Consenting, English speaking participants over the age of 18 who were able to articulate their understanding of the consent were included in this study. Data from male patients of all races and ethnic groups was analyzed for this study. The study setting is located in a racially diverse county at a hospital treating a primarily indigent and minority population.

Participants in the study were 177 men who were invited to participate in the study while waiting for appointments, or while accompanying patients waiting for appointments, in primary care and obstetrics/gynecology waiting rooms at a large inner city public hospital in the Southeastern United States. No standardized selection

process was used. Researchers randomly chose potential participants by approaching men until one agreed to participate. The number of men who declined to be interviewed was not recorded. Participants ranged in age from 18 to 71 (M = 43.6, SD=12.4). The majority of participants described their race as African-American or Black (95%). A slight majority of participants were patients waiting for hospital appointments (54.8%), while many were accompanying friends or relatives (33.9%). 47.5% of participants described themselves as single/never married, while a nearly equal number of men described themselves as divorced (20.9%) or as married (19.2%). 78% of participants reported having a high school diploma/GED or higher educational level. 71.6% of participants reported being unemployed, while 28.8% reported receiving disability benefits (see Table 1). 28.6% reported a monthly household income of 249 dollars or less. 78.4% of participants reported being arrested, while 72.7% reported spending time in jail and 20.9% reported spending time in prison. 26% of participants reported being arrested or put in jail or prison for a violent crime, while 20.3% reported being arrested or put in jail or prison for a weapon related charge (See Table 2).

Design

Descriptive data was collected from individual participants through individual interviews. Statistical analysis included a mediation analysis to examining PTSD symptoms as a mediator between child abuse and aggressive behavior. The following variables were measured (a description of instruments follows):

Childhood abuse was divided into three categories as measured by the emotional, physical, and sexual abuse subscales of the Childhood Trauma

Questionnaire (CTQ) and the sexual and physical abuse items of the Traumatic Events Inventory (TEI).

Posttraumatic stress symptoms were measured using the total frequency score of the Modified PTSD Symptom Scale (MPSS).

Aggressive behavior was measured by the frequency scales of the Aggressive Behavior Questionnaire (ABQ) divided into four subscales: weapon aggression behavior, non-weapon aggression behavior, theft behavior, and drug behavior. A four factor promax rotation exploratory factor analysis was conducted on the ABQ in order to create these subscales composed of commonly grouped items. These new subscales were used as measures of different types of aggressive behaviors ("weapon aggression" and "non-weapon aggression") as well as two additional groups measuring drug use ("drug use") and theft ("theft") behaviors (see Appendix 2).

Instruments

The **Demographics Form (DF)** was created by the researchers and covers demographics; family composition; living situation; personal and family psychiatric, medical, and substance abuse history; and income and education.

Assessment of Childhood Trauma History

The Childhood Trauma Questionnaire (CTQ) (Bernstein, Ahluvalia, Pogge, & Handelsman, 1997) is a 28-item, self-report inventory assessing three domains of childhood abuse (sexual, physical, and emotional), and two domains of childhood neglect (physical and emotional) (see Appendix C). Cutoff scores for each category have shown excellent sensitivity and specificity in correctly classifying cases of abuse and neglect in psychiatric patients (Bernstein, Ahluvalia, Pogge, & Handelsman, 1997; Bernstein & Fink, 1998; Bernstein, Fink,

Handelsman, Foote, et al., 1994; Bernstein, Stein, Newcomb, Walker, et al., 2003). The CTQ applies to early childhood trauma that occurred at or before 12 years of age. The variables produce both present and absent (above and below cutoff scores for no or minimal abuse) and severity scores for each type of abuse. For the purposes of this study we used 3 data points derived from the CTQ subscales: Physical, Sexual, and Emotional Abuse severity. Subscales of the CTQ have demonstrated good internal consistency. Cronbach's alpha for each scale were .82, .92, and .89 respectively (Bernstein & Fink, 1998).

Assessment of Posttraumatic Disorder Symptoms

The **Traumatic Events Interview** is an instrument assessing lifetime history of traumatic experiences including experiencing, witnessing, and being confronted with these stressors (see Appendix D). It was developed by the Grady Trauma Project researchers in the course of prior work in the Grady primary care population. The TEI is a structured interview consisting of questions that ask whether a participant has experienced common traumatic experiences such as interpersonal assault, child abuse, and car accidents. The TEI also contains questions concerning a participant's emotional reactions to events and at what age those events occurred.

The **Modified PTSD Symptom Scale (MPSS)** is a 17-item self-report diagnostic instrument used to aid in the detection and diagnosis of PTSD (Foa, Riggs, Dancu, & Rothbaum, 1993; Foa and Tolin, 2000) (see Appendix E). It has excellent psychometric properties. The structure and content of the MPSS mirror the DSM-IV criteria for PTSD (American Psychiatric Association 2000). The psychometric properties of the MPSS and the initial instrument from which it was modified (PTSD Symptom Scale; PSS) indicate satisfactory internal consistency, high test-retest

reliability, and good concurrent validity. The MPSS was used in this study as a rapid screening tool because of its reasonably good diagnostic validity for PTSD.

Assessment of Aggressive Behavior

The **Aggressive Behavior Questionnaire (ABQ)** is a 48-item, self-report inventory assessing physical and verbal aggression, and criminal offenses including drug use and theft (see appendix F). This measure was created by the investigator and Dr. Rebekah Bradley using the Conflict Tactics Scale, a commonly used measurement of relationship conflict behaviors (Straus, Hamby, Boney-McCoy, & Sugarman, 1996), and in consultation with researchers specializing in the identification of deviant and aggressive behaviors (T. Moffitt, personal communication, March 2007). Items from the CTS were combined with new items describing other types of aggressive behavior to construct a list of 48 behaviors ranging in level of aggression from verbal aggression to interpersonal violence. Other antisocial behaviors such as drug use and theft behaviors were also included. Drug use and theft, while not forms of overtly hostile aggression towards other, can be forms of instrumental aggression, behaviors that may include aggressive behaviors towards others in pursuit of an ultimate goal (i.e. the possession and use of drugs and theft from others). A literature review yielded no existing instruments measuring such a range of self-reported violent and aggressive behaviors. Internal consistency of the ABQ was assessed using Cronbach's coefficient alpha (Cronbach, 1954). Cronbach's alpha for the ABQ as a whole was .968.

Data Collection

This research project was conducted as part of a larger project conducted by the Trauma Disorders Treatment and Research Clinic at Grady Memorial Hospital, a primary teaching hospital of Emory University School of Medicine in Atlanta and the

major center for healthcare of Atlanta's indigent population (See Appendix 1). Dr. Rebekah Bradley, a co-investigator for the Trauma Clinic, supervised the administration and scoring of instruments.

Subjects were recruited from the primary care clinic of Grady Healthcare System, a publicly funded, not-for-profit healthcare system that serves the low-income and homeless population in downtown Atlanta, a city of approximately 4 million people. Patients waiting for appointments in the General Medical Clinic were approached by research interviewers and invited to participate in a research project about stress and coping. Participants were recruited for initial screening while they waited to be seen for an appointment in the medical clinic. To minimize potential selection bias, interviewers counted three seats from the clinic entrance and approached every third person for interviewing.

Interview and pen and paper self-report data were completed by a field team consisting of doctoral and undergraduate level psychology students. Interviews were supervised by an attending licensed psychologist (Dr. Bradley) and two attending psychiatrists (Drs. Kerry Ressler and Anne Schwartz). All interviewers were fully trained in the interviews they conducted. Interviewers were assessed for reliability by a project coordinator who accompanied interviewers to assess ongoing reliability and to prevent rater drift.

Subjects who met inclusion/exclusion criteria and who were willing to participate in the screening were interviewed in the waiting room of the primary care or ob/gyn clinic. (Although it is rare because of the length of wait times, if patients were called for their appointment during the interview, patients were paid in full and the screener

offered to wait to finish the screening after the appointment.) The interviewer obtained informed consent. The study was described to eligible subjects and study data were obtained. Subjects were paid $15 for the screening.

Statistical Treatment

Baron and Kenny's (1986) recommendations for mediation analysis were used to explore PTSD symptoms as a potential mediator of the relationship between child abuse and aggressive behavior. Mediation analysis was selected as a statistical treatment due to the lack of literature examining the relationship of the three variables in question, and to utilize Dr. Bradley's knowledge of and experience with mediation analysis.

In the first step for mediation analysis, it is required that the predictor variable(s) (i.e., total abuse) be significantly associated with the criterion variable (i.e., aggressive behavior). Step 2 requires that the predictor variable be significantly related to the potential mediating variable(s) (i.e., PTSD symptoms). Step 3 requires that the potential mediating variable (PTSD symptoms) be a significant predictor of the criterion (aggressive behavior) and that the association between the initial predictor variable (abuse) and the criterion variable (aggressive behavior) decrease significantly when both variables are included in the regression equation. The significance of this decrease is measured with the Sobel's z statistic.

Limitations

As mentioned in the introduction, this project examined the relationship of child abuse, PTSD symptoms, and aggressive behavior. Many variables are speculated to result in the development of PTSD other than child abuse, including non-abuse

traumatic events. Further, many individuals who experience trauma and abuse do not experience symptoms of PTSD. PTSD symptoms are one of many variables that may lead to violent behaviors. Additionally, there may be many moderating and mediating variables other than PTSD symptoms affecting the relationship between child abuse and violence.

All variables measured for this study involved self-report. While self-reported delinquency and crime data has been reported to be acceptably reliable and valid for research purposes (Thornberry & Krohn, 2000), self-reported data can be inaccurate for diverse reasons such as forgotten events, attempts to appear competent or socially desirable, or fear of consequences for past behaviors. Reliability checks increased reliability and validity, as multiple interviewers were used for data collection. In short, the data collected for this project, though reliable and valid, may have limitations in terms of accuracy.

This study sought to examine the role of PTSD as a mediator between childhood abuse and aggressive behavior; however, other variables are certainly involved in this relationship. The self-reported nature of data collection, while a limitation, should not significantly undermine the validity and reliability of this study's results or utility.

Assumptions

For the purposes of this study, and as stated in the review of existing research literature, there is assumed to be a relationship between childhood abuse and PTSD symptoms. There is further assumed a relationship between PTSD and violent behavior. While the specific nature of these relationships is complex, it is assumed for

the purposes of this study that childhood abuse leads to posttraumatic symptoms that may predispose an individual to react violently in some situations.

Hypotheses

This dissertation hypothesized an association between childhood abuse, posttraumatic stress symptoms, and aggressive behavior. Specific hypotheses were as follows:

1. It was predicted that the men assessed for this study would report high levels of child abuse, frequency of PTSD symptoms, and aggressive behavior.
2. It was predicted that child abuse would significantly and positively correlate with frequency of PTSD symptoms.
3. It was predicted that frequency of PTSD symptoms would positively correlate with self-reported lifetime aggressive behaviors.
4. It was predicted that child abuse would positively correlate with self-reported lifetime aggressive behavior.
5. It was predicted that frequency of lifetime PTSD symptoms would significantly mediate the relationship between child abuse and self-reported lifetime aggressive behavior.

Table 1

Sample Demographics

Demographic Variable	Category	Frequency	Percent (N=177)
Race	African-American		95
	Latino		5
	White/Caucasian		1.7
	Other		2.3
	Missing		.6
Relationship Status	Single		47.5
	Divorced		20.9
	Married		19.2
	Widowed		2.3
Education	< 12^{th}		21.5
	12th or high school grad		35.0
	GED		5.6
	Some college or tech school		20.3
	Tech school grad		4.0
	College grad		10.2
	Grad school		2.8
Employed	Yes		28.4
	No		71.6

Table 2

Income and Criminal History

Demographic Variable	Category	Frequency	Percent (N=177)
Disability	Yes		28.8
	No		70.1
House Monthly Income	$0 – 249		28.6
	$250 – 499		8.0
	$500 – 999		29.1
	$1000 – 1999		21.7
	$2000 or more		12.6
Psychiatric hospitalization	Yes		15.3
	No		84.2
Ever been arrested	Yes		78.4
	No		21.6
Ever been in jail	Yes		72.7
	No		27.3
Been in prison	Yes		20.9
	No		78.6
Ever been in arrested, put in jail, or prison for violence related charge	Yes		26.0
	No		72.3
Ever been arrested, put in jail, or prison for weapon related charge	Yes		20.3
	No		77.4

CHAPTER 4

RESULTS

The present study examined the role of posttraumatic stress disorder symptoms as a mediator between child abuse and aggressive behavior (see Figure 1). A series of mediation analyses were conducted in which the predictor and criterion variables in the model (child abuse and aggression) were defined at varying levels of specificity versus generality (see Table 3). Subscales as well as specific items of instruments measuring child abuse and violent behavior were analyzed to determine the best method for measurement. Posttraumatic symptoms were measured using the total frequency score of the Modified Posttraumatic Stress Scale. First, PTSD symptoms were used as a potential variable between CTQ abuse subscales and TEI abuse items as predictor variables and aggression subscales as criterion variables. Second, child abuse items were used as the predictor variable with aggression subscales as the criterion variable. Third, child abuse subscales and TEI abuse items were used as predictor variables, and individual aggression items from the non-weapon aggression subscale were used as the criterion variable. Lastly, child abuse items were used as the predictor variable and items from the non-weapon aggression subscale were used as the criterion variable.

This chapter presents descriptive data as well as results of mediation analyses that test the five hypotheses of the dissertation. The significance level for rejecting the null hypotheses was set at a 95% confidence level, $p < .05$. The findings of each of the null hypotheses are reported below.

Hypotheses

Hypothesis 1

It was hypothesized that participants would report high levels of child abuse, frequency of PTSD symptoms, and aggressive behavior.

Child Abuse

Mean Child Trauma Questionnaire scores for self-reported child abuse (N=169) were 6.36 (SD = 3.56) for sexual abuse, 8.51 (SD = 3.99) for emotional abuse, and 8.22 (SD = 3.38) for physical abuse. CTQ mean scores for all forms of abuse fell into the "low to moderate" range as described in the CTQ scoring manual (Bernstein & Fink, 1998). Men participating in the current study reported mean sexual (M = 6.36, SD = 3.56) and emotional (M = 8.51, SD = 3.99) abuse scores that approached these cut off scores, and physical abuse scores (M = 8.22, SD = 3.38) that exceeded them. 19.5% (N=169, SD=3.6) exceeded the cutoff score for sexual abuse, 45.6% (N=169, SD=3.4) for physical abuse, and 31.4% (N=169, SD=4.0) for emotional abuse.

9.6% of male participants (N= 168) answered "Yes" to the Traumatic Events inventory (TEI) item "Before you were 13 did an adult or older teenager sexually abuse you or have any type of sexual contact with you?" 36 men, or 21.4%, responded "Yes" to the TEI item "Were you beaten or physically punished in other ways as a child (do not include spanking that interviewee considers appropriate unless it resulted in serious injury or medical attention)?"

Post Traumatic Stress Disorder Symptoms

As described above, PTSD consists of clusters of symptoms that fall into three groups, Criterion B (intrusive thoughts and memories), Criterion C (avoidance and numbing), and Criterion D (hyperarousal). To meet the full diagnosis, all criteria must be met. 24.7% met full criteria for PTSD within two weeks of the interview as measured by the MPSS. 87 participants, or 51.2%, met DSM-IV criterion B (intrusive memories). 51, or 30.0%, met criterion C (avoidance or numbing), and 68 men, or 40.0%, met criterion D (hyperarousal). 85 men, or 50.3%, reported experiencing PTSD symptoms for greater than one month. 114 of 170 participants, 67.1%, reported at least one PTSD symptom within two weeks of the interview on the Modified Posttraumatic Stress Scale (M = 9.28, SD = 11.4).

Aggressive Behaviors

133 men completed the ABQ self-report of aggression. 20 participants (15.1%) reported stabbing or shooting someone in their lifetime. 2 participants (1.5%) reported shooting or stabbing someone in the past year. 77 participants (57.9%) reported ever punching or hitting someone with something that hurt, while 27 (20.3%) reported doing so in the last year. 78 participants (58.6%) reported ever “beating up someone”, while 26 (19.5%) reported doing so in the last year. 9 men (6.8%) reported attacking an adult they lived with with the idea of seriously hurting them. 3 participants (2.3%) reported doing so in the past year. 29 (22%) reported ever hitting an adult they lived with in their lifetime, while 12 (9.2%) reported doing so in the past year. 47 men (35.4%) reported hitting an adult they did not live with with the idea of hurting them, while 15 (11.5%) reported doing so in the last year.

Hypothesis 2

It was predicted that child abuse would significantly and positively correlate with frequency of PTSD symptoms. MPSS total frequency scores related significantly with CTQ sexual abuse, $r (167) = .222$, $p < .01$; physical abuse, $r (167) = .296$, $p<.001$; and emotional abuse, $r (167) = .305$, $p<.001$. MPSS total frequency scores also related significantly to TEI physical abuse, $r (164) =.290$, $p < .001$, but not TEI sexual abuse, $r (162)= .147$, $p = .061$, although the data was in the direction hypothesized .

Hypothesis 3

It was predicted that frequency of PTSD symptoms would positively correlate with self-reported lifetime aggressive behaviors. MPSS Total Frequency significantly correlated with ABQ non-weapon aggression frequency, $r (134) = .258$, $p < .01$; weapon aggression frequency, $r (133) = .176$, $p < .05$; theft frequency, $r (132) = .220$, $p < .05$; but not drug use frequency, $r (131) = .127$, $p = .147$.

Hypothesis 4

It was predicted that child abuse would positively correlate with self-reported lifetime aggressive behavior. In order to identify the best method for measuring the relationship between child abuse and aggression, correlations were analyzed using data comparing child abuse subscales with aggression subscales, child abuse items with aggression subscales, child abuse subscales with non-weapon aggression items, and child abuse items and non-weapon aggression items. TEI physical abuse significantly related to ABQ non-weapon aggression, $r (131) = .224$, $p < .05$; theft, $r (129) = .219$, $p < .05$; and drug behavior, $r (128) = .189$, $p < .05$; but not weapon aggression, $r (130) = .059$, $p =$

.507. Neither TEI sexual abuse or CTQ subscales significantly correlated with ABQ subscale frequencies (see Table 4).

CTQ emotional abuse items did not significantly relate to ABQ subscales (see Table 5). The CTQ physical abuse item “Hit by family, left bruises or marks” related significantly to ABQ weapon aggression frequency, $r(132) = .180$, $p < .05$, and theft frequency, $r(131) = .186$, $p < .05$. The CTQ physical abuse item “Punished with hard objected” correlated significantly with drug behavior frequency, $r(131) = .181$, $p < .05$; as did “I believe I was physically abused”, $r(131) = .178$, $p < .05$ (see Table 6).

The CTQ sexual abuse subscale was significantly, negatively associated with ABQ non-weapon aggression items “Beat someone up”, $r(131) = -.19$, $p < .05$; and “Punched or hit someone with something that could hurt”, $r(131) = -.18$, $p < .05$. TEI sexual abuse was also negatively and significantly associated with “Punched or hit someone with something that could hurt”, $r(131) = -.18$, $p < .01$. CTQ Physical abuse was significantly associated with “Slammed someone against a wall”, $r(131) = .18$, $p < .05$. TEI physical abuse was significantly associated with several ABQ items: “Threatened to hit or throw something at someone”, $r(133) = .26$, $p < .05$; “Shouted or yelled at someone”, $r(133) = .24$, $p < .05$; “Pushed or shoved someone”, $r(131) = .25$, $p < .05$; “Grabbed someone by the neck, collar, clothes, or some part of their body in anger”, $r(133) = .24$, $p < .05$; and “Slammed someone against a wall”, $r(131) = .20$, $p < .05$ (see Table 7).

Tables 8 and 9 present correlation data for CTQ physical and emotional abuse items with ABQ non-weapon aggression items. The CTQ emotional abuse item “Family called me stupid / lazy / ugly” significantly related to ABQ items “Shouted or yelled at

someone", r (128) = .268, p < .01; and "Stomped out of the room or house or yard during a disagreement", r (128) = .237, p < .01. "Family said hurtful things" also correlated significantly with this ABQ item, r (129) = .209, p < .05. The emotional abuse item "Believe emotionally abused" was significantly related to the ABQ item "Slammed someone against a wall", r (132) = .209, p < .05.

Hypothesis 5

It was predicted that frequency of current PTSD symptoms (i.e. total MPSS frequency score) would significantly mediate the relationship between child abuse and self-reported lifetime aggressive behavior. Mediation analyses were conducted using subscales as well as individual items to measure child abuse variables (i.e. CTQ and TEI) and aggression variables (i.e. ABQ). The following results are also presented in Tables 10-13. Each table presents variables used for abuse and aggression. MPSS total frequency score was used as PTSD symptom measurement. For each table, significant β for mediation steps one through four are presented, with Sobel's *z* presented in the table notes where mediation regressions are significant.

First, abuse and aggression subscales were examined as predictor and criterion variables, respectively, then abuse items and aggression subscales, followed by abuse subscales and aggression items and finally, abuse items and aggression items.

MPSS as a mediator between child abuse subscales and aggression subscales

Step 1

In the first step of mediation analysis, it is required that the predictor variable(s) (i.e. abuse) be significantly associated with the criterion variable (i.e. frequency of aggressive behavior). To assess this, I conducted a regression, with abuse (i.e.

emotional, physical, and sexual) as the predictor variable and aggressive behavior (i.e. non-weapon, weapon, theft, and drug behavior subscales) as the criterion variable.

TEI physical abuse yielded a significant association with non-weapon aggression frequency ($\beta = .224$, $p < .05$), theft frequency ($\beta = .219$, $p < .05$) and drug abuse frequency ($\beta = .249$, $p < .05$). TEI sexual abuse yielded a significant association with drug abuse frequency ($\beta = .189$, $p < .05$). CTQ abuse subscales did not significantly correlate with aggression subscales. No significant associations were found between CTQ subscale or TEI item abuse variables and the weapon aggression subscale.

Step 2

Step 2 requires that the predictor variable be significantly related to the potential mediating variable. PSS total score was significantly related to all abuse subscales: CTQ emotional abuse ($\beta = .305$, $p < .001$), CTQ physical abuse ($\beta = .198$, $p < .01$), CTQ Sexual abuse ($\beta = .222$, $p < .01$), TEI physical abuse ($\beta = .290$, $p < .001$), and TEI sexual abuse ($\beta = .118$, $p < .061$).

Steps 3 and 4

Step 3 requires that the mediating variable (PSS Total) be a significant predictor of the criterion variable (aggressive behavior) and that the association between the initial predictor variable (abuse) and the criterion variable (PSS Total) decrease when both variables are included in the regression equation. The first criteria was met in the case of TEI physical abuse and non weapon aggression frequency ($\beta = .262$, $p < .01$). The second criteria was also met, as the relationship between TEI physical abuse and non-weapon frequency decreased ($\beta = .157$, $p = .078$) when PSS total was included as a predictor. Step 4 requires that the regression coefficient for the predictor variable

(abuse) in Step 3 must be significantly smaller than the regression coefficient for the predictor variable in Step 1. This is tested with Sobel's *z* test (Sobel, 1982); although there are several ways to calculate the error term used in the Sobel statistic, the version of the *SE* term described by Baron and Kenny (1986) and Holmbeck (2002) is used here. For PSS total (β = .224, p = .170), the *z* test indicated no significant decrease (*z* = 0.140, p = .89), indicating that PSS total score does not act as a significant mediator between abuse total scores and aggression subscale frequency.

In summary, total PSS score did not serve as a statistically significant mediator between total scale scores of abuse and frequency subscale scores of aggression (see Table 10).

MPSS as a mediator between CTQ physical and emotional abuse items and aggression subscales

Total PSS score was not found to be a significant mediator between CTQ physical and emotional abuse item scores and aggression subscale frequency scores. PSS total frequency score trended toward significantly mediating between the CTQ Emotional abuse item "Family called me stupid, lazy, and ugly" and non-weapon aggression (Sobel's z = 1.747, p = .08). Total PSS also trended as a mediator between the CTQ emotional abuse item "Hit by family left bruises or marks" and Theft frequency (Sobel's z= 1.67, p=0.09).

MPSS as a mediator between abuse subscales and non-weapon aggression items

Step 1

With non-weapon aggressive behavior items (e.g. Pushed or shoved someone; Punched or hit someone with something that could hurt) as the criterion variable and

abuse subscales (i.e. CTQ emotional, physical, and sexual, and TEI physical and sexual) as the predictor variable, CTQ Physical Abuse was significantly associated with one item from the non-weapon frequency factor ($\beta = .183$, $p < .05$), “Slammed someone against a wall.”

TEI physical abuse significantly associated with several non-weapon aggression frequency items: “Threatened to hit or throw something at someone” ($\beta = .256$, $p < .005$); “Shouted or yelled at someone” ($\beta = .243$, $p < .01$); “Pushed or shoved someone” ($\beta = .253$, $p < .005$); “Grabbed someone by the neck, collar, clothes, or some part of their body in anger” ($\beta = .187$; $p < .05$); “Slapped someone“ ($\beta = .240$, $p < .01$); and “Slammed someone against a wall” ($\beta = .201$, $p < .05$).

Step 2

Step 2 requires that the predictor variable be significantly related to the potential mediating variable. PSS total score was significantly related to CTQ emotional abuse ($\beta = .305$, $p < .001$), CTQ physical abuse ($\beta = .198$, $p < .01$), CTQ Sexual abuse ($\beta = .222$, $p < .01$), TEI physical abuse ($\beta = .290$, $p < .001$), and TEI sexual abuse ($\beta = .118$, $p < .061$).

Steps 3 and 4

Step 3 requires that the mediating variable (PSS Total) be a significant predictor of the criterion (non-weapon aggressive behavior items) and that the association between the initial predictor variable (abuse total scores) and the criterion variable (PSS Total) decrease when both variables are included in the regression equation.

The first criteria was met in the case of TEI physical abuse and the items “Threatened to hit or throw something at someone” ($\beta = .203$, $p < .05$); “Pushed or

shoved someone" (β = .192, p < .05); "Grabbed someone by the neck, collar, clothes, or some part of their body in anger" (β = .182, p < .05); and "Slammed someone against a wall" (β = .230; p < .05).

The second criteria was met in the case of TEI physical abuse and the non-weapon weapon aggression item "Threatened to hit or throw something at someone" (Sobel's z = 2.0; p < .05). Two other items "Pushed or shoved someone" (Sobel's z = 1.85, p = 0.06) and "Grabbed someone by the neck, collar, clothes, or some part of their body in anger" (Sobel's z = 1.71, p = 0.09) trended towards significant mediation.

In summary, total PSS score served as a statistically significant mediator between TEI physical abuse and the non-weapon aggression item "Threatened to hit or throw something at someone" (Sobel's z = 2.00, p < .05), and trended towards significantly relating with two other non-weapon items (see Table 12).

MPSS as a mediator between CTQ physical and emotional abuse items and non-weapon aggression items

Step 1

With non-weapon aggressive behavior items (e.g. Pushed or shoved someone; Punched or hit someone with something that could hurt) as the criterion variable and CTQ physical, emotional, and sexual abuse items (e.g. "Family called me stupid/lazy/ugly") as the predictor variable, several CTQ emotional abuse items were significantly associated with non-weapon aggression items: "Family called me stupid, lazy, or ugly" with "Stomped out of the room" (β = .237, p < .01), "Family said hurtful things" with "Stomped out of the room or house or yard during a disagreement" (β = .209, p < .05), and "I believe I was emotionally abused" with "Slammed someone

against a wall" (β = .209, p < .01). The CTQ physical abuse item "I was punished with…a hard object" was significantly associated with the non-weapon aggression item "Stomped out of the room or house or yard during a disagreement" (β = .201, p < .05).

Step 2

Step 2 requires that the predictor variable be significantly related to the potential mediating variable. PSS total score was significantly related to CTQ emotional abuse items "Family called me stupid, lazy, or ugly" (β = .173, p < .05); "Family said hurtful things" (β = .246, p < .01); and "I believe I was emotionally abused" (β = .318, p < .01). PSS total score was also significantly related to the CTQ physical abuse item "Punished with a hard object" (β = .185, p < .05).

Steps 3 and 4

Step 3 requires that the mediating variable (MPSS total) be a significant predictor of the criterion (non-weapon aggressive behavior items) and that the association between the initial predictor variable (abuse items) and the criterion variable decrease when both variables are included in the regression equation.

The first criteria was met in the case of MPSS and the non-weapon aggression item "Slammed someone against a wall" when the CTQ emotional abuse item "I believe I was emotionally abused" was included in the regression equation (β = .222, p < .05). The second criteria was also met, as the relationship between "I believe I was emotionally abused" and "Slammed someone against a wall" decreased significantly with the inclusion of total PSS as a mediating variable (β = .151) (Sobel's z = 2.077, p < .05) (See Table 13).

Summary of Results

- A significant positive correlation was found between child abuse and PTSD, and PTSD and aggression
- TEI Physical abuse significantly and positively correlated with ABQ non-weapon, theft, and drug subscales but not the ABQ weapon subscale
- TEI sexual abuse and CTQ emotion, physical, and sexual subscales did not significantly correlate with ABQ subscales
- Two levels of child abuse and aggression (i.e. subscales and individual items) were used to examine the role of PTSD symptoms as a mediator:
    - PTSD symptoms significantly mediated TEI physical abuse and the non-weapon aggression item “Threatened to hit or throw something at someone”
    - PTSD symptoms significantly mediated the CTQ emotional abuse item “I believe I was emotionally abused“ and the non-weapon aggression item “Slammed someone against a wall”
    - Though not statistically significant, PTSD symptoms mediated abuse and aggression in the expected direction for the following abuse and aggression measurements:
        - TEI physical abuse and ABQ non-weapon aggression item “Pushed or shoved someone”
        - TEI physical abuse and ABQ non-weapon aggression item “Grabbed someone by the neck, collar, clothes, or some part of their body in anger”

- TEI physical abuse and ABQ non-weapon aggression item "Slammed someone against a wall"
- CTQ emotional abuse items "Family called me stupid, lazy, and ugly" and ABQ non-weapon aggression subscale
- CTQ physical abuse item "Hit by family left bruises or marks" and the ABQ theft subscale
- CTQ physical abuse item "Hit by family left bruises or marks" and ABQ drug subscale

- PTSD symptoms did not significantly mediate abuse and aggression as measured by all other subscales and items.

Table 3

Abuse and Aggression Variables Used For Mediation Analysis with PTSD as Mediator

	Abuse Variable	Aggression Variable
1.	CTQ Subscales, TEI Abuse Items	ABQ Subscales
2.	CTQ Items	ABQ Subscales
3.	CTQ Subscales, TEI Items	ABQ Non-weapon Items
4.	CTQ Items	ABQ Non-weapon Items

Table 4

Correlation Coefficients Between Child Trauma Questionnaire (CTQ) Subscale Scores, Traumatic Events Inventory (TEI) Physical and Sexual Abuse Scores, and Behavior Questionnaire (ABQ) Subscale Frequency Scores

	ABQ Subscale Frequency			
Child Abuse Measure	Non-Weapon	Weapon	Theft	Drugs
CTQ Sexual Abuse Score	-.061	-.15	.018	.054
CTQ Physical Abuse Score	.063	.047	.12	.14
CTQ Emotional Abuse Score	.094	.027	.103	.095
TEI Physical Abuse Item	.22*	.059	.22*	.19*
TEI Sexual Abuse Item	-.093	-.13	.029	.010

*p<.05

Table 5
Correlation Coefficients Between Child Trauma Questionnaire (CTQ) Emotional Abuse Items and Behavior Questionnaire (ABQ) Subscale Frequency Scores

	ABQ Subscale Frequency			
CTQ Emotional Abuse Item	Non-Weapon	Weapon	Theft	Drugs
Family called me stupid/lazy/ugly	.14	.047	.136	.009
Parents wished was never born	-.027	.027	.105	.15
Family said hurtful things	.13	.075	.140	.13
Family member hated me	.023	.075	-.032	.017
Believe emotionally abused	.043	.049	.029	.041

Table 6
Correlation Coefficients Between Child Trauma Questionnaire (CTQ) Physical Abuse Items and Behavior Questionnaire (ABQ) Subscales

	ABQ Subscale Frequency			
CTQ Physical Abuse Item	Non-Weapon	Weapon	Theft	Drugs
Hit by fam member, hospitalized	-.047	-.097	-.015	.020
Hit by fam, left bruises/marks	.109	.180*	.186*	.139
Punished w hard object	.079	.104	.126	.181*
Belief phys abused	.041	-.061	.067	.178*
Abuse noticed by someone	-.011	-.057	-.030	-.117

*p<.05

Table 7

Correlation Coefficients Between Child Trauma Questionnaire (CTQ) Subscale Scores and Behavior Questionnaire (ABQ) Non-Weapon Aggression Item Scores

	ABQ Non-Weapon Aggression Frequency Item Number												
CTQ Subscale	21.	11.	4.	14.	18.	5.	13.	1.	8.	3.	2.	22.	12.
CTQ Sexual	-.10	.060	-.053	-.065	- .059	- .10	-.19*	.117	-.18*	.001	.001	-.035	.034
CTQ Physical	-.021	.094	.087	.043	.098	.083	-.006	.044	-.02	.013	.003	.015	.18*
CTQ Emotional	.062	.142	.040	.037	.160	.13	.068	.116	.035	.044	-.018	-.035	.10
TEI Physical Abuse Item	.26*	.24**	.25**	.19*	.24*	.067	.12	.12	.077	.062	.14	.12	.20*
TEI Sexual Abuse Item	-.14	.069	-.05	-.126	.02	-.12	-.17	.14	-.18**	-.13	-.06	-.081	-.043

Note. ABQ Item Numbers: 21. Threatened to hit or throw something at someone. 11. Shouted or yelled at someone. 4. Pushed or shoved someone. 14. Grabbed someone by the neck, collar, clothes, or some part of their body in anger. 18. Slapped someone. 5. Stomped out of the room or house or yard during a disagreement. 13. Beat someone up. 1. Insulted or swore at some. 8. Punched or hit someone with something that could hurt. 3. Twisted someone's arm or hair. 2. Thrown something at someone that could hurt. 22. Kicked someone. 12. Slammed someone against a wall.
*p<.05
**p<.01

Table 8

Correlation Coefficients Between Child Trauma Questionnaire (CTQ) Emotional Abuse Subscale Items and Behavior Questionnaire (ABQ) Non-Weapon Aggression Frequency Scores

	ABQ Non-Weapon Aggression Frequency Item Number												
CTQ Emotional Abuse Items	21.	11.	4.	14.	18.	5.	13.	1.	8.	3.	2.	22.	12.
Family called me stupid/lazy/ugly	.019	.27**	.132	.12	.099	.24**	.104	.15	.084	.086	.020	.014	.047
Parents wished was never born	-.004	-.04	.018	.054	.037	.122	-.06	-.055	-.13	.01	-.035	-.14	-.023
Family said hurtful things	.097	.16	.074	.093	.15	.21*	.099	.153	.13	.012	-.045	-.007	.083
Family member hated me	.024	.096	-.092	-.097	.094	.014	.09	.081	.063	-.002	.015	-.002	.049
Believe emotionally abused	.028	.14	.061	.019	.14	.020	.048	.050	-.055	.017	-.042	-.048	.21*

Note: ABQ Item Numbers: 21. Threatened to hit or throw something at someone. 11. Shouted or yelled at someone. 4. Pushed or shoved someone. 14. Grabbed someone by the neck, collar, clothes, or some part of their body in anger. 18. Slapped someone. 5. Stomped out of the room or house or yard during a disagreement. 13. Beat someone up. 1. Insulted or swore at some. 8. Punched or hit someone with something that could hurt. 3. Twisted someone's arm or hair. 2. Thrown something at someone that could hurt. 22. Kicked someone. 12. Slammed someone against a wall.
*p<.05

Table 9

Correlation Coefficients Between Child Trauma Questionnaire (CTQ) Physical Abuse Subscale Items and Behavior Questionnaire (ABQ) Non-Weapon Aggression Frequency Scores

	ABQ Non-Weapon Aggression Frequency Item Number												
CTQ Physical Abuse Item	21.	11.	4.	14.	18.	5.	13.	1.	8.	3.	2.	22.	12.
Hit by fam member, hospitalized	-.008	-.050	-.072	-.049	.063	-.17	-.14	-.052	-.085	.037	.036	-.004	.11
Hit by fam, left bruises/marks	.012	.058	.096	.16	.11	.093	.078	.092	-.003	.097	.046	.020	.15
Punished w hard object	.013	.17	.10	.065	.071	.20*	.075.	.10	.052	-.10	-.084	-.031	.14
Belief phys abused	-.054	.10	-.003	.015	.020	.061	-.053.	035	-.033	-.004	.032	.11	.16
Abuse noticed by someone	-.052	-.036	.14	-.109	.077	-.033	-.068	-.11	-.059	.099	.044	-.023	.07

Note: ABQ Item Numbers: 21. Threatened to hit or throw something at someone. 11. Shouted or yelled at someone. 4. Pushed or shoved someone. 14. Grabbed someone by the neck, collar, clothes, or some part of their body in anger. 18. Slapped someone. 5. Stomped out of the room or house or yard during a disagreement. 13. Beat someone up. 1. Insulted or swore at some. 8. Punched or hit someone with something that could hurt. 3. Twisted someone's arm or hair. 2. Thrown something at someone that could hurt. 22. Kicked someone. 12. Slammed someone against a wall.
*p<.05

Table 10

β For Mediation of Total PTSD Symptoms as Mediator Between Abuse Subscales and Aggression Subscale Frequency

		Mediation Step			
Abuse Variable	Aggression Subscale	1	2	3	4
TEI Physical Abuse	Non-Weapon	.224*	.290**	.262**	.170**
TEI Physical Abuse	Theft	.219*	.290**	NS	N/A
TEI Physical Abuse	Drugs	.249*	.290**	NS	N/A
TEI Sexual Abuse	Drugs	.189*	NS	N/A	N/A

* $p < .05$
** $p < .01$
† $z = 0.140$, $p = .89$

Table 11

β For Mediation of PTSD Symptoms as Mediator Between CTQ Emotional and Physical Abuse Items and Aggression Subscales

		Mediation Step			
Abuse Variable	Aggression Subscale	1	2	3	4
Fam called me stupid lazy or ugly	Non-Weapon	.224*	.267**	.262**	.170**†
Fam said hurtful things	Theft	.219*	.267**	NS	N/A
Hit by family left bruises or marks .	Drugs	.180*	.224**	.262**	NS
Hit by family left bruises or marks	Theft	.186*	.224**	.182*	NS
Punished with hard object	Drugs	.181*	.185*	NS	N/A
I believe I was physically abused	Drugs	.178*	.205*	NS	N/A

Notes: MPSS total frequency = mediating variable.
* p < .05
** p < .01
†Sobel's z = 1.747, p = .08

Table 12

β For Mediation of PTSD Symptoms as Mediator Between Traumatic Events Inventory (TEI) Physical Abuse (Predictor) and Non-weapon Aggression Items (Criterion)

	Mediation Step			
Non-weapon Aggression Item	1	2	3	4
Threatened to hit or throw something at someone.	.256**	.290**	.203*	.194*†
Shouted or yelled at someone	.243**	.290**	NS	N/A
Pushed or shoved someone.	.253**	.290**	.192*	.193*††
Grabbed someone … in anger.	.187**	.290**	.182*	.131†††
Slapped someone.	.240**	.290**	NS	N/A
Slammed someone against a wall.	.201*	.290**	.230*	NS

Notes: MPSS total frequency = mediating variable.
* p < .05
** p < .01
† Sobel's z=2.00* †† Sobel's z=1.85 ††† Sobel's z=1.71

Table 13

β For Mediation of Total PTSD Symptoms Between Child Trauma Questionnaire (CTQ) Items and Non-weapon Aggression Items

		Mediation Step			
CTQ Abuse Item	ABQ Item	1	2	3	4
Fam called me stupid lazy or ugly	5	.237**	.173**	NS	N/A
Fam said hurtful things	5	.209*	.246**	NS	N/A
I believe I was emotionally abused.	12	.209*	.318**	.222*	.151†
I was punished with a belt, a board, a cord	5	.201*	.185*	NS	N/A

Notes: MPSS total frequency = mediating variable. ABQ item numbers: 5. Stomped out of the room or house or yard during a disagreement. 12. Slammed someone against a wall.
* p < .05 †Sobel's z = 2.077*
** p < .01

Table 14

Prevalence of Child Abuse

Type of Abuse	Current Sample	National Reports
Emotional	31.4	N/A
Physical	45.6	1.4
Sexual	19.5	2.8

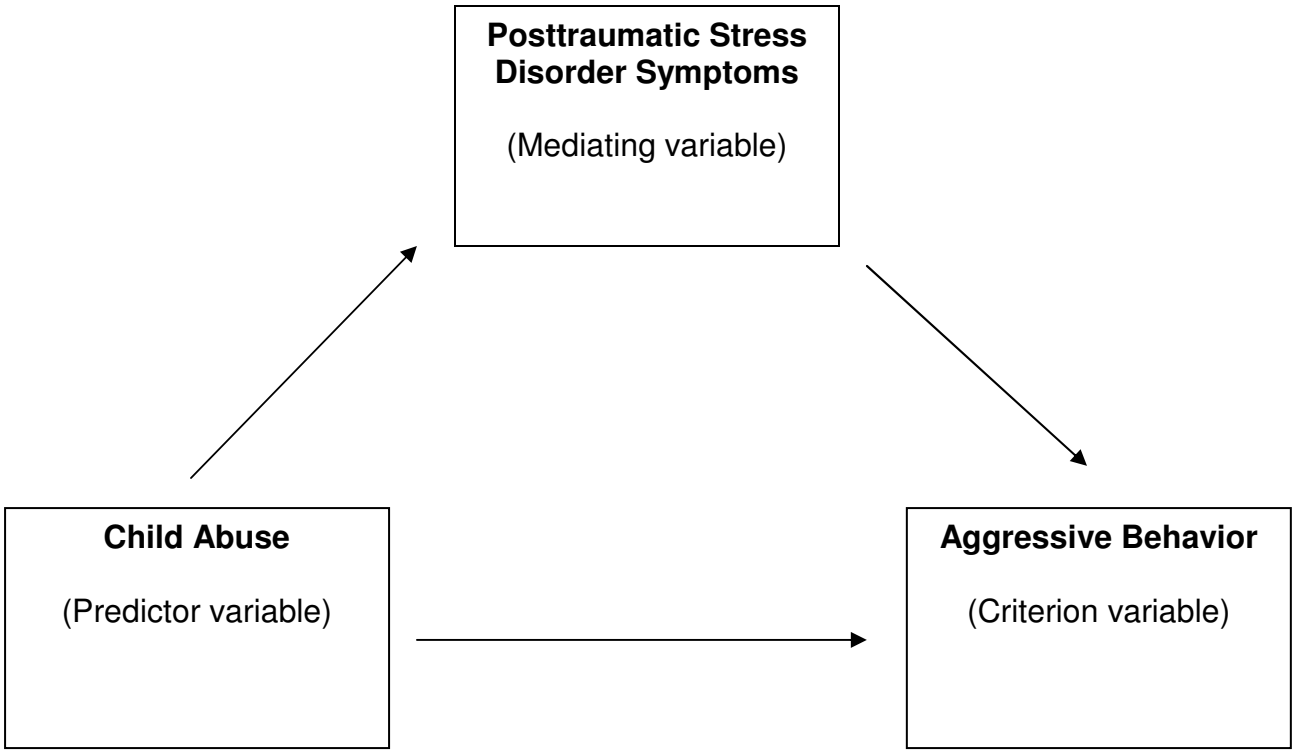

Figure 1

PTSD Symptoms as Mediator of Child Abuse and Aggressive Behavior

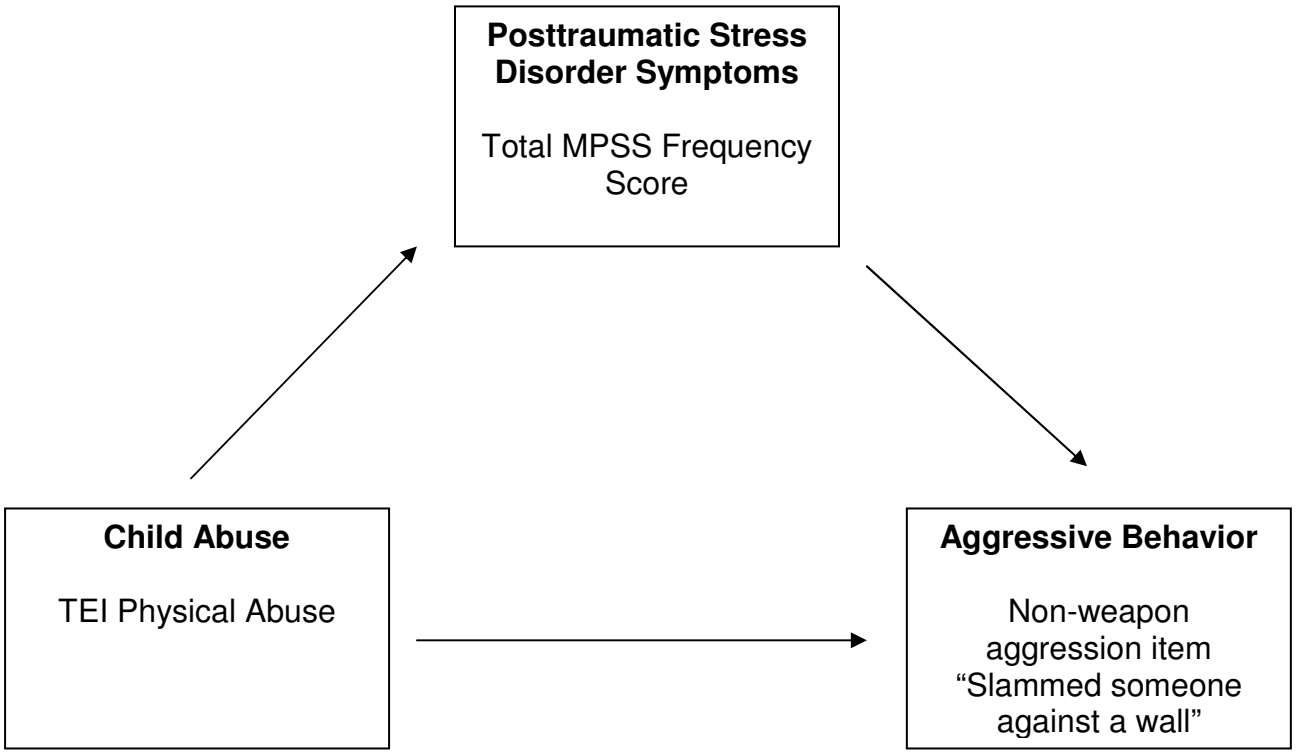

Figure 2

PTSD Symptoms as Mediator of Physical Abuse and Aggressive Behavior

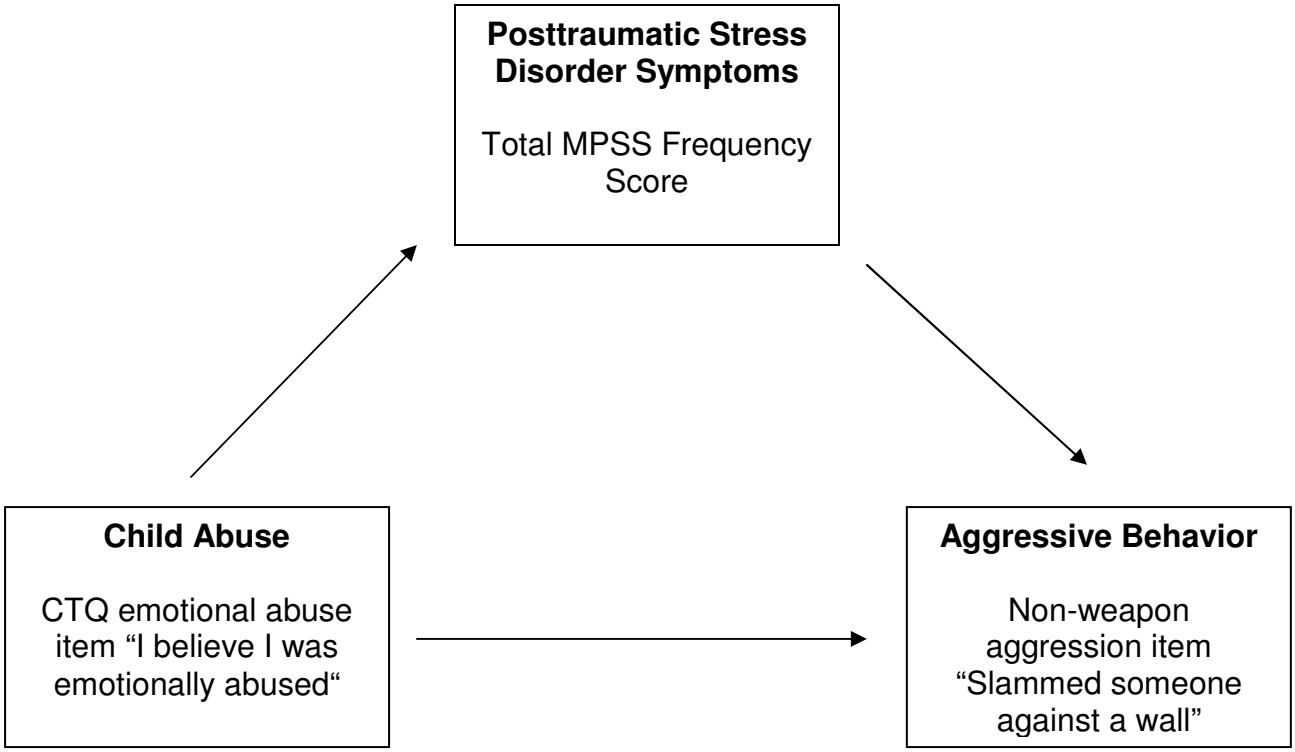

Figure 3

PTSD Symptoms as Mediator of Emotional Abuse and Aggressive Behavior

CHAPTER 5

DISCUSSION

Participants reported significant rates of self-reported child abuse, PTSD, and aggressive behavior. A significant, positive correlation was found between abuse, posttraumatic symptoms, and aggressive behavior. PTSD symptoms were found to significantly mediate the relationship between self-report of child physical abuse and two self-report items of aggression. PTSD symptoms also significantly mediated the relationship between a self-reported emotional abuse and a self-report aggression item.

Prevalence of child abuse

Rates of child abuse exceeded national estimates of government and peer-reviewed research data. 19.5% (N=169) exceeded the CTQ cutoff score for sexual abuse, 45.6% (N=169) for physical abuse, and 31.4% for emotional abuse (See Table . The 2004 U.S. Child Maltreatment Report found a sexual abuse rate of 11.9 per 1,000 children, or .12% of the child population of the United States (United States Department of Health and Human Services, 2001). This statistic is considered somewhat overestimated as reports of abuse are counted rather than individual children for whom reports were made. Victims were boys in 48.3% of all reported maltreatment cases reported (i.e. neglect, physical, emotional, and sexual abuse).

Sexual abuse has the lowest report rate of any form of abuse for boys and girls (Terry & Tallon, 2004). Lisak, Hopper, and Song (1996) found a 17% prevalence rate for both physical and sexual abuse in men attending an urban university. The National

Comorbidity Study found a 2.8% sexual abuse rate (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), 1.35% physical abuse rate in the general U.S. population over the age of 12. Rates of emotional abuse among men were not found in a literature search.

While the rate of self-reported child abuse is relatively high in this population, it may be even higher. Bersetein and Fink (1998) note that child abuse can be underreported due to suppression of traumatic events, or disruption of memories due to dissociation during traumatic abuse. Participants might also have been reluctant to report child abuse in a public setting.

The discrepancy between CTQ and TEI rates of sexual abuse might best be explained by differences in instructions to the participant for each instrument. The TEI item, “Before you were 13 did an adult or older teenager have sexually abuse you to have any type sexual contact with you?” while the CTQ inquires for abuse experiences “growing up as a child.” It is possible that men may not interpret some childhood sexual experiences as abuse. Also, 14.8% of men met or exceeded the cutoff score using the more restrictive Moderate to Severe classification, while 7.1% met the cutoff score for severe sexual abuse. It is possible that asking an objective yes/no question about sexual abuse is more discriminatory that using a set of Likert scale items that include subjective questions.

Prevalence of PTSD

Prevalence of PTSD far exceeded rates found in previous civilian epidemiological studies. The rate of PTSD also exceeded a 21% rate found in a study of incarcerated males (Gibson, Holt, Fondacaro, Tang, Powell, & Turbitt, 1999) and approached rates

found in the Vietnam veteran population, often estimated at 30% (Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar, et al.1990). 40% of men met PTSD Criterion D, hyperarousal, indicating that in the two weeks pervious to being interviewed they experienced increased irritability, hypervigilance, or startle response, or decreased sleep as a result of a traumatic experience. When one considers that physiological arousal and negative affect are key components to both of the most commonly considered theories of aggression, a connection between PTSD symptomotology and aggression seems a viable explanation for some of the high rates of violent behavior in this population. Further study of the relationship between specific symptom criteria and aggression would provide more insight into this relationship. Other common posttraumatic reactions such as depression and substance abuse should also be included in a future analysis, as any experience of negative affect could trigger the sort of episode posited by modern aggression theory.

The high rate of PTSD is not surprising considering the number of risk factors present in this population: male gender, poverty, and African American race/ethnicity. Interestingly, the mean age of this population (43.5) suggests that PTSD is not just a problem of the young male population who are committing the bulk of violent acts. Rather, an older population is also experiencing PTSD symptomotology, suggesting that chronic PTSD may be a larger problem in this population than previously believed. While a longitudinal study would allow researchers to examine the influence of type of trauma and age of occurrence, a more methodologically plausible approach would be to examine the relationship of age at time of trauma, type of traumatic event, and chronicity of symptoms. The post traumatic response is much more complex than a

cluster of PTSD symptoms, as debilitating as this disorder can be. Comorbid depression and substance abuse are common, and significant personality changes and interpersonal problems are possible with multiple traumatic experiences, particularly in childhood (Herman, 1997).

Prevalence of Aggressive Behavior

26.4% of the men interviewed for this study reported being arrested for a violent offense, and 20.3% reported being arrested for a weapon related charge. While Federal and State arrest data is available, literature and data describing aggressive behaviors is difficult to compare with data collected for this study. Interpersonal violence literature focuses primarily on intimate partner violence, mostly based on middle class, collegiate samples. Crime statistics focus on arrests relative to total population. Prevalence of aggressive behaviors in this study exceeded national arrest rates. In 2005, the rate of aggravated assault in the general population of the U.S. was estimated to be 1.7% by the U.S. Federal Bureau of Investigation. The Georgia 2004 Summary Report on crime lists a violent crime rate of 427.9 per 100,000 citizens (0.43%), and an aggravated assault rate of 247 per 100,000 (.25%) (Georgia Bureau of Investigation, 2005). Violent crimes were 9.8% of all crimes in Georgia, while 5.9% of total crimes were aggravated assaults. In contrast, 26.0% of the men participating in this study reported having been arrested for a weapon related charge, and 20.3% reported having been arrested for a weapon related charge. While it is difficult to compare these statistics with the current study, it appears that rates of aggressive behaviors are higher in this study's population than the national or state norm, although arrest rates for African American men specifically were not available.

Abuse, PTSD, and Aggression

The data indicate that child abuse is significantly associated with post traumatic symptoms, and that posttraumatic symptoms are significantly associated with aggressive behavior. The relationship between child abuse and aggressive behaviors varied across abuse and aggression subscales and items. Child physical abuse as measured by the TEI physical abuse item was significantly correlated with non-weapon aggression as well as theft and drug behavior. TEI physical abuse also significantly correlated with six of thirteen non-weapon aggression items. Interestingly, child abuse as measured by the Child Trauma Questionnaire and the TEI sexual abuse item was not significantly associated with aggressive behavior.

The association of physical abuse and aggressive behavior was expected and could be enhanced because of social learning processes. Failure to find a relationship between CTQ and TEI sexual abuse could be due to measurement and self-report issues, as discussed above. Measuring abuse can be affected by societal views of corporal punishment as well as the subjective experience of the participant. Some childhood experiences would be qualified as abuse by others while the victim may have seen the experience as “normal”, particularly if the abuse was also practiced on siblings. In this study, abuse was measured using a Likert scale self-report instrument and two yes/no questions. A more detailed, behavioral questionnaire such as the Early Trauma Inventory (Bremner, Southwick, Johnson, Yehuda & Charney, 1993) would eliminate the subjective bias and quantify specific behaviors of physical, sexual, and emotional abuse. Individual qualitative interviews might also provide more detailed and accurate

data. Other factors such as age at time of abuse and severity of abuse might influence abuse's relationship to PTSD and aggression.

Analysis of specific PTSD criteria (i.e. intrusive thoughts/memories, emotional numbing and avoidance, and hyperarousal) might also clarify the relationship between abuse and aggression. Hyperarousal certainly plays a role in both the cognitive neo-associanistic and the general aggression model's pathway to aggression. Intrusive memories might also function as aversive experiences that create negative affect, triggering the aggression response. Emotional numbing could reduce social cognition by inhibiting emotional cues as well as the recognition of emotions (e.g. anger) experienced by others. A more comprehensive measurement of PTSD symptomatology such as the Clinician Administered Assessment of Posttraumatic Stress Disorder (CAPS) (Foa & Tolin, 2000) would allow more detailed analysis of specific criteria and symptoms.

Several sexual abuse items and subscales showed significant, negative relationships to aggression. This is not a surprising finding. Widom and Maxfield (1991) found sexually abused children to have lower rates of adult violent arrests than adults who were physically abused as children. While there may be a relationship between sexual abuse and decreased aggression, measurement issues may also play a part. Whereas physical and emotional abuse items might be assumed by the participant to refer to situations occurring within the home, sexual abuse occurring outside of the home (e.g. by a stranger, relative, or teacher) might also be reported along with abuse in the home. It may be that childhood abuse perpetrated by adolescents or adults

outside the home has a different effect on either development of PTSD symptoms or later aggressive behavior or both.

PTSD As a Mediator

Posttraumatic symptoms did not function as a mediator between child abuse and aggression when subscales were used as variables. However, using individual abuse and aggression items did result in PTSD symptoms functioning as a significantly mediating variable. Physical and emotional abuse were the best predictors of aggression. Most of the items on the ABQ are physically or emotionally aggressive acts, such that social learning could influence their behaviors. Weapon violence was not as associated with child abuse as non-weapon violence. It is possible that violent behavior involving a weapon is a more socially learned behavior than non- weapon aggression. Weapons play a prominent role in modern media entertainment, particularly in the movies and on television. Weapon related violence was reported infrequently in this sample. This may be because weapon-related behaviors are more likely to result in incarceration, or perhaps participants are less likely to report weapon related violence due to its severity.

It is possible that self-report of aggression while sitting in a public waiting room resulted in decreased reporting due to fear of social attitudes towards aggression. It might be better to interview men one-on-one in a private area to facilitate more disclosure. As Widom (1989) has commented, choosing an aggression outcome variable is difficult, as retrospective self-report is suspect. Using collateral data such as arrest records and collateral reports from relatives or friends familiar with a participant's behavior would increase accuracy.

The majority of people are not abused as children, do not suffer from PTSD, and do not become aggressively violent during their lives. However, those that do experience an abusively traumatic childhood are more likely to experience PTSD, which might lead to an increased likelihood of aggressive and violent behavior. As Widom points out in her 1989 article, violence does not necessarily beget violence. When, however, violence does beget violence, posttraumatic reactions can play a role. The individual suffering from symptoms of intrusive thoughts and memories, emotional numbing and avoidance, and hyperarousal PTSD is primed to react, to either to flee or fight. PTSD has been called a disorder of avoidance, not a disorder of aggression (R. Bradley, personal communication, February 2007). However, PTSD is consistently associated with increased rates of hostility, anger, and aggression. In areas with high rates of severe trauma such as those found in impoverished, inner city areas, PTSD appears to contribute to a cycle of violence, but it might be more accurate to refer to a cycle of trauma, as PTSD often results in substance abuse and other comorbid disorders that are also associated with trauma exposure. Individuals who experience a sexual assault, for example, are much more likely to experience a reoccurrence. In short, trauma often begets trauma, and symptoms of the posttraumatic reaction can result in a predisposition towards aggressive behavior.

The results of this dissertation suggest that child physical and emotional abuse can result in dysfunctional traumatic reactions that predispose survivors to act aggressively. For men, who perpetrate the majority of interpersonal assaults, screening and treatment for PTSD should be an essential part of mental health screening. Mental health screening and treatment are an important step towards addressing violence in

impoverished, inner city areas. Additionally, parenting resources (e.g. parenting skills training and mental health outreach for new parents) are a proactive way to address not only child abuse but interpersonal assault between adults that can result from early childhood trauma.

Clinical and social policy applications

If early trauma experiences such as child abuse lead indirectly to aggressive behavior via PTSD, mental health treatment for posttraumatic symptoms could be an important part of preventing violence and treating violent offenders. In addition to being the most violent industrialized nation, the U.S. also has the largest prison population and population rate in the world, housing over two million people in 2002 (United Kingdom Research, Development, and Statistics Directorate, 2003). Treating PTSD as soon as it is identified might prevent men suffering from PTSD from reacting aggressively during social conflicts and being sentenced to an already overcrowded prison system. Screening for child abuse and other early trauma and screening for PTSD might identify potential offenders for preventive mental health interventions such as support groups. Clinicians should take a detailed trauma history when treating men with a history of violent behavior. Men suffering from PTSD should be thoroughly assessed and treated with an empirically validated treatment such as exposure treatment and group interventions. PTSD is not just a disorder of fear and avoidance. It can be a disorder of aggression.

The inner cities of the U.S. are often characterized by poverty and violence. Identifying and treating PTSD might be one way of breaking the persistently high rates of violence in these areas. Social policy should address violence by reducing the stigma

of mental health treatment and making treatment easier to access. Community mental health programs, often underfunded in inner city areas, are one access point to treatment. Other access points such as churches, men's organizations, and jails can also serve as sources of psychoeducation and access to mental health treatment. A psychological study of cycles of violence transcends political and cultural differences between people. We can see conflict, revenge, and war and as the outgrowth of initial traumatic events. Human beings can be primed to react aggressively to conflict if they experience posttraumatic symptoms.

Men who understand that their thoughts, behaviors, and emotions are affected by past traumas might be more likely to participate in mental health services. The focus of treatment becomes one of relieving distress rather than finding and correcting character flaws or antisocial behaviors. Men are less likely than women to seek mental health treatment and often respond more positively to storytelling and other narrative approaches than to affect oriented, processing approaches (Addis, 2003). The public perception of psychotherapy as a feeling-based experience leads many men to avoid therapy because they have been socialized to avoid expressing emotion. Men who experience gender role conflict experience distress from socially defined gender roles and are less likely to seek therapy for their problems (Wisch, Mahalik, Hayes, & Nutt, 1995). A man might have the desire, for example, to discuss his distress surrounding a past trauma but also feel social pressure to remain stoic or express more socially sanctioned male emotions such as anger. A man who is invited to tell his story, rather than to process his emotions, might be more likely to process the relationship between his traumatic experiences and his aggressive behavior. One possible way to reach out

might be a project in which inner city men are invited to tell their stories to a therapist. Stigma is reduced as no assumption is made that there is anything wrong with the client. Rather, the message is that the man's experience is valued. Impoverished inner city men might respond to treatment if they are reimbursed for their time. While paying men for attending mental health services might seem a costly social program, a reduction in violent crime would quickly allow the program to pay for itself. If a project were advertised to appeal directly to men who "have a story to tell" (i.e. a trauma to process), more men might enter mental health treatment. Therapy could be called a "His-story Project" for example to reduce stigma by reframing the therapy experience as a time for a man to share his story with a therapist, or other men in the case of group work, who value his experience.

Resilience factors for PTSD include personality traits such as extraversion, assertiveness, and internal locus of control, and behavioral responses to stress including affect regulation, humor, and self care (Agaibi & Wilson, 2005). Resilience can be fostered through preventative, psychoeducational programs and remedial interventions where PTSD is diagnosed. The group format has a variety of applications in working with men (Andronico, 1997). Groups are cost-effective and promote healthy relationships between men. In some cases, group members might carry supportive relationships beyond the group, even establishing health support networks. The clinical implications of PTSD-mediated aggression are numerous. Reducing exposure to trauma through systemic interventions are typically more effective in reducing the effects of PTSD than individual interventions that remediate symptoms (Ozer& Weiss, 2004). Clinical interventions should be preventative and meet the unique needs of men

in distress, as the aftermath of early abuse and other trauma perpetuates a cycle of violence that has persisted in American cities for decades.

Future Research

Further research is needed to examine PTSD's role as a mediator of childhood trauma and aggressive behavior. While the results of this dissertation suggest that PTSD is a mediator, more study is needed to determine if PTSD mediates a significant part of the effects of child abuse on aggressive behavior. Studies should measure and control for witnessed violence and other early trauma to separate the effects of social learning. While previous research has shown a direct relationship (Taft, Vogt, Marshall, Panuzio, & Niles, 2007), the specific way in which PTSD results in aggression should be examined has yet to be examined. Additional populations to be studied include incarcerated men and men mandated to domestic abuse treatment. Other factors affecting aggression should be included in further studies of PTSD-mediated aggression, including personality, genetics, attachment, social learning, substance abuse, and comorbid psychopathology such as mood and anxiety disorders. Female participants should also be included in future researcher in order to examine gender differences. Further research in this area may serve to reduce the effects of early traumatic events on the development of PTSD and subsequent aggressive behavior.

Conclusions

We identified that childhood physical abuse, PTSD symptoms, and aggression are related in an inner city population. We identified PTSD as a mediator between child physical abuse and a specific aggressive behavior, and between child emotional abuse and a specific aggressive behavior. While PTSD did not mediate other measures of

child abuse (e.g. CTQ physical and emotional abuse subscales) and aggression (e.g. aggression subscales), it did fall in the hypothesized direction for physical and emotional abuse and aggression.

References

Agaibi, C. E., & Wilson, J. P. (2005). Trauma, PTSD, and resilience: A review of the literature. *Trauma, Violence, & Abuse, 6*(30), 195-216.

Almgren, A. (2005). The ecological context of interpersonal violence: From culture to collective efficacy. *Journal of Interpersonal Violence, 20*(2), 218-224.

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*. Washington, D.C.: American Psychiatric Association.

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology,259,* 2377-2379.

Andronico, M. (1997). Men in groups: Insights, interventions, and psychoeducational work. Washington, D.C.: American Psychological Association.

Ball, J. D. (2005). Does violence beget violent crime? Is it potato or potata? Tomato or tomata?

Or, should we call the whole thing off? *Criminal Justice Studies, 18*(2), 183-196.

Baron, R.M., & Kenny, D.A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Beckham, J. C., Feldman, M. E., Kirby, A. C., Hertzberg, M. A., & Moore, S. D. (1997). Interpersonal violence and its correlates in Vietnam veterans with chronic posttraumaticstress disorder. *Journal of Clinical Psychology, 53*, 859-869.

Beckham, J. C., Moore, S. D., & Reynolds, V. (2000). Interpersonal hostility and

violence in Vietnam combat veterans with chronic posttraumatic stress disorder: A review of theoretical models and empirical evidence. *Aggression and Violent Behavior, 5,* 451-466.

Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A cognitive-neoassocianistic analysis. *American Psychologist, 45*(4), 494-503.

Bernstein, D, Ahluvalia, T., Pogge, D., & L. Handelsman, (1997) Validity of the Childhood Trauma Questionnaire in an adolescent psychiatric population. *Journal of American Academy Child and Adolescent Psychiatry, 36*(3), 340-348.

Bernstein, D., Fink, L. Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., Sapareto, E., & Ruggiero, J. (1994) Initial reliability and validity of a new retrospective measure of child abuse and neglect. *American Journal of Psychiatry*, *151*(8), 1132-6.

Bernstein, D. & Fink, L. (1998). *Childhood Trauma Questionnaire: a Retrospective Self Report*. San Antonio, TX: The Psychological Corporation.

Bernstein, D., Stein, J., Newcomb, M., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse and Neglect, 27*(2), 169-90.

Bremner, J.D., Vermetten, E., & Mazure, C.M. (2000). Development and preliminary psychometric properties of an instrument for the measurement of childhood trauma: the Early Trauma Inventory. *Depression and Anxiety. 12(*1), 1-12.

Bremner, J.D., Southwick, S., Johnson, D., Yehuda, R., & Charney, D. (1993). Childhood physical abuse and combat related post-traumatic stress disorder in Vietnam veterans. *American Journal of Psychiatry, 150,* 235-239.

Breslau, N., Davis G., Andreski, P., & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry, 48,* 216–222.

Briere, J., Elliott, D. (1994). Sexual abuse of children. *The Future of Children, 4*(2), 54-69.

Briere, J., & Runtz, M. (1990). Differential adult symptomatology associated with three types of child abuse histories. *Child Abuse and Neglect, 14*(3), 357-64.

Caspi, A., McClay, J., Moffitt, T., Mill, J., Martin, J., & Craig, I. (2002). Role of genotype in the cycle of violence in maltreated children. *Science, 297,* 851-854.

Coulton, J. C., Korbin, J. E., Su, M., and Chow, J. (1995). Community level factors and\ Child maltreatment rates. *Child Development, 66,* 1262-1276.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. P*sychometrika, 16,* 297-334.

De Bellis, M., Keshavan, M., Clark, D., Casey, B., Giedd, J., Boring, A., Frustaci, K., & Ryan,N. (1999). Developmental traumatology part II: Brain development. *Biological Psychiatry*, *45*, 1271-1284.

Dodge, K., Bates, J., & Pettit, G. (1990). Mechanisms in the cycle of violence. *Science, 250,*1678-1683.

Finkelhor, D., Hotaling, G., Lewis, I. A., & Smith, C. (1990). Sexual abuse in a national survey of adult men and women: Prevalence, characteristics, and risk factors. *Child Abuse and Neglect, 14*(1), 19-28.

Foa, E.B., Riggs, D.S., Dancu, C.V., & Rothbaum, B.O. (1993). Reliability and validity of a brief instrument for assessing posttraumatic stress disorder. *Journal of Traumatic Stress, 6*(4), 459-473.

Foa, E.B., and Tolin, D.F. (2000) Comparison of the PTSD Symptom Scale-Interview Version and the Clinician Administered PTSD Scale. *Journal of Traumatic Stress, 13*(2), 181-191.

Freisthler, B., Merritt, D.H., LaScala E.A. (2006). Understanding the ecology of child maltreatment: A review of the literature and directions for future research. *Child Maltreatment, 11*(3), 263-280.

Fullilove, M. T., Heon, V., Jimenez, W., Parsons, C., Green, L. L., & Fullilove, R. E. (1998). Injury and anomie: Effects of violence on an inner-city community. *American Journal of Public Health, 88,* 924–927.

Galovski, T., & Lyons, J. (2004). Psychological sequelae of combat violence: A review of the impact of PTSD on the veteran's family and possible interventions. *Aggression and Violent Behavior, 9*(5), 477-501.

Georgia Bureau of Investigation. (2005). 2004 Summary Report. Uniform Crime Reporting (UCR) Program. Georgia Crime Information Center. Retrieved from http://www.ganet.org/gbi/2005ucrsum.html#profile on April 30, 2007.

Gibson, L. E., Holt, J. C., Fondacaro, K. M., Tang, T. S., Powell, T. A. and Turbitt, E. L. (1999). An examination of antecedent traumas and psychiatric comorbidity among male inmates with PTSD. *Journal of Traumatic Stress, 12*(3), 473-484.

Glaser, D. (2000). Child abuse and neglect and the brain – a review. *Journal of Child Psychology and Psychiatry, 41*(1), 97-116.

Gorey, K., & Leslie, D. (1997). The prevalence of child sexual abuse: integrative

review adjustment for potential response and measurement biases. *Child Abuse and Neglect, 21*(4), 391-398.

Harris, G. T., & Rice, M. E. (1997). Risk appraisal and management of violent behavior. *Psychiatric Services, 48,* 1168-1176.

Herman, J. H. (1997). *Trauma and recovery: The aftermath violence – from domestic abuse to political terror.* New York: Basic Books.

Herrenkohl, E. C., Herrenkohl, R. C., & Egolf, B. P. (2003). The psychosocial consequences of living environment instability on maltreated children. *American Journal of Orthopsychiatry, 73*(4), 367-380.

Hodgins, S. (1998). Epidemiological investigations of the associations between major mental disorders and crime: Methodological limitations and validity of the conclusions. *Social Psychiatry and Psychiatric Epidemiology, 33*(13), 29-37.

Holmes, W. C., & Sammel, M. D. (2005). Brief communication: Physical abuse of boys and possible associations with poor adult outcomes. *Annals of Internal Medicine, 143*(8), 581-586.

Kaysen, D, Resick, P., & Wise, D. (2003). Living in danger: The impact of chronic traumatization and the traumatic context on posttraumatic stress disorder. *Trauma, Violence, & Abuse, 4*(3), 247-264.

Kessler, R., Sonnega, A., Bromet, E., Hughes, M., Nelson, C. (1995). Posttraumatic Stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry. 52*(12), 1048-1060.

Kesner, J. E., & McKenry, P. C. (1998). The role of childhood attachment factors in

Predicting male violence toward female intimates. *Journal of Family Violence. 13*(4), 417-432.

Kilpatrick, D., & Acierno, R. (2003). Mental health needs of crime victims: Epidemiology and outcomes. *Journal of Traumatic Stress, 16,* 119–132.

Kiser, L., & Black, M. (2005). Family processes in the midst of urban poverty: What does the trauma literature tell us? *Aggression & Violent Behavior, 10* (6), 715-750.

Koop, C. E., Lundberg, G. B. (1992). Violence in America: A public health emergency. *Journal of the American Medical Association, 267*(22), 3075-3076.

Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., et al. (1990). *Trauma and the Vietnam War generation: Report of findings from the National Vietnam Veterans Readjustment Study*. New York: Brunner/Mazel.

Lasko, N. B., Gurvits, T. V., Kuhne, A. A., Orr, S. P., & Pittman, R. K. (1994). Aggression and its correlates in Vietnam veterans with and without chronic posttraumatic stress disorder. *Comprehensive Psychiatry, 35,* 373-381.

Leo, R. J., Sherry, C., Jones, A.W. (1998). Referral patterns and recognition of Depression among African-American and Caucasian patients. *General Hospital Psychiatry, 20,* 175–182.

Lisak, D., Hopper, J., & Song, P. (1996). Factors in the cycle of violence: gender rigidity and emotional constriction. *Journal of Traumatic Stress, 9*(4), 721-743.

MacMillan, H. L., Fleming, J. E, Trocme, N., Boyle, M. H., Wong, M., Racine, Y. A.,

Beardslee, W. R., & Offord, D. R. (1997). Prevalence of child physical and sexual abuse in the community. Results from the Ontario Health Supplement. *Journal of the American Medical Association,. 278*(2), 131-135.

Mcfall, M., Fontana, A., Raskind, M., & Rosenheck, R. (1999). Analysis of violent behavior in Vietnam combat veteran psychiatric in patients with posttraumatic stress disorder. *Journal of Traumatic Stress, 12*(3), 501-518.

Mihalic, S. W., & Elliott, D. (1997). A social learning theory model of marital violence. *Journal of Family Violence, 12*(1), 21-47.

Miller, T., Cohen, M. & Wiersema (1996).*National Institute of Justice Research Report. Victim Costs and Consequences: A new look. US Department of Justice.* Office of Justice Programs. National Institute of Justice.

Miller, T., Cohen, M. & Kossman S. (1993). Victim costs of violent crime and resulting injuries. *Health Affairs, 12,* l86-197.

Mueser, K.T., Goodman, L.B., Trumbetta, S.L., Rosenberg, S.D., Osher, C., Vidaver, R., Auciello, P., & Foy, D.W. (1998). Trauma and posttraumatic stress disorder in severe mental illness. *Journal of Consulting and Clinical Psychology, 66,* 493–499.

Mueser, E.P. (1994). Assessing the evidence of a link between mental illness and violence. *Hospital and Community Psychiatry, 45*(7), 711-713.

Mueser, H.S., Kilpatrick, D.G., Dansky, B.S., Saunders, B., & Best, C. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology, 61,* 984–991.

Ozer, E. J. & Weiss, D. S. (2004). Who develops Posttraumatic Stress Disorder? *Current Directions in Psychological Science, 13*(4), 169-172.

Reynolds, L. K., O'Koon, J. H., Papademetriou, E., S. Szczygie, & K. E. Grant. (2001). Stress and somatic complaints in low-income urban adolescents. *Journal of Youth and Adolescence, 30,* 499-514.

Rich, J. A., & Grey, C. M. (2005). Pathways to recurrent trauma among young black men: Traumatic stress, substance use, and the "code of the street". *American Journal of Public Health, 95(5),* 816-824.

Schnurr, P. P., Lunney, C. A., & Sengupta, A. (2004). Risk factors for the development Versus maintenance of posttraumatic stress disorder. *Journal of Traumatic Stress, 17*(2), 85-95.

Schwartz, A., Bradley, R., Sexton, M., Sherry, A. & Ressler, K. (2005). Posttraumatic stress disorder among African Americans in an inner city mental health clinic. *Psychiatric Services, 56,* 212-215.

Smith, C. & Thornberry, T.P. (1995). The relationship between childhood maltreatment and adolescent involvement in delinquency. *Criminology, 33*, 451–481.

Solomon S., & Davidson, J. (1997). Trauma: prevalence, impairment, service use, and cost. *Journal of Clinical Psychiatry 58*(9), 5–11.

Straus, M.A., Hamby, S.L., Boney-McCoy, S., & Sugarman, D.B. (1996). The Revised Conflict Tactics Scales: Development and preliminary psychometric data. *Journal of Family Issues. 17*(3), 283-316.

Swett, C., Surrey, J., & Cohen, C. (1990). Sexual and physical abuse histories and

Psychiatric symptoms among female psychiatric outpatients. *American Journal of Psychiatry*, *144*, 632-636.

Taft, C. T., Vogt, D. S., Marshall, A. D., Panuzio, J., & Niles, B. L. (2007). Aggression among combat veterans: Relationships with combat exposure and symptoms of posttraumatic stress disorder, dysphoria, and anxiety. *Journal of Traumatic Stress, 20*(2), 135-145.

Terry, K. J., & Tallon J. (2004). Child sexual abuse: A review of the literature. The John Jay Research Team. Retrieved January 10, 2006 from http://www.usccb.org/nrb/johnjaystudy/litreview.pdf

Thornberry, T. P., & Krohn, M.D. (2000). The self-report method for measuring delinquency and crime. Pp. 33-83 in Duffee, D., Crutchfield, R. D., Mastrofski, S., Mazerolle, L., McDowall, D., and Ostrom, B. (eds.), CJ. *Innovations in Measurement and Analysis.* Washington, DC: National Institute of Justice.

United Kingdom Research, Development, and Statistics Directorate. (2003). World Prison Population List. Retrieved May 15, 2006 from http://www.homeoffice.gov.uk/rds/pdfs2/r188.pdf.

United States Department of Health and Human Services, Children's Bureau (2001). Child Maltreatment 2001. Washington DC: U.S. Government Printing Office.

United States Department of Justice (2001). *Injuries from violent crime, 1992-1998. NCJ publication 139563.* Washington, DC.

United States Department of Justice, Bureau of Justice Statistics. (1999). Prior abuse reported by inmates and probationers. Reatrieved May 15, 2007 from http://www.ojp.usdoj.gov/bjs/abstract/parip.htm.

United States Federal Bureau of Investigation. (2004). *National Crime Victimization Survey Violent Crime Trends, 1973-2004.* Washington, DC.

United States Department of Justice (2004). Crime in the United States. Uniform Crime Reporting Program. Retrieved January 10, 2006 from http://www.fbi.gov/ucr/cius_04/offenses_reported/violent_crime/index.html.

Volavka, J. (1995). *Neurobiology of Violence.* Washington, DC: American Psychiatric.

Webster. (1989). *Webster's ninth new collegiate dictionary.* Mirriam-Webster: Springfield, Massachusetts.

Widom, C., S. (1999) Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry, 156,* 1223-1229.

Widom, C. S., & Maxfield, M. G. (2001). *An update on the "Cycle of Violence".* National Institute of Justice Research In Brief, February, 8.

Widom, C., Schuck, A., & White, H. (2006). An examination of pathways from childhood victimization to violence: the role of early aggression and problematic alcohol use. *Victims and Violence, 21*(6), 675-690.

Wisch, A. F., Mahalik, J. R., J. A., Hayes, & Nutt, E. A. (1995). The impact of gender role conflict and counseling technique on psychological help seeking in men. *Sex Roles, 33,* 77-89.

Yehuda, R., Kahana, B., Schmeidler, J., Southwick, S., Wilson, S., & Giller, E. (1995). Impact of cumulative lifetime trauma and recent stress on current post-traumatic stress disorder symptoms in Holocaust survivors. *American Journal of Psychiatry*, *152*, 1815-1818.

Zuravin, S. J. (1989). The ecology of child abuse and neglect: Review of the literature

And presentation of data. *Violence and Victims, 4,* 101-120.

Zingraff, M., Leiter, J., Myers, K. & Johnsen, M. (1993). Child maltreatment and youthful problem behavior. *Criminology, 31,* 173–202.

Appendix A

Genetic and Trauma-Related Risk Factors for PTSD at Grady Memorial Hospital

LAY SUMMARY

This project aims to determine the relative contribution of genetic and trauma-related risk factors for Posttraumatic Stress Disorder (PTSD) in a cross-sectional study of a highly traumatized, low socioeconomic status, minority urban population. Although some level of fear and stress is normal following a traumatic experience, understanding the etiology of PTSD requires knowing why chronic pathological symptoms do not occur in all who experience trauma. Individuals appear to have different vulnerabilities for subsequent response to traumatic stress. It is now commonly accepted that PTSD results from an interaction of predisposing genetic and environmental risks that enhance the likelihood of a pathological stress response and fear memory following severe trauma. However, almost nothing is known of the nature of the genetic contribution(s) and how they interact with other risk factors.

We will examine 1400 non-psychiatric patients from the General Medical Clinic at Grady Memorial Hospital in Atlanta. Our pilot data suggests that over 80% of this population has suffered significant trauma and approximately 30% have PTSD. We will examine three independent factors that contribute to the relative risk for PTSD following trauma: genotype polymorphism, lifetime history of trauma, and peri-traumatic emotional response to the PTSD-related event. Genetic risk factors include described polymorphisms that have been shown to contribute to the development of psychopathology in other stress-related psychiatric disorders, including monoamine related genes (5HTT, DBH, DAT, and COMT), brain-derived neurotrophic factor (BDNF), and genes involved in HPA axis regulation (GR, CRF-R1, FKBP5). Lifetime history of trauma includes childhood trauma and total lifetime trauma. Emotional response to the trauma includes subjective trauma severity as well as peri-traumatic dissociation. Covariates that will be examined include family psychiatric history, substance abuse and dependence, and comorbid psychiatric diagnoses. The primary dependent variables include presence or absence of PTSD diagnosis and PTSD severity.

By examining identified candidate genes, known trauma history risk factors, and PTSD diagnosis as well as its component traits, this study will further the understanding of PTSD. Through a greater understanding of the vulnerability factors, both genetic and environmental, that contribute to pathological fear and stress following a trauma, this work will further the development of model systems as well as potentially provide novel intervention, diagnostic, and treatment approaches for this debilitating disorder.

Appendix B

Factor Analysis of Behavior Questionnaire

ABQ Item	Factor Loading 1	2	3	4
21. Threatened to hit or throw something at someone.	.838			
11. Shouted or yelled at someone.	.794			
4. Pushed or shoved someone.	.761			
18. Slapped someone.	.740			
14. Grabbed someone by the neck, collar, clothes, or some part of their body in anger.	.738			
5. Stomped out of the room or house or yard during a disagreement.	.718	-.310		
13. Beat someone up.	.702			
1. Insulted or swore at some.	.683			
8. Punched or hit someone with something that could hurt.	.670			
3. Twisted someone's arm or hair.	.472	.314		
2. Thrown something at someone that could hurt.	.432			
22. Kicked someone.	.423			
12. Slammed someone against a wall.	.350			
44. Taken something from a car that did not belong to you.		.819		
36. Hit an adult you did not live with with the idea of hurting them.		.622		
33. Attacked an adult you've lived with with a weapon or with the idea of seriously hurting or killing them. This is someone you lived with.		.494		

Appendix B continued

Factor Analysis of Behavior Questionnaire

ABQ Item	Factor Loading 1	2	3	4
24. Carried a hidden weapon.		.477		
9. Destroyed something belonging to someone on purpose.		.313	.309	
40. Stolen or tried to steal money or things worth between $5 and $100.			.918	
39. Stolen or tried to steal money or things worth $5 or less.			.820	
26. Purposely damaged or destroyed property that did not belong to you.			.569	
45. Knowingly bought, sold, or held stolen goods or tried to do any of these things.			.494	
43. Taken something from a store without paying for it (including events you have already told me about).			.357	
47. Bought or used illegal drugs other than marijuana (e.g. cocaine).				.734
48. Sold or participated in selling illegal drugs.				.692
46. Bought or used marijuana.				.689

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
Rotation converged in 7 iterations.

Loadings on factors <.300 were suppressed and therefore not presented in the table. Items not included in subscales were as follows: 6. Pulled a knife or gun on someone (but didn't stab them or pull the trigger. 7. Stabbed or shot someone. 10. Choked someone. 15 Used force (like hitting, holding down, threatening to hurt or kill, or using a weapon) to make someone have sex. 16. Used force (like hitting, holding down, threatening to hurt or kill, or using a weapon) to make someone have oral or anal sex. 17. Insisted on sex when someone did not want to (but did not use physical force or threat of killing or injuring them severely). 19, Burned or scalded someone.

20. Burned or scalded someone accidentally but in the middle of an argument or while you were angry. 23. Used threats to make someone have sex. 25. Acted loud, rowdy, or unruly in a public space so tha people complained or you got into trouble. 27. Purposely set fire to a house, building, car, or other property, or tried to. 28. Broke into, or tried to break into, a building or someone's house, to steal something. 29. Snatched someone's purse or wallet, or picked someone's pocket. 30. became so angry with a child that you attacked them with a weapon or with the idea of seriously hurting them. 31. Became so angry with a child that you struck them with someone really hard or painful, like a belt, chair, etc. 32. Became so angry with a child that you hit them (other than the events you just told me about). 34. Hit an adult you lived with. 35. Attacked an adult you did not live with with a weapon or with the idea of seriously hurting or killing them. This is someone you did not live with. 37. Used a weapon, force, or strong arm methods to rob a person, shop, bank, or other business. 38. Gotten involved in a gang fight. 41. Stolen or tried to steal money or things worth between $100 and $500. 42. Stolen or tried to steal money or things worth over $500.

Appendix C

CTQ

Directions: These questions ask about some of your experiences growing up as a child and a teenager. For each question, circle the number that best describes how you feel. Although some of these questions are of a personal nature, please try to answer as honestly as you can. Your answers will be kept confidential.

WHEN I WAS GROWING UP	Never True	Rarely True	Sometimes True	Often True	Always True
1.I didn't have enough to eat	1	2	3	4	5
2. I knew there was someone there to take care of me and protect me	1	2	3	4	5
3. People in my family called me things like "stupid","lazy", or "ugly".	1	2	3	4	5
4. My parents were usually too drunk or too high to take care of me	1	2	3	4	5
5. There was someone in my family who helped me feel important or special	1	2	3	4	5
6. I had to wear dirty clothes	1	2	3	4	5
7. I felt loved.	1	2	3	4	5
8. I thought that my parents wished I had never been born	1	2	3	4	5
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.	1	2	3	4	5
10. There was nothing I wanted to change about my family	1	2	3	4	5
11. People in my family hit me so hard that it left me with bruises or marks.	1	2	3	4	5
12. I was punished with a belt, a board, a cord (or some other hard object).	1	2	3	4	5
13. People in my family looked out for each other.	1	2	3	4	5
14. People in my family said hurtful or insulting things to me.	1	2	3	4	5
15. I believe that I was physically abused.	1	2	3	4	5
16.I had the perfect childhood	1	2	3	4	5
17. I got hit or beaten so badly that it was noticed by Someone like a teacher, neighbor, or doctor.	1	2	3	4	5
18. Someone in my family hated me.	1	2	3	4	5
19. People in my family felt close to each other	1	2	3	4	5
20. Someone tried to touch me in a sexual way or tried to make me touch them.	1	2	3	4	5
21. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.	1	2	3	4	5
22. I had the best family in the world.	1	2	3	4	5
23. Someone tried to make me do sexual things or watch sexual things.	1	2	3	4	5
24. Someone molested me (took advantage of me sexually).	1	2	3	4	5
25. I believe that I was emotionally abused.	1	2	3	4	5

Appendix C continued

26. There was someone to take me to the doctor if I needed it.	1	2	3	4	5
27. I believe that I was sexually abused.	1	2	3	4	5
28. My family was a source of strength and support.	1	2	3	4	5

Appendix D

Traumatic Events Inventory

(To the patient) These questions are related to traumatic or stressful events that you might have experienced, witnessed, or been confronted with(i.e.- someone told you the event happened).

1. **Have you ever experienced a natural disaster (such as a tornado, hurricane, or flood)?**

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

2. **Have you ever experienced a serious accident or injury?**

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

3. Have you ever experienced a sudden life-threatening illness?

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

4. **Have you ever been in military combat or in military service in a war zone**
◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

5. **Have you had a close friend or family member who had an accidental death?**
◄Confronted With?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

6. **Have you had a close friend or family member who was murdered?**

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

◄Confronted With?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

7. Have you had a close friend or family member who committed suicide?

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

8a . Have you been attacked with a gun, knife, or other weapon by a spouse, romantic partner/boyfriend or girlfriend ?

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

8b. **Have you been attacked with a gun, knife, or other weapon by someone other than a spouse, romantic partner/boyfriend or girlfriend?**

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)?_____

●In the worst incident, who was the attacker?_____

8c. **Have you witnessed a family member or friend being attacked with a gun, knife, or other weapon**

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

8d. **Have you witnessed someone other than a family member or friend being attacked with a gun, knife, or other weapon?**

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

●What was your relationship to the person being attacked?_____

9a. Have you been attacked without a weapon by a spouse, romantic partner/boyfriend or girlfriend?

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

9b. **Have you been attacked without a weapon by someone other than a spouse, romantic partner/boyfriend or girlfriend**

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)?_____

●In the worst incident, who was the attacker?_____

9c. **Have you witnessed a family member or friend being attacked without a weapon?**

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

9d. **Have you witnessed someone other than a family member or friend being attacked without a weapon?**

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

●What was your relationship to the person being attacked?_____

10. **Did you witness violence between your parents or caregivers when you were a child?**

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

11. Were you beaten or physically punished in other ways as a child (do not include spanking that interviewee considers appropriate unless it resulted in serious injury or medical attention)

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16X-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

12a. Between the ages of 0 and 13 did an adult or older teenager have sexually abuse you to have any type sexual contact with you?

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

12b. Between the ages of 14 and 17 did an adult or older teenager have sexually abuse you to have any type sexual contact with you?

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

13a. After the age of 17 did someone rape you or sexually assault you (by that I mean did someone use physical force or threats of physical force to make you have some unwanted sexual contact with them)?

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

14. Are there any other experiences that have been traumatic or very stressful for you that we have not covered yet?

◄Witnessed?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

◄Experienced?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-19x □>20x

◄Confronted With?_____

■How many times? □1x □2x-3x □4x-5x □6x-8x □9x-10x □11x-15x □16x-29x

□>20x

●Which of these is your worst incident_____

●How old were you at the time of your worst incident?_____ At what age did it first occur?_____

●In the worst incident, how much did you feel terrified, horrified, or helpless?_____

●In the worst incident, how much did you feel that you or someone else might die or be seriously injured or killed? (take threat into account)_____

15. Would you describe the home that you grew up in as **stable** or **unstable**?

Appendix E

Modified Posttraumatic Stress Disorder Scale

Subject #_____
Interviewer_____
Date_____

Modified PTSD Symptom Scale

The purpose of this scale is to measure the frequency and severity of symptoms in the past two weeks. Using the scale listed below, please indicate the frequency of symptoms to the left of each item. Then indicate the severity beside each item by circling the letter that fits you best.

FREQUENCY	SEVERITY
0 Not at all	**A** Not at all distressing
1 Once per week or less/ a little bit/ once in a while	**B** A little bit distressing
2 2 to 4 times per week/ somewhat/ half the time	**C** Moderately distressing
3 5 or more times per week/ very much/almost always	**D** Quite a bit distressing
	E Extremely distressing

FREQUENCY **SEVERITY**

____1. Have you had recurrent or intrusive distressing thoughts or recollections about the event(s)?.....A B C D E

____2. Have you been having recurrent bad dreams or nightmares about the event(s)?.....A B C D E

____3. Have you had the experience of suddenly reliving the event(s), flashbacks of it, acting or feeling as it were re-occurring?.....A B C D E

____4. Have you been intensely EMOTIONALLY upset when reminded of the event(s) (includes anniversary reactions)?.....A B C D E

____5. Have you persistently been making efforts to avoid thoughts or feelings associated with the event(s) we've talked about?.....A B C D E

____6. Have you persistently been making efforts to

avoid activities, situations, or places that
remind you of the event(s)?.....A B C D E

____7. Are there any important aspects the event(s)
that you still cannot recall?.....A B C D E

FREQUENCY

0 Not at all
1 Once per week or less/ a little bit/ once in a while
2 2 to 4 times per week/ somewhat/ half the time
3 5 or more times per week/ very much/almost always

SEVERITY

A Not at all distressing
B A little bit distressing
C Moderately distressing
D Quite a bit distressing
E Extremely distressing

____8. Have you markedly lost interest in free
time activities since the event(s)?.....A B C D E

____9. Have you felt detached or cut off from
others around you since the event(s)?.....A B C D E

____10. Have you felt that your ability to
experience emotions is less (e.g.,
unable to have loving feelings, do
you feel numb, can't cry when sad, etc.)?.....A B C D E

____11. Have you felt that any future plans or
hopes have changed because of the event(s)
(e.g., no career, marriage, children, or
long life?..... .....A B C D E

____12. Have you been having persistent difficulty
falling or staying asleep?..... .....A B C D E

____13. Have you been continuously irritable
or having outburst of anger?..... .....A B C D E

____14. Have you been having persistent difficulty
concentrating?..... .....A B C D E

____15. Are you overly alert (e.g., check to see
Who is around you, etc) since the event(s).....A B C D E

____16. Have you been jumpier, more easily startled,
Since the event(s)?..... .....A B C D E

____17. Have you been having intense PHYSICAL
reactions (e.g., sweaty, heart palpitations)

when reminided of the event(s)?..... .....A B C D E

____18. How long have these symptoms bothered you?.....A B C D E
Score 0= < 1 month, 1= 1-3 months, 2= 3 months- 1 yr, 3= > 1 yr
Risk for violent traumatization is greatest in childhood and adolescence – so makes sense that trauma here would be worth looking at for risk of PTSd which leads to risk of aggression.

Appendix F

Aggressive Behavior Questionnaire

Have you ever done the following things in the past?	***In the last year?***	***Ever?***	***How many Total Times?***
1. Insulted or swore at someone.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
2. Thrown something at someone that could hurt.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
3. Twisted someone's arm or hair.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
4. Pushed or shoved someone.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
5. Stomped out of the room or house or yard during a disagreement.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
6. Pulled a knife or gun on someone (but didn't stab them or pull the trigger).	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**

7. Stabbed or shot at someone	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
Have you ever done the following things in the past?	***In the last year?***	***Ever?***	***How many Total Times?***
8. Punched or hit someone with something that could hurt.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
9. Destroyed something belonging to someone on purpose.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
10. Choked someone.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
11. Shouted or yelled at someone.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
12. Slammed someone against a wall.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
13. Beat up someone.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**

14. Grabbed someone by the neck, collar, clothes, or some part of their body in anger.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
Have you ever done the following things in the past?	***In the last year?***	***Ever?***	***How many Total Times?***
15. Used force (like hitting, holding down, threatening to hurt or kill, or using a weapon) to make someone have sex.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
16. Used force (like hitting, holding down, threatening to hurt or kill, or using a weapon) to make someone have oral or anal sex.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
17. Insisted on sex when someone did not want to (but did not use physical force or threat of killing or injuring them severely).	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
18. Slapped someone.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
19. Burned or scalded someone on purpose.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
20. Burned or scalded someone accidentally but in the middle of an argument or while you were angry.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**

21. Threatened to hit or throw something at someone.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
Have you ever done the following things in the past?	***In the last year?***	***Ever?***	***How many Total Times?***
22. Kicked someone.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
23. Used threats to make someone have sex.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
24. Carried a hidden weapon.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
25. Acted loud, rowdy, or unruly in a public place so that people complained or you got into trouble.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
26. Purposely damaged or destroyed property that did not belong to you.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
27. Purposely set fire to a house, building, car or other property, or, tried to.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**

28. Broke into, or tried to break into, a building or someone's house, to steal something.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
Have you ever done the following things in the past?	***In the last year?***	***Ever?***	***How many Total Times?***
29. Snatched someone's purse or wallet, or picked someone's pocket.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
30. Became so angry with a child that you attacked them with a weapon, or with the idea of seriously hurting them.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
31. Became so angry with a child that you struck them with something really hard or painful, like a belt, chair, etc..	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
32. Became so angry with a child that you hit them (other than the events you just told me about).	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
33. Attacked an adult you lived with with a weapon or with the idea of seriously hurting or killing them. This is someone you lived with.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
34. Hit an adult you lived with.(if so, what was your relationship to the person?_____ _____)	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**

35. Attacked an adult you did not live with a weapon or with the idea of seriously hurting or killing them. This is someone you did not live with.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
Have you ever done the following things in the past?	***In the last year?***	***Ever?***	***How many Total Times?***
36. Hit an adult you did not live with with the idea of hurting them.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
37. Used a weapon, force or strong arm methods to rob a person, shop, bank, or other business.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
38. Gotten involved in a gang fight.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
39. Stolen, or tried to steal, money or things worth $5 or less.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
40. Stolen, or tried to steal, money or things worth between $5 and $100.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
41. Stolen, or tried to steal, money or things worth between $100 and $500.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**

42. Stolen, or tried to steal, money or things worth over $500.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
Have you ever done the following things in the past?	***In the last year?***	***Ever?***	***How many Total Times?***
43. Taken something from a store without paying for it (including events you have already told me about).	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
44. Taken something from a car that did not belong to you.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
45. Knowingly bought, sold, or held stolen goods, or, tried to do any of these things.	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
46. Bought or used marijuana	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
47. Bought or used illegal drugs other than marijuana (e.g., cocaine)	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**
48. Sold or participated in selling illegal drugs	☐ Yes ☐ No	☐ Yes ☐ No	☐ **Never** ☐ **Once** ☐ **Several Times** ☐ **Many Times** ☐ **More than I can count**

Appendix G

Consent Form

Emory University School of Medicine and Grady Hospital System
Consent and Authorization to be a Research Subject

Title: **Genetic and Trauma-Related Risk Factors for Post-traumatic Stress Disorder at Grady Memorial Hospital**

Sponsor: National Institutes of Health, National Institutes of Mental Health

Principal Investigators*:* **Kerry Ressler, MD PhD and Rebekah Bradley, PhD**

Introduction/Purpose: We are asking you to volunteer to participate in a research interview that will take 30 minutes to complete. We have chosen you at random while you are waiting for your medical appointment. The purpose of this study is to learn about how people react to traumatic events and how to help people cope with these events. This study will determine the rates of trauma and trauma-related disorders at Grady Memorial Hospital. It also will determine the impact of trauma on health. It will specifically study Post-traumatic Stress Disorder, a disorder which affects people who have experienced severe traumas. It is associated with a number of overwhelming emotional symptoms. These include sleep difficulties, depression and anxiety, flashbacks and nightmares of the traumatic events.

After this brief interview, if you are eligible, we will invite you to return to Feeback Hall for a longer visit of 3 hours followed by two full (8 hour days) of interviews and testing at the Grady Clinical Research Center. These additional study days will provide more details about how trauma affects people. We anticipate enrolling 1300 subjects over 5 years from Grady Memorial Hospital.

Procedures: During the first interview, we will ask you questions about your life situation, medical and psychiatric history. We will also ask about past traumas that you may have experienced, and current symptoms that you are experiencing.

We will also ask you to rinse your mouth with water and then spit into a sample tube. This sample of spit will be used for DNA and gene testing. These tests will answer questions about how different genes are involved in the response to trauma.

On the first and second full days of testing, we will ask you to be present for about 8 hours on each day. First, the study nurse will take your medical history, this will include having a copy of your medical chart from your most recent medical clinic visits, she will then measure your heart rate and blood pressure. . We will then obtain a blood sample from you to screen for pregnancy or drug use, as well as to measure baseline stress hormone levels. The results of these tests are confidential and we will not share them with anyone else. If you are using drugs or if you are a woman and pregnant you may be ineligible for certain parts of the study. Specifically, if you know you are pregnant or your pregnancy test is positive, you will not participate in the dexamethasone pill part of the study. There are no additional risks to pregnancy or fetal exposure from the acoustic startle, blood draw, or interview components of the study aside from the normal risks stated below. We will ask you a number of questions about your current life, relationships, medical history and psychiatric history. We will also ask

about past traumas that you have experienced and current symptoms that you are having. At the end of the first full day of interviews you will be given a pill of dexamethasone, a hormone that occurs naturally in your body. You will be asked to take this pill at home at 11:00 p.m. that night. We will measure the effect of this medicine on stress hormones in your body. These questions will last about 6 hours on the first day and 8 hours on the second day. You will be video and audiotaped during a portion of this process. The person interviewing you will type your answers into a computer. We will also ask that you participate in a measurement of anxiety called the acoustic startle reflex.

Description of blood draw: After your arrival for each of the full-day sessions, we will draw several ounces of blood into vials. This will be done by a nurse from the Grady Clinical Research Center. This is a standard medical procedure. It will be performed in standard fashion while you sit in a comfortable chair.

Description of dexamethasone suppression test: At the end of the first full day of testing, you will receive a pill of a medication called dexamethasone (0.5mg). You will be instructed to take this pill at 11pm that evening. With your permission, someone from our study will call to remind you to take the medication at 11:00pm. The following morning, you will return to the clinical research center at Grady before 8:00am, where we will draw blood the same as on the first day. The levels of certain hormones (cortisol and adrenocorticotrophic hormone) will be different from day 1 to day 2 when you take this medicine, and this will tell us about how your body's hormone system responsds to stress.

Description of interviews: During the interview sessions, we will ask you questions related to your current life, your life history, and your family history. We will also ask about any trauma you have experienced. We will ask you questions about symptoms related to trauma such as depression, anxiety, and substance use. At times if you find the questions upsetting to you, you are free not to answer. You may also take a break from the interview or stop the interview at any time.

Description of the acoustic startle measurement procedure: People with PTSD may have an increased reaction to sudden noises or lights. We will play sudden tones, lights or pictures, and blasts of air. We will measure your reaction by recording your eyeblink. We will do this by washing your cheek below your eye and behind your ear. A sticky tape will be used to attach three small electrodes (tiny metal discs with wires attached to them) to your face: two below your eye and one behind your ear. You will listen to some clicks and tones for about 30 minutes, either straight through or in two 15 minute sections with a short break in the middle. The sounds will be presented through earphones. We expect that some of the sounds will startle you a little, and you will blink your eyes. The electrodes allow us to measure your eyeblinks. The startling sounds will be about as loud as a train. They will last a fraction of a second. Between clicks or tones you will hear a background noise that will not be so loud. While you listen, we will ask you to sit quietly with your eyes open. The total time for this startle test session will be about 45-60 minutes.

Risks: Psychological tests and interviews sometimes can bring up painful emotions. These emotions may include sadness, worry, or increased anxiety. If you have trauma-related stress symptoms, you may have an increase in nightmares or flashbacks related to your traumatic experiences. You are free not to answer any questions you wish. You may stop participating in the study at any time. This will not in any way affect your future care. There is no risk or discomfort expected in the collection of the spit sample. Having blood drawn is sometimes slightly painful. It can sometimes result in bruising. No significant side effects have been observed in response to one-time administration of dexamethasone (Decadron®, Merck), while this drug induces a range of side effects with prolonged administration. Decadron can cause anaphylactic shock in allergic patients. You will be carefully prescreened for allergies, pregnancy, or other medical problems that this medicine might affect before being given this

medicine. During the startle measurement, scrubbing your skin with cleanser or application of skin tape may cause skin irritation. The noise level you will hear during the startle test session is about what you hear on a train. For most people, this sound level is not uncomfortable. If the sounds cause you discomfort, you can stop the test session at any time. Withdrawal from the study will not affect your future care. There also may be unknown risks, discomforts or side effects.

Benefits: Taking part in this research study may not benefit you personally. Doctors and scientists may benefit by learning new information about people's reaction to trauma.

Alternatives: This is not a therapeutic study and the only option is to not participate. If you feel that you need treatment, the interviewer can provide you with referral information.

Confidentiality: The people who are conducting the study (the "Researchers") may need to look at your study record. In addition, government agencies that make rules and policies about how research is done. The Office for Human Research Protections (OHRP) has the right to review these records. Sponsors who pay for the study also have the right to review records. The Emory and Grady offices include the Emory Medical Care Foundation, the Emory University Institutional Review Board (IRB) and the Grady Research Oversight Committee. In addition, records may be disclosed by court order.

We will not use or disclose your records in any ways other than the ways we describe in this form. We will keep your records private to the extent allowed by law. We will do this even if outside review of your records occurs. We will use a study number or other code rather than your name on study records where we can. Your name and other facts that might point to you will not appear when we present this study or publish its results.

Information regarding a suspicion of child or elder abuse or neglect will be reported to the Department of Family and Children's Services. If you tell us that you are going to hurt yourself or anyone else we may have to violate confidentiality to maintain safety of you or someone else.

Use of your DNA and your research information: As part of your participation in this research, you will be donating a spit and blood sample for DNA extraction. You will also give the research team information about yourself. We likely will not find anything important to you or your family with this study. We are not studying one specific gene. We do not fully understand the relationship between genes and many diseases. Because these tests are not performed in a certified clinical lab, by law, we cannot give you the results of the DNA test.

Your DNA sample will be kept in the research laboratory of Dr. Kerry Ressler, of the Emory University School of Medicine Department of Psychiatry. Your information will be stored in records for which Dr. Ressler is responsible. Dr. Ressler and the scientists in his lab will keep your DNA for as long as possible. They may perform many genetic tests on the sample. Which tests to perform, and which genes to test, will be determined by Dr. Ressler and the other scientists he works with. This is done in an effort to get as much scientific information as possible from this research project. Many different genes will be tested. Dr. Ressler may share some of your DNA, together with information you provide about yourself, with scientists from other Emory laboratories, or with scientists from other places. If such sharing occurs, your DNA and research information will be labeled only by a code number containing no personally identifying information. Your identity will not be shared with any other laboratory.

You will continue to be the owner of the samples. You always have the right to have the sample material destroyed at any time by contacting Dr. Bradley or Dr. Ressler. The Emory Investigators will be the exclusive owners of any data, discoveries or derivative materials from the sample material. They will be responsible for the destruction of the sample at your request.

No information about your genes or your DNA will be recorded in your medical record. All genetic testing performed in this study will be for research purposes. At present, there is no plan to do any testing of your genes that would be of definite medical value to you. For this reason, the research team will not share information about your genes with you, or with your doctors or other healthcare providers, even if you ask us to do so. If you are interested in genetic testing for health reasons, Dr. Ressler is happy to discuss your concerns and questions with you. He would then refer you to another professional, who is certified in medical genetics, if you decide you wish to look into medical genetic testing.

Compensation: You will be reimbursed $15 for your time during the brief interview at the medical clinic and $40 for your time during the 3 hour interview at Feeback Hall. You will be reimbursed $80 and receive lunch for your time, travel and inconvenience for each of the two full days of assessments at the Grady Clinical Research Center.

Emory Disclaimer: We will arrange for emergency care if you are injured by this research. However, Emory University and Grady Healthcare System have not set aside funds to compensate you if mishap occurs. If you believe you have been somehow injured by this interview, you should contact Dr. Rebekah Bradley at 404 727-7440.

Costs: There will be no cost to you for participation in this study.

Contact Persons:

If you have any questions about this study call Dr. Rebekah Bradley or Dr. Kerry Ressler. Also call Dr. Rebekah Bradley if you have been harmed from being in this study. Call Dr. James W. Keller, Chair of the Emory University Institutional Review Board, if you have any questions about your rights as a participant in this research study.

If you are a patient receiving care from the Grady Health System, and you have a question about your rights, you may contact Dr. Curtis Lewis, Senior Vice President for Medical Affairs.

James W. Keller, M.D. (404) 712-0720
Rebekah Bradley, PhD(404) 727-7440
Kerry Ressler, MD,PhD (404) 727-7739
Curtis Lewis, MD (404) 616-4261

New Findings: We may learn new things during the study that you may need to know. We can also learn about things that might make you want to stop participating in the study. If so, you will be notified about any new information.

Voluntary Participation / Withdrawal:

Your participation is completely voluntary. You have the right to refuse to be in this study. You can stop at anytime after giving your consent. This decision will not affect in any way your current or future medical care or any other benefits to which you are otherwise entitled.

The study doctor, investigator or sponsor may stop you from taking part in this study at any time if they decide it is in your best interest. They also may stop you if you do not follow study instructions.

Copy of Form:

We will give you a copy of this consent form to keep.

If you are willing to volunteer for this research, please sign below.

_____	_____	
Participant	**Date**	**Time**
_____	_____	
Person Obtaining Consent	**Date**	**Time**

Version Date: 8/28/2006