Trauma and Externalizing Disorders in a Nationally Representative Sample of Adolescents

Kelly I. Ristau

A Dissertation Submitted to the Faculty of

The Chicago School of Professional Psychology

In Partial Fulfillment of the Requirements

For the Degree of Doctor of Psychology

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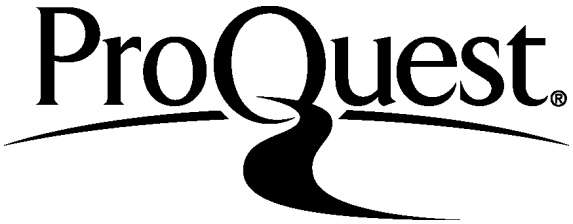

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Dedication

For Chase.

You taught me my most valuable lessons in compassion and healing, and I am better for it.

Abstract

Exposure to trauma is an insidious problem that affects the health and well-being of adolescents. Though there are several major factors known to impact the subsequent behavior of adolescents who have been exposed to trauma, there have been limited studies that examine how different forms of trauma can affect adolescents in a compounded manner, and even less research done to examine the relationship between multiple instances of victimization (including poly-victimization) and subsequent externalizing behavior disorders in adolescents. Furthermore, the impact that gender and race/ethnicity has on the prevalence of lifetime diagnoses of externalizing behavior disorders when multiple instances of victimization (and in some cases, poly-victimization) is controlled for is limited in its research base. It was hypothesized by this author that trauma exposure was positively correlated with lifetime diagnoses of externalizing disorders. It was also hypothesized that gender and race would not be significant predictors of diagnoses when controlling for trauma, gender, and race/ethnicity. Using a national dataset of adolescents (N=10,148) from the National Comorbidity Survey-Adolescent Supplement (NCS-A), adolescents' exposure to different forms of trauma and their lifetime diagnosis of various externalizing behavior disorders was examined using a point biserial correlation analysis. A forward logistic regression was conducted to assess trauma exposure frequency as a predictor of externalizing behaviors. Results suggest that there is a positive correlation between trauma frequency and lifetime diagnoses of several externalizing behavior disorders. Trauma frequency was also a significant predictor of lifetime diagnoses of all the examined externalizing behavior disorders. The predictive value of gender and race/ethnicity varied by disorder. Gender was significant for all disorders except oppositional defiant disorder. Race/ethnicity was significant for all disorders except oppositional defiant disorder and intermittent explosive disorder.

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Chapter 1: Nature of the Study

Background

It has been said that "experiencing trauma is an essential part of being human; history is written in blood," (van der Kolk & McFarlane, 1996, p. 3). Formerly looked upon as an unfortunate neurotic aftermath of unwanted events, trauma-induced disorders have become much more recognized and acknowledged in modern psychology. The clinical emphasis no longer rests upon the assumption that one is irrational or defective if, after their traumatic exposure, their presentation consists of seemingly unrelated neurotic symptoms and behaviors (van der Kolk & McFarlane, 1996, p.4). Clinicians now see this potential aftermath as part of what happens when a person is unable to fully make sense of an overwhelming experience and cannot cope with how it is impacting them (van der Kolk & McFarlane, 1996, p. 4). How a person is able to process experienced trauma is a critical element in how it will impact them. The level to which a person believes they are or were helpless, as well as the level of threat they believed they experienced at the time are thought to be pivotal in assessing potential for psychological distress after exposure to the traumatic event (van der Kolk & McFarlane, 1996, p. 4). As such, the meaning of what has happened becomes just as important as the experience they have survived (van der Kolk & McFarlane, 1996). Another critical element of resiliency in the aftermath of trauma is the stage a person is in developmentally, as this and temperament both are thought to be quite influential in how one chooses and utilizes coping mechanisms and defenses (van der Kolk & McFarlane, 1996).

In the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), the American Psychiatric Association (2000) defined a traumatic stressor as:

> involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate (p. 463).

Unfortunately, various research indicates adolescent exposure to traumatic stress is fairly common, and a noteworthy portion of exposed individuals go on to display symptoms in some fashion (Ford, 2012). In terms of exposure, research estimates that 25%-43% of children in the United States are exposed to at least one traumatic stressor by the time they are adolescents (Costello, Erklani, Fairbank & Angold, 2003; Ford, 2012; Silverman et al. 1996). Exposure to traumatic stress and events has been found by Mongillo and colleagues (2009) to affect as many as 1 in 5 three-year-olds in the form of exposure to family violence. Studies on adolescents have suggested that up to 75% of adolescents have experienced at least one traumatic stressor in their life (Ford, 2012; Seedat et al., 2004).

From a forensic perspective, exposure to trauma can have devastating correlations. Ford (2012) noted that more than 75% of adolescents within the United States' juvenile justice systems (facilities and departments, such as probation) have been exposed to repeated traumatic stressors and experiences. These include physical and/or sexual abuse, neglect, family and community violence, near-death experiences, gun violence, accidents, disasters, and interpersonal traumatic loss. Research has shown that the level of trauma-related disorders found among adolescents involved in juvenile justice systems was anywhere from three to ten times higher than the rates found among common community samples who are not involved in legal systems (Ford, 2012). Compounding this issue, justice-involved adolescents with trauma-related

disorders also appear to be at a higher risk for other problems, including depression, suicidality, oppositional defiant disorder, conduct disorder, risk-taking, and substance abuse (Ford, 2012, p. 485). Victimization has been found in research to put adolescents at risk for delinquent behavior, as well as be associated with more severe forms of delinquency (Dembo et al., 1989, 2000; Ford, 2012; Nofziger & Kurtz, 2005).

Purpose of the Study

Both trauma and externalizing disorders have profound effects adolescents in the United States. Effective treatment requires an understanding of the effect that exposure to traumatic events has on the mental health and behavior of adolescents, and how it relates to externalizing behaviors. Psychiatric illness among adolescents has been a focal point in the study of adolescent psychopathology for some time and there is some controversy over the empirical support involved in the diagnostic features of several behaviorally-based disorders (Mallett, 2006). The exploration of how these behaviors manifest may promote a more thorough, comprehensive understanding of how to treat them.

As it relates to assessment and treatment, research has shown that proactive aggression from adolescents is correlated with more positive outcome expectations for aggression in treatment. “Callous and unemotional” traits, as found in the DSM-IV-TR (American Psychiatric Association [APA], 2000), are considered to be a more negative factor in assessing prognosis for treatment or rehabilitation in adolescents (Connor, 2002; Ford, 2012; Frick et al., 2003; Pardini et al, 2004; White et al., 2009). This is important to consider in terms of traumatized adolescents, as trauma symptoms and disorders may include flashbacks, emotional numbing, and hyperarousal (potentially in the form of extreme anger) (Ford, 2012, pp. 492-493). These

symptoms may manifest in adolescents and externalizing behavior or violence may appear to be premeditated, callous, and unemotional in their nature (Ford, 2012, p. 493). It is also important to consider that maltreated and traumatized adolescents are more likely to display reactive aggression rather than proactive aggression. In fact, defensive hypervigilance seen in trauma symptoms and disorders is often challenging to distinguish from the proactive aggression more often associated with pathological attempts to harm other people (Ford, 2012). An ability to understand the effect that traumatic exposure (and its subsequent areas of impact) has on behaviors in adolescents diagnosed with externalizing disorders is imperative for proper treatment and rehabilitation. In a forensic context, understanding correlates of adolescents' behavior is paramount. Researchers have estimated that between 75% and 90% of adolescents in US juvenile detention facilities have been exposed to at least one of the following: threatened with a weapon (58%), traumatic loss (48%), or physical assault (35%) (Abram et al., 2004; Ford et al., 2008; Ford, 2012). Females from juvenile detention samples most frequently reported sexual abuse, where 55% to 70% endorsed such a history; physical assault (46%), physical abuse (33%), traumatic loss (30%) and kidnapping (30%) were also reported (Ariga et al., 2008; Ford, 2012).

Few studies, if any, have analyzed the frequency of different forms of traumatic experiences in an adolescent's life, and its relationship with the prevalence of lifetime diagnoses of externalizing disorders on a national scale. Many studies have been conducted examining the connection between traumas and externalizing disorders, or trauma and subsequent posttraumatic stress disorder, however they have primarily focused on regional or local populations or focused on specific clinical populations (Betancourt, McBain, & Brennan, 2014; Haller & Chassin, 2012; Kim, Conger, Elder & Lorenz, 2003; Mccabe et al., 2005; Silva et al., 2000; Wolfe et al., 2003).

Additionally, other national studies have looked at frequency of trauma and type of trauma, and compared them to measured behaviors using various assessment tools, but have not examined correlated diagnosed externalizing disorders in full (Greeson et al., 2011, 2014; Wolf, 2013). Thus, the importance and pointed nature of the present study is highlighted in its unique quality of examining this relationship on a national scale in the United States, using an ethnically diverse and gender-balanced community sample.

For the current study, externalizing disorders are defined as disorders that display a prominence of externalizing symptoms such as aggression, violence, rule-breaking, inability to modulate anger or rage, defiance, antisocial characteristics, substance use, and maladaptive social interaction. These disorders are inclusive of Conduct Disorder (CD), Oppositional-Defiant Disorder (ODD), Intermittent Explosive Disorder (IED), and Substance Use Disorders (SUDs). Exposure to trauma or trauma exposure are defined by and include the following elements: Living in a place where there was ongoing terror; living as a refugee; exposure to poisonous chemicals or substances that could cause serious harm; involvement in a serious or life-threatening accident(s); other, indirect, involvement in serious or life-threatening accidents; involvement in a major disaster (i.e., flood, hurricane, fire, bomb explosion, tornado, or earthquake); having a very serious or life-threatening illness; being beaten by parents or guardians**;** being beaten up by dating partner or romantic acquaintance; being mugged, held up, or threatened with a weapon; being raped (defined as someone having sexual intercourse with a person or penetrating their body with a finger or object when they did not want them to, either by threatening them or using force); being sexually assaulted or molested in a way that does not qualify as rape; being stalked (defined as someone following a person or keeping track of their activities in a way that made the person feel as though they were in serious danger); losing

someone close unexpectedly (i.e., murder, suicide, fatal sudden heart attack or other health issue); anyone close to a person ever having a very stressful or life-threatening experience (i.e., kidnapping, torture, rape); witnessing physical fights at home (i.e., violence between parents, etc.); witnessing serious injury to another, death of another, or unexpectedly seeing a dead body (Kessler, 2011; Kessler et al., 2009a; Kessler et al., 2009b).

Chapter 2: Literature Review

Trauma and Adolescents

Rates & Prevalence of Adolescent Trauma

The prevalence of exposure to trauma in the United States is staggering. Craig and Sprang (2007) estimated that up to four million adolescents in the United States have experienced at least one traumatic event (Adams, 2010). National surveys of adolescents within the United States have yielded results that suggest between 14-34% of children have experienced at least one traumatic event in their lifetimes, and that children are two times as likely to be victimized by serious violent crime and three times more likely to be victims of simple assault, when compared to adults (Adams, 2010; Costello et al., 2003; Felitti et al., 1998). Rather than experiencing the violence themselves, research has shown that merely witnessing violence is reported by 35-46% of adolescents in samples taken from across the United States (Kilpatrick et al., 2003).

Statistics were far more staggering when considering the trauma exposure of adolescents within various foster care systems in the United States. Greeson et al. (2011) examined the trauma histories of over 2,000 adolescents involved in the foster care system and found that 70% of adolescents endorsed at least two incidences of trauma from the following categories: physical abuse, sexual abuse, emotional abuse, neglect, and domestic violence. Researchers found that 11.7% of adolescents sampled endorsed experiencing traumatic instances from all five categories (Greeson et al., 2011).

The 2012 report from the U.S. Department of Health & Human Services (USDHHS) is comprised of data gathered from the National Child Abuse and Neglect Data Systems (NCANDS), which encompasses all 50 states and the District of Columbia (USDHHS, 2012). The data is composed of cases involving children who have been involved in Child Protection

Agency (CPA) reports that led to actual investigations by an agency. In 2012 alone, U.S. CPA's received nearly 3.4 million referrals and these calls involved approximately 6.3 million children under the age of 18 (USDHHS, 2012). Of these referrals, 62% led to a formal investigation of allegations involving maltreatment, and in 2012, approximately 2.1 million reports of child maltreatment were investigated and received a court disposition in a court setting in the United States (USDHHS, 2012).

USDHHS 2012 statistics suggest that, in 2012, there were 9.2 victims of child maltreatment for every 1000 children in the United States. Victim demographics showed that children under the age of 1 had the largest rate of maltreatment, where 21.9 children per 1000 of the same age were effected in the national population (USDHHS, 2012). Gender was nearly equally split, where victims were 48.7% male and 50.9% female. The majority of victims were identified as being White (44%), Hispanic/Latino (21.8%), and African-American (21%). In 2012, the most common types of maltreatment were: various forms of neglect (78.3%), physical abuse (18.3%), and sexual abuse (9.3%) (USDHHS, 2012).

In addition to maltreatment experienced by children and adolescents at the hands of their caretakers, witnessing violence between parents also appears to be rather common in the United States. Researchers have estimated that anywhere between 10%-20% adolescents in the United States have witnessed parental violence on frequent occasions (Henning et al., 1997; McGee & Williams, 1999).

The 1999 National Incidence Studies of Missing, Abducted, Runaway, and Throwaway Children (NISMART) looked at nonfamily abductions (including stereotypical kidnappings, wherein a adolescents was taken by an unknown suspect), family abductions, runaway/throwaway episodes, missing involuntary, lost, or injured events, as well as missing

children situations that involved benign explanations (Sedlack et al., 2002). Researchers found that approximately 1.3 million adolescents were noted as *caretaker missing* in 1999, suggesting that nearly 18.8 in 1000 adolescents experienced periods of missing from their caretakers. Reported missing situations involved approximately 797,500 adolescents, or nearly 11.4 in 1000 in the same year (Sedlack et al., 2002). Of the adolescents considered to be caretaker missing, 33,000 were non-family abductions, 628,900 were runaway or throwaway situations, 198,300 were missing involuntary/lost/injured, and 340,500 were missing due to benign explanations. Adolescents between the ages of 15-17 comprised the majority of caretaker missing (45%) and reported missing groups (44%). The next most common age range was 12-14 years, with 31% and 30% respectively. It is interesting to note that most of the caretaker missing group of youth became missing due to running away (48%) or because of benign understandings about where the child should be at a given time (28%). Together, these two starkly contrasting reasons accounted for 84% of all children who were reported missing in 1999 (Sedlack et al., 2002).

Role and Impact of Trauma on Adolescents

There are several critical issues raised in literature that focus upon traumatic stress exposure that are both applicable and imperative to understanding the potential link between trauma exposure and subsequent externalizing disorders. Information processing has the potential to be disrupted after exposure to traumatic stress and trauma (van der Kolk & McFarlane, 1996). For example, following traumatic exposure or events a person may experience persistent intrusion of memories related to the initial (or ongoing) trauma. This may interfere with one's ability to attend to new information and stimuli in their immediate surroundings (van der Kolk & McFarlane, 1996). For those with exposure to more than one traumatic experience, these memories can create a "domino effect," where the compounding

nature of exposure can provoke traumatic responses rather than either memory being traumatic by itself (van der Kolk & McFarlane, 1996). Some intrusions may be sensory in nature; such an issue can be problematic for those who have experienced significant trauma, as triggers for these events may be impossible for a person to effectively understand or discriminate against. As a result, ambiguous stimuli can become highly sensitized, unbeknownst to the person and anyone around them (van der Kolk & McFarlane, 1996). For example, a raised voice or hand by any adult may trigger memories of abuse in an adolescent with a history of child maltreatment.

Another element to consider is the possibility of compulsive re-exposure to trauma. It is not listed in the DSM-IV-TR's criteria for trauma disorders, however van der Kolk and McFarlane (1996) stated that it is important to understand compulsive re-exposure to trauma. Though it is seemingly paradoxical in nature, understanding such compulsivity often helps to clarify the many forms of social deviance and interpersonal misery that can follow trauma exposure. Unfortunately, the repetition of trauma exposure causes further suffering for victims of trauma, as well as those who are around them (van der Kolk & McFarlane, 1996). Reenactment of trauma may involve harm to others and self-destructiveness, and it is considered by researchers to be a major cause of violence in society (Baer & Maschi, 2003; van der Kolk & McFarlane, 1996). Adolescents who have been traumatized may still reside in environments where those involved in their traumatization may still be present, and if victimization was sexual or physical in nature, there may be little reason to assume that the threat to the adolescent has passed (Briere & Lanktree, 2012, p. 8). Researchers and clinicians also stress that trauma responses may appear in the form of behavior that threatens the safety of the adolescent, and though they may seem to "be 'acting out,' 'self-destructive,' 'borderline,' or 'conduct-disordered,' these behaviors often represent adaptations to, or effects of, prior victimization"

(Briere & Lanktree, 2012, p. 8; Runtz & Briere, 1986; Singer et al., 1995). Also important for clinical treatment and healing is the possible element of re-victimization. This is found in those with trauma histories, as research has shown that "rape victims are more likely to be raped again, and women who were physically or sexually abused as children are more likely to be abused as adults" (van der Kolk, 1989; in van der Kolk & McFarlane, 1996, p. 11).

Listed as symptoms of PTSD in the DSM-VI-TR, (APA, 2000) as well as in the more current DSM-5 (APA, 2012), avoidance and numbing are also critical elements in understanding the aftermath and potential symptomology in those affected by traumatic events, even if full diagnosis of PTSD is not met. Avoidance can manifest in many forms; sometimes persons affected by trauma will physically attempt to avoid various reminders of trauma (i.e., sensory, location, physical, etc.). Other times, one might use illicit substances in an attempt to numb their awareness of overwhelming or stressful emotional states. Numbing is selectively different from avoidance, wherein one may experience a decline and withdrawal in which any type of stimulation (even if positive) provokes further detachment (van der Kolk & McFarlane, 1996, p. 12). In a sense, it almost appears that those affected by numbing favor feeling nothing at all rather than risk feeling anything negative (van der Kolk & McFarlane, 1996). Others may use dissociation in an attempt to further themselves from a conscious understanding or awareness of negative memories or experiences (van der Kolk & McFarlane, 1996, p. 12). Furthermore, the chronic hyperarousal associated with trauma disorder symptoms and exposure has the capacity to exhaust the biological and psychological resources needed in order for a person to experience a complete range of human emotion (van der Kolk & McFarlane, 1996, p. 12). This can often result in a person unable to respond to stimuli that is not evocative of prior traumatic experience,

thus making them less involved in their immediate surroundings (van der Kolk & McFarlane, 1996).

Another largely misunderstood symptom sometimes seen in survivors of traumatic experiences involves one's inability to modulate their level of reactivity and arousal, both emotional and physiological. Their bodies may physically respond to their surrounding environment as though there was an active threat occurring, despite the presence of "safe" surroundings (van der Kolk & McFarlane, 1996; van der Kolk & Saporta, 1991). This is what can lead to physiological symptomology that manifests in heightened startle response, general hypervigilance, and restlessness. Furthermore, those with traumatic stress symptoms may respond to stimuli in such a quick manner that they do not always realize the precise reason for their psychological distress (van der Kolk & McFarlane, 1996; van der Kolk & Saporta, 1991). Some people may experience powerful emotional responses to seemingly innocuous stimuli or triggers to the extent that they effectively shut down or grossly overreact. Van der Kolk and McFarlane (1996) noted that this may end up further perpetuating any distortion in the affected person's abilities to process information and channel their focus solely on the potential sources of challenge or threat. For those who experience such symptoms, even if only in a singular sense, it is thought that the most adverse part of the hyperarousal is the generalization that accompanies it. Research suggests that when a person is consistently aroused and prone to reactive responses, they can no longer rely on their natural bodily sensations (i.e. adrenaline rushes, increased heartbeat, increased sensory experiences, etc.) that might otherwise alert them to and protect them against actual threats (van der Kolk & McFarlane, 1996). Normal physical responses become associated with threats, and one's natural physical functions may become a salient source of fear or alarm (van der Kolk & McFarlane, 1996; van der Kolk & Saporta, 1991).

Often times, reactions to traumatic stressors are complicated and compounded by developmental and situational elements. Complex trauma, or complex traumatic stress, is considered to be a subset of the dangerous and harmful stress-invoking traumatic events that may lead to PTSD symptoms. According to researchers, complex trauma "usually involves a combination of early and late-onset, sometimes highly invasive traumatic events, usually of an ongoing, interpersonal nature, frequently including exposure to repetitive childhood sexual, physical, and/or psychological abuse" (Briere & Lanktree, 2012; Briere & Scott, 2006; Cook et al., 2005). In these types of situations, people not only suffer traumatic shock of the event itself, but also suffer a severe disruption in the development of their core abilities to self-regulate emotions and their ability to form healthy attachment bonds (Cook et al., 2006; Ford 2005; Ford, 2012).

Like other traumatic stressors, complex trauma may include physical or sexual assault or abuse, neglect, family and community violence, and bullying. It may also include exposure to war, captivity or kidnapping, genocide, terrorism, torture, and forced displacement from one's home or community (Finkelhor et al., 2009; Ford, 2012; Joshi & O'Donnell, 2003; Porter & Haslam, 2005). Furthermore, complex trauma may also be a cumulative experience, involving many incidents or exposure to numerous traumatic situations (Ford, 2012).

The complexity of the trauma is further associated with increasingly severe and chronic symptomatic problems and impairment, which manifest in several core self-regulatory competences (Anda et al., 2006; Briere et al., 2008; Cloitre et al., 2009; Ford, 2005, 2012). These competences include: learning and attention; sensorimotor functions; short-term processing memory, verbal memory, and autobiographical memory; and emotional regulation and social attachment. Complex trauma exposure has been associated with changes in one's abilities related

to cognitive information processing, schemas, and expectations of their immediate environments. Often times, such changes lead adolescents to misinterpret their environments, and in turn become more likely to exhibit aggression, become more vulnerable to victimization, and/or experience higher levels of self-criticism and shame than those without histories of complex trauma exposure (Allessandri & Lewis, 1996; Bradshaw & Garbarino, 2004; Dodge et al., 1995; Ford, 2012; Glassman et al., 2007; Ponce et al., 2004; Sachs-Ericsson et al., 2006).

Understanding the complicated but highly natural chaos of the developing adolescent psyche is thought to be critical in fully grasping the impact that trauma can cause within an adolescent's life. Becker and colleagues (2003) noted that adolescence poses its own developmental tasks which include managing bodily changes during puberty, exerting control over increasing sexual and aggressive impulses, developing personal autonomy apart from their family of origin, and developing supportive and authentic connections with peers and adults outside of their family of origin (Becker et al, 2003). Other tasks faced by adolescents include growth and capacity for intimacy with a romantic partner, establishing viable personal values that assist them in their growth, and developing and securing a clear identity for themselves. Identity is also influenced by gender, vocational, cultural, and ethnic roles placed upon them internally or externally. Furthermore, adolescent development is engrossed in attaining a sense of competency and diligence within academic and early vocational settings and learning to plan sensibly for economic self-reliance (Becker et al, 2003). The aforementioned areas are noted by researchers to be ripe for typical human development, however these areas are quite vulnerable to traumatic injury and impact. For example, Becker and colleagues (2003) noted that overwhelming physical danger that is seen, experienced, or learned of can undermine adolescents' innate notions of immortality, and interfere with an adolescent's comfort and

confidence in developing autonomy and independence from the protection and care of their parents or guardians.

Sexual or violent trauma also has the capacity to overstimulate an adolescent's aggression or potentially render sexual arousal or assertiveness as dangerous or alarming (Becker et al, 2003). Common feelings that follow trauma including mistrust, guilt, shame, and anxiety have the potential to negatively impact interpersonal relationships with peers, and extend difficulties into educational or vocational arenas (Becker et al, 2003). Moreover, exposure to trauma during this period of development has the power to strongly corrode an adolescent's sense of identity (Becker et al, 2003).

Adolescents who have experienced early trauma in childhood may be at risk to re-experience old traumas (Becker et al, 2003). As youth grow and develop different ways of thinking, their ideas and conclusions regarding prior experiences may change, potentially leading to new and painful revelations about years-old experiences (Becker et al, 2003). Enhanced cognitive and emotional development, in comparison to their younger peers, are present, and can pose both negative and positive effects; reorganization of one's understanding of their trauma can shift a youth's perspective and sense of meaning (Becker et al, 2003). In North American societies in particular, early adolescence is recognized by researchers to be notably demanding due to the biological changes that are coupled with educational transitions and increases in responsibility and freedom, despite oftentimes limited social support or understanding (Becker et al, 2003).

Adolescents are innately more likely to engage in higher levels of risk-taking behaviors than other age groups, however this tendency is increased when prior abuse has been experienced (Becker et al, 2003). Relatedly, loss of peers to violent death may have a more

negative impact than it would in other stages of life which researchers believe is potentially due to the more intense connections that are forged among peers during adolescence (Becker et al, 2003). Ultimately, Becker and colleagues (2003) argued that "traumatic experience colors the way in which adolescents work on the developmental task of coming to terms with an imperfect world" (p. 168). According to Brent and colleagues (1992; 1996), most adolescents who have experienced a range of trauma do *not* go on to develop PTSD. However, such trauma-exposed adolescents can develop a range of other symptoms that can cause substantial impairment in typical functioning. Per the DSM-IV-TR (APA, 2000; Becker et al, 2003), avoidance, re-experiencing, arousal, trauma-specific fears, and belligerence are common in such populations.

Adolescent Externalizing Disorders

Externalizing problems in adolescents are described by Wicks-Nelson and Israel (2009) as problems that have a tendency to cause young people interpersonal strife and place them in conflict with those around them. Behaviors synonymous to such externalizing issues have been dubbed as uncontrolled, impulsive, disruptive, antisocial, oppositional, conduct-disordered, and delinquent (Wicks-Nelson & Israel, 2009). Many young people with problems that involve aggression, oppositional behaviors, and other more serious conduct issues have high rates of referrals for social, mental health, academic, and legal services (Wicks-Nelson & Israel, 2009). Even more concerning, much of the adolescents affected are thought to have contributed to wide-reaching communal concerns for crime levels and rates of violence in many areas (Wicks-Nelson & Israel, 2009). Externalizing symptoms, to some extent, have been described by researchers as being relatively common during the different stages of child and adolescent development (Wicks-Nelson & Israel, 2009). Behaviors in school, at home, and with peers may be problematic and commonly are brought to the attention of parents, medical staff, clinicians, and school personnel. As such, these behaviors tend to be a strikingly bold areas of concern for those

who come into contact with adolescents on a regular basis (Wicks-Nelson & Israel, 2009). Externalizing disorders, as described by and found in the DSM-IV-TR (APA, 2000) are considered after levels of disruptive behaviors breach an accepted or more common amount, and become viewed as severe and enduring (Wicks-Nelson & Israel, 2009).

Understanding the spectrum of externalizing behaviors is considered by some researchers to be paramount when considering rates and impact of adolescent violence. Researchers suggest that externalizing liability is comprised of behavioral inhibition, commonly looked upon as "acting out behaviors" (Vaughn, Salas-Wright, Delisi, & Maynard, 2013). Along with the more common externalizing behaviors mentioned above, they are also thought to manifest in substance use and abuse, aggression, violence, theft, and property destruction (Vaughn et al., 2013). In fact, various researchers consider the use of substances to be a highly important part of externalizing behavior levels due to their common presences and impact on delinquency and violence in adolescents (Krueger et al., 2002; Vaughn, Freedenthal, Jenson, & Howard, 2007; Vaughn et al., 2013). Externalizing behavior is a diverse category that encompasses behavioral and psychiatric constructs that include poor or low self-control or impulse control, psychopathy, neurodisinhibition, impulsivity, risk seeking behavior, and conduct disorder (Barratt, 1994; Krueger et al., 2002; Krueger, Markon, Patrick, & Iocono, 2005; Tarter et al., 2003; Vaske, Ward, Boisvert, & Wright, 2012; Vaughn, Perron, Beaver, Delisi, & Wexler, 2010; Vaughn & Delisi, 2008; Vaughn et al., 2013).

Much like their adult counterparts, adolescents who display the most antisocial of externalizing behaviors are thought to be small in number but severe in their impact (Vaughn et al., 2013). Using data from the 2010 National Survey on Drug Use and Health [NSDUH] (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011), researchers

compiled data on 18,614 adolescents aged 12-17 from across the United States. Respondents were 51% male, 49% female, 59.6% White, 17.6% Hispanic, and 13.4% African-American. The researchers' performed a latent class analysis to examine levels of externalizing behaviors among adolescents. A normative group emerged, comprised of a large proportion of adolescents reporting comparatively low levels of involvement in measured externalizing behaviors (Vaughn et al., 2013). In the second group, researchers found that tobacco, alcohol, and marijuana use was similar to the identified severe behavior group, though they had relatively low levels of externalizing behaviors (Vaughn et al., 2013). The third group reported high levels of fighting and violence, but was unlike the severe group in all other ways. The fourth group, or severe group, reported high levels of various externalizing behaviors. Although this group was largely male, there was also a significant amount of females in the group (65% male, 35% female). Researchers also reported that racial and ethnic compositions among the severe group were comparable to the normative group. However, regression analyses revealed that males were 76% more likely than females to display severe levels of externalizing behavior and that African-Americans were twice as likely as Whites to be members of the severe group (Vaughn et al., 2013). In comparison to the rest of the sample, researchers ultimately found that approximately 4.7% of surveyed youth were responsible for a particularly large level of severe externalizing behaviors (Vaughn et al., 2013).

Relationship between Trauma and Externalizing Disorders

Essentially, trauma overwhelms an individual's ability to integrate and deal with experience in a way that feels "normal" to them (Putnam, 1985). After this traumatic exposure, if a person cannot integrate this experience into their life, a person may split and either function as if the trauma never occurred at all, or as if it is still presently occurring (Nijenhuis et al, 2004).

Furthermore, research has suggested that extreme or prolonged exposure to traumas (threats, danger or violence) may force a person to act with more primitive forms of moral reasoning abilities, effectively shattering pre-trauma values (Parson, 1994). As previously mentioned, complex trauma symptoms may also have a unique impact on adolescents. The ramifications of this type of traumatic experience goes beyond the scope of "typical" trauma symptomology, and places adolescents at risk for several serious internalizing and externalizing problems. These problems can include fear, depression, somatic complaints, anger, aggression, disruptive behavior disorders and substance abuse which are not only dangerous to the adolescents, but also have serious social, educational, and economic costs for the surrounding community and society (Ford, 2012; Foster and Jones, 2005; Zakireh et al., 2008).

Parson (1994) discussed the cognitive and emotional stress responses that are prominent in adolescents exposed to trauma, and noted that the main mental health concern for adolescents following any traumatic event is a display of intolerance towards any significant level of affective tension. Adolescents may find a range of emotions such as guilt, grief, anxiety, shame, fear, depression, anger, belligerence, or despair to be particularly disturbing or upsetting. Adolescents may also be alarmed and affected by poor impulse control, fear of losing control over their environment, and a large fear of an inability to control their own emotions (Parson, 1994). While these reactions are dependent largely upon the particular level of development an adolescent has reached, their implications may be quite intense nonetheless. Parson (1994) further noted that trauma can have a large impact upon an adolescent's sense of moral behavior. Exposure to prolonged or perpetual danger, threat, and/or violence may discourage more advanced moral reasoning abilities, and encourage a person to regress to more primitive fashions

of expression, wherein absolutist obedience and vendetta mentalities become potentially acceptable and utilized (Parson, 1994).

Roach (2013) described in detail that PTSD symptomology may present in the form of anger, aggression, and callousness and they may have been both victims and perpetrators of violence. Thus, those displaying such qualities desperately need trauma-related therapy to process experiences, however traditional trauma interventions are often inappropriate due to likely ongoing traumas and conditions. Roach (2013) additionally argued that clinicians are often seeing PTSD and trauma symptomology in the form of callous/unemotional traits secondary to continuous trauma exposure.

Roach (2013) further posited that such behavior is observed because survival in areas of continuous danger or perceived danger demand action-oriented adaptation rather than withdrawal, which may prove hazardous or risky. Typical trauma symptomology is replaced in three dimensions, where anger replaces fear, emotions become shallow or muted, and approach towards danger replaces avoidance (Roach, 2013, p. 5). Anxiety is an exhausting state for the body to be in, particularly when experienced by someone with a preoccupation of a threat, and a continuous apprehension of the next danger to be experienced (Roach, 2013). This is accompanied by physical symptoms, such as muscle tension, restlessness, and fatigue (Nitschke, Heller, & Miller, 2000; Roach, 2013). Anxiety in and of itself promotes wide-spread hypervigilance, or constant scanning for threats. It is also protective, as anxiety is an emotion that essentially exists to discourage an organism from hazards. A constant experience of anxiety, however, does not and cannot provide a person with such protection, and taxes a person cognitively, emotionally, and physically for having forced alertness on a constant basis (Rosen & Schulkin, 1998; as cited in Roach, 2013). Those who are unable to retreat from states of high

anxiety, such as those with continued exposure to trauma, escape may come through anger (Roach, 2013). Described as a "blunt instrument," anger can improve conflict resolution in primitive fashions. Studies have shown that the narrowed attentional scope created by observing someone's anger can highlight key elements within information or tasks at hand (De Dreu & Nijstad, 2008; Geddes & Callister, 1997; Glomb & Hullin, 1997; as cited in Roach, 2013). Anger is described as closely related to self-preservation as is anxiety; research has illustrated strong relationships between violence exposure and increased risk for the perpetration of aggression and violence. Such relationships remained after researchers controlled for demographic and contextual factors (Flannery, Singer, van Dulmen, Kretschmer, & Belliston, 2007; as cited in Roach, 2013).

Becker et al. (2003) discussed the implications for adolescents endorsing co-morbid trauma-related psychopathology with other disorders. Moreover, trauma-related psychopathology that is comorbid "with depression, conduct disorder, or substance abuse markedly complicates the treatment of the adolescent" (Becker et al., 2003, p. 169). Researchers noted that adolescents who have been faced with trauma have the capacity to display qualities that suggest excessive autonomic arousal; these include hyperarousal, increasing startle response (i.e. "jumpy" or "touchy"), and hyperactivity and irritability (Becker et al., 2003). Seemingly minor or benign provocations may stimulate overly aggressive responses in trauma-exposed adolescents due to these actions being perceived by adolescents as threats. Either a lethal or near-lethal retaliatory response may be used in the form of physical force or use of weapons. Thus, a pathway from trauma to violence is then paved, often with symptoms that mirror those of several externalizing disorders (Becker et al., 2013; Lewis et al, 1997; Osofsky et al., 1993; Steiner, Garcia & Matthews, 1997).

Further complicating comorbidity issues is the tendency for delinquent or externalizing adolescents to avoid revealing information about prior traumas, out of a fear of being stigmatized or seen as being "crazy" (Becker et al., 2003; Cauffman et al., 1998; Steiner et al., 1997). Trauma may also impact behavior through a possible adverse consequence on the personality of the adolescents affected, wherein one's personality becomes organized around grievance or revenge-seeking (Becker et al., 2003). Researchers noted that this outcome manifests when adolescents hyperextend the externalization of personal responsibility, and begin to justify or blame personal shortcomings or difficulties on having experienced a traumatic situation (Becker et al., 2003). As such, researchers emphasize the need for therapeutic intervention to address replacing the idea of being a victim with the idea of being a developing adolescent.

Various kinds of trauma have been shown by researchers to make separate contributions to changes in adolescents' behaviors, but exposure to and victimization of community violence was exceptionally impactful. McCabe and colleagues (2005) found that exposure to community violence significantly predicted both CD (as measured by the DISC-IV, a structured assessment tool) and externalizing symptoms (measured by the Child Behavior Checklist, or CBCL) which remained even after controlling for demographic factors, CD diagnosis, externalizing problems, and exposure to other forms of violence. Furthermore, community violence predicted later CD diagnoses and externalizing symptoms most accurately, even after controlling for other forms of prior violence.

Fehon and colleagues (2001) examined behavioral and psychological correlates of community violence exposure in adolescents who had been hospitalized in psychiatric institutions and found that over half of the adolescents endorsed having been exposed to multiple incidents of violence within their communities (52%), and in their homes (53%). Approximately

61% of the sample reported an incident of physical assault, and 39% reported being a victim of sexual assault. Additionally, the authors found that there was a much more significant report of PTSD symptoms, violence potential, and drug use in the adolescents who reported witnessing community violence, when compared to the patients who had not witnessed such violence (Fehon, Grilo, & Lipschitz, 2001). Furthermore, it was discovered by researchers that those who had been exposed to community violence were more likely to be victims of child maltreatment, and were also likely to be perpetrators of violence themselves. Similar to what was later found by McCabe and colleagues (2005) in a community sample, researchers in this study concluded that trauma in the form of witnessing community violence may be a very important factor in determining the development of internalizing and externalizing psychopathology in a hospital adolescent sample.

In addition to such exposure being associated with higher levels of peer-nominated aggression, peers of children victimized by violence reported that their victimized peers were more likely to express bullying behaviors and be rejected by their peers than were less victimized children (Attar, Guerra, & Tolan, 1994; Lynch, 2003; Schwartz & Proctor, 2000). This is notable due to peer rejection and bullying behaviors being catalysts for isolation, which has been suggested to further perpetuate externalizing behaviors and characteristics in adolescents (Lynch, 2003). Studies have argued that young people exposed to violence, whether through actual victimization or as a witness to another's victimization, are at an increased risk for developing later problems with aggression, antisocial tendencies, and various other externalizing behavior traits (Gordis, Margolin, & John, 2001; Schwab-Stone et al., 1999; Wicks-Nelson & Israel, 2009). Strong evidence may lay within statistics found among adolescents detained in the juvenile justice system, where Preski & Shelton (2001; in Lynch, 2003, p. 270) found that

adolescents with a history of exposure to community violence were nearly four times as likely to have committed serious criminal acts or behaviors.

Adolescents with PTSD diagnoses are also at risk for several comorbid disorders (Ford, 2012), including the externalized behavior disorders and substance use often seen in traumatized adolescents without a PTSD diagnosis. PTSD symptoms, with or without full diagnosis, are also associated with heightened problems with oppositionality and impulsivity among children and adolescents with psychological impairments (Ford et al., 2009; Ford, 2012). These findings in adolescents with PTSD have been consistent across community, clinical, and juvenile justice samples alike (Ford, 2012; Moore, 2009; Morgan et al., 2006; Schoeman et al., 2009; Sequiera & Hollins, 2003). Numerous studies have noted that adolescents with complex trauma histories often develop externalizing problems, many of which are rooted in hostility, oppositionality, and impulsivity. These problems are not limited to childhood, and are also seen throughout adolescence and adulthood. There has been much research that has also noted strong correlations between complex trauma histories and diagnoses of externalizing disorders, substance use disorders, as well as preteen substance use and incarceration (Brodsky et al., 2001; Corstorphine et al., 2007; Cuomo et al., 2008; Farrington and Loeber, 2000; Ford, 2012; Ford et al., 1999, 2008, 2009a, 2010a, 2010c; Kausch et al., 2006; Kilpatrick et al., 2000; Kilpatrick et al, 2003; Mongillo et al., 2009; Ruchkin et al., 2007; Turner et al., 2006; Roy 2005; Zanarini et al., 2002).

Furthermore, researchers caution that while diagnoses of CD, ODD, and IED may be well supported by behavior shown in adolescents, such adolescents have consistently shown to be particularly impacted by serious emotional and behavioral issues (Ford, 2012; Ford et al., 2009; 2010). Rogers (1994) investigated the occurrence of PTSD and CD in detained delinquent male adolescents in an attempt to gage the impact had on both internalizing and externalizing

behaviors. Rogers found that not only did the majority of adolescents surveyed have a history of multiple traumas, but that the levels of traumatization experienced by the adolescents was positively correlated with the presence and intensity of PTSD (1994). The intensity of the traumatic experience and the severity of the PTSD experienced by adolescents were both positively correlated with internalizing and externalizing behaviors per the Adolescents Self-Report (YSR) measure. Rogers also found that the likelihood of PTSD was most accurately predicted by the number of traumatic events experienced by the adolescents, as well as the internalization done afterwards. Furthermore, PTSD severity was correlated positively with the adolescents' exhibition of self-destruction, and their CD severity (Rogers, 1994). According to Rogers (1994), adolescents who had comorbid CD and PTSD displayed a significantly higher amount of internalizing and self-destructive symptoms than did adolescents who were diagnosed with CD alone and she concluded that understanding how traumatic exposure and subsequent posttraumatic disorders and symptoms compounds CD behaviors is crucial for proper understanding and treatment of adolescents.

Reebye and colleagues (2000) inversely found that PTSD occurred later in adolescents diagnosed with CD. The study showed that when PTSD develops in those with CD, it tends to happen approximately two years after the onset of CD. Reebye and colleagues (2000) posited that this may be due to CD providing more exposure to potentially traumatic situations, while at the same time decreasing their ability to cope with the events they are exposed to (2000). Reebye and colleagues (2000) concluded that when CD is a primary diagnosis in adolescents, it is strongly advised that clinicians routinely explore the impact of trauma and assess for potential PTSD or trauma-related disorders, particularly in female populations.

Along with exposure to violence in one's community and amongst peers, victimization in the home has significant implications in trauma and externalizing disorder symptomology. Adolescent physical abuse, when compared to child physical abuse, is associated with suburban communities and dysfunctional family patterns across all incomes, and seen more among female adolescents (American Medical Association Council on Scientific Affairs, 1993; Berdie et al., 1983; Garbarino et al., 1986; Pelcovitz, 1984; as cited in in Kaplan et al., 1998). Kaplan and colleagues (1998) compared 99 suburban, Caucasian adolescents with histories of adolescent physical abuse to 99 Caucasian adolescents without histories of adolescent physical abuse from the same communities to assess the impact that abuse had on later adolescent diagnoses and disorders (Kaplan et al., 1998). Abuse was identified by New York State Social Service Agencies as being documented incidents of physical assault/injury that included excessive corporal punishment, bruises, welts, fractures, internal injuries, and/or burns. Those with histories of sexual abuse were not included in the survey (Kaplan et al., 1998). Researchers ultimately found that even when other important risk factors for psychological disorders were controlled for (i.e. perception of parental caring, gender, number of biological parents, parents' psychiatric disorders, age, etc.), being physically abused during adolescence added significantly to the risk of developing a lifetime diagnosis of depression, conduct disorder, drug abuse, and cigarette smoking (Kaplan et el., 1998). In fact, results indicated that conduct disorder was found to occur nine times more frequently in all adolescents surveyed (both male and female) with histories of adolescent physical abuse than in those without histories of abuse. Researchers also found that adolescents of both genders with abuse histories were 19 times more likely to abuse drugs in comparison to their non-abused peers.

The impact of exposure to trauma is not limited to expressions of later aggression, and can manifest in substance abuse and dependence. Researchers have posited that emotional distress experienced after violence exposure or victimization may contribute to the desire to act in ways that reduce negative emotions, and that substance use may represent a strategy to cope with the stress encountered following violent trauma (Kilpatrick, Acierno, Resnick, Saunders & Best, 1997; Lynch, 2003). Becker and colleagues (2003) have noted that associations between adolescent substance abuse and history of sexual and physical abuse has been well established in prior research. In fact, large-scale surveys have shown that alcohol abuse and other substance abuse is high among adolescents who have been maltreated (Becker et al., 2003; Bensley et al., 1999; Grilo et al., 1999; Kilpatrick et al., 2000). Research has indicated that even after controlling for pre-assault substance usage levels, adolescents who have been assaulted or witnessed violence display a higher likelihood of abusing substances (Lynch, 2003, p. 268). Community violence in particular has been linked to increased alcohol consumption among urban adolescents in grades sixth through tenth, as well as increased alcohol use among psychological inpatients aged 12-18 (Fehon, Grilo, & Lipshitz, 2001; Lynch, 2003; Schwab-Stone et al., 1995).

Further complicating trauma exposure, Tarter (2002) noted that research has suggested that inadequate, weak, or insecure bonding between a parent and a child (due to neglect or other circumstances) can may amplify the risk for a plethora of childhood and adolescent behavioral problems. These consist largely of externalizing behaviors that alone are problematic, however also may contribute to substance abuse. In fact, children who are subjected to abuse and harm are thought by researchers to be more likely than their non-abused peers to develop substance abuse disorders (Tarter, 2002). Studies have noted that prefrontal cortex development is a key issue in

understanding adolescent self-regulation; research has suggested that this brain region is not fully formed or fully functional until mid- to late-adolescence. Furthermore, the levels of key neurotransmitters involved in regulating brain activity related to excitement and inhibition transform sharply in the prefrontal cortex during adolescence (Tarter, 2002; Spear, 2000). Tarter (2002) concluded that low psychological self-regulation, when combined with enabling surroundings, leads to substance use at a young age, and rapid acceleration into potentially habitual consumption.

An element of traumatization, and how it affects adolescents, that is of note is poly-victimization. In 2007, Finkelhor, Ormrod and Turner sought to assess the role of multiple victimization in trauma symptomology using a nationally representative sample of 2,030 adolescents ages 2-17. Researchers assessed trauma experienced within the past year, as well as subsequent recent trauma symptoms. Finkelhor et al. (2007) identified adolescents who experienced four or more kinds of traumatic incidents as "poly-victims" and found that such adolescents comprised nearly 22% of their sample. Furthermore, such victims were found to make up a substantial part of any group of children identified through screens indicated for an individual form of trauma (i.e., bullying victims or sexual assault). In their sample, researchers found that 92% of rape victims and 76% of those victimized by dating violence were also poly-victims, wherein they had experienced three other forms of trauma in the same year (Finkelhor et al., 2007). Researchers discovered that poly-victimization was highly predictive of trauma symptoms, and when poly-victimization was taken into account, it greatly overshadowed any influence of a single victimization. Furthermore, adolescents who were poly-victimized appeared more symptomatic in their presentation than adolescents who repeatedly experienced one form of traumatization. Researchers suggested that these findings may indicate that poly-victimization is

a higher risk factor for trauma symptoms than in a single incident (Finkelhor et al., 2007). They further suggest that previously mentioned studies on single types of traumatization may not control for multiple traumas properly, and thus create inflated correlations between single trauma types and trauma symptomology. Finkelhor and colleagues (2007) also cautioned that the timeframe for their results may have impacted their results. For example, researchers noted studies in which witnessing domestic violence and being a victim of domestic violence as a child has stronger implications for trauma than either did alone (Bedi & Goddard, 2007; Kernic et al., 2003; McCloskey & Walker, 2000; Wolfe et al., 2003; as cited in in Finkelhor et al., 2007). Researchers suggest that poly-victims may merit priority attention due to the increased risk of symptomology implied by the current research, and caution that all trauma is not "equal" in its impact merely due to the instant findings (Finkelhor et al., 2007).

Further study of poly-victimization was done by Ford, Elhai, Connor and Frueh (2010) through empirically identifying trauma profiles in a national sample of adolescents to better understand correlates of poly-victimization. Researchers compared adolescents with poly-victimization to adolescents who had been exposed to trauma at a lesser rate. Ford et al. (2010) identified six trauma profiles, four of which were noted as being high likelihood of poly-victimization. These four included abuse victims, physical assault victims, and victims of community-based violence. Findings revealed that poly-victimized adolescents (especially those who were abused and assaulted) had a higher likelihood than youth traumatized by only witnessing violence or being exposed to a disaster or accident to have a psychiatric diagnosis. They also revealed that regardless of psychiatric diagnosis, poly-traumatized adolescents were more likely to be involved with delinquent peers and behaviors (Ford et al., 2010). Research showed that poly-victimization is highly prevalent among U.S. adolescents and increases

adolescents' risk of psychiatric impairment and delinquent peers and behaviors but also noted that the risk of delinquency in poly-victimized adolescents is not fully explained by PTSD, depression, or substance use (Ford et al., 2010).

Wolf (2013) also found that the number of trauma types that adolescents experienced was a significant predictor in the outcome scores for various issues including externalizing, internalizing, PTSD symptoms, anger, anxiety, depression, dissociation, functional problems, and clinical issues (Wolf, 2013). In a 2013 study of 10,115 adolescents in the United States, Wolf (2013) found that as the types of trauma increased in adolescents, there was a greater likelihood that adolescents would express externalizing, internalizing, and PTSD symptoms. Wolf (2013) emphasized the importance of these findings, as they are thought to further the idea that poly-victimization is an important predictor in many types of behavioral outcomes in adolescents. Despite the plethora of literature that describes an established associations between the amount of trauma and a higher risk for externalizing symptoms, internalizing symptoms, and PTSD, there remains little research examining the cumulative effect of various types of trauma endured by adolescents (Finkelhor, Turner, & Ormrod, 2006; Fritch, Mishkind, Reger, & Gahm, 2010; Ford et al., 2012; Krupnick et al., 2004; Nishith, Mechanic, & Resick, 2000; Ruchkin, Henrich, Jones, Vermeiren, & Schwab-Stone, 2007; Suliman et al., 2009; & Wolf, 2013).

Role of Gender in the Relationship between Trauma and Externalizing Disorders

Several researchers argued that there are major differences in the way that conduct disorder especially is manifested in male and female adolescents. Wicks-Nelson & Israel (2009) have cautioned that due to the overwhelming amount of research on conduct disorder in males, it is possible that the overarching opinion that males are more aggressive than females could be distorted due to the lack of research on female expressions of aggression. Researchers identified

aggressive behavior as “an intent to hurt or harm others” (Crick & Grotpeter, 1995; Crick & Zahn-Waxler, 2003; in Wicks-Nelson & Israel, 2009, p. 197). Crick and colleagues (1995; 2003) posited that gender had a tendency to dictate peer interactions during childhood and adolescence, suggesting that aggression would concentrate on interpersonal issues primarily in same-gender groups of peers (Wicks-Nelson & Israel, 2009). Externalizing behaviors have traditionally been defined in terms that illustrate behaviors often seen in male children and adolescents, namely overt physical or verbal manners of conducting oneself that are focused on harming others (Wicks-Nelson & Israel, 2009).

Girls are thought to focus more on close, binary relationships, and as such, aggression in females was thought to manifest as relational aggression (Wicks-Nelson & Israel, 2009). Relational aggression is rooted in attempts to harm others’ emotions or relationships such as purposefully excluding a peer from an activity, turning a peer group against one person in retaliation, attempting to control a person’s behaviors or beliefs through threats of exclusion or isolation, or spreading rumors or negative ideas with the intention of turning others against a person (Crick & Grotpeter, 1996; in Wicks-Nelson & Israel, 2009). This type of aggression may fall under the notion of covert antisocial behavior seen in conduct disorder (Dishion & Patterson, 2006; in Wicks-Nelson & Israel, 2009), and is seen in childhood and adolescence (Crick, Cass, & Ku, 1999; Prinstein, Boergers, & Vernberg, 2001; Wicks-Nelson & Israel, 2009). It is also associated with many aspects of bullying. Though relational aggression is typically more associated with internalizing behavior issues, when adolescents engage in forms of aggression that are atypical of their respective genders, they display more behavior problems than do those who engage in gender-typical displays of aggression (i.e. girls exhibiting more physical

aggression or boys showing more relational aggression) (Crick & Grotpeter, 1995; Crick, Casas, & Mosher, 1997; Crick & Nelson, 2002; Crick, 1997; Wicks-Nelson & Israel, 2009).

Aggression, in the context of externalizing disorders, is best understood in a broad context so as to not minimize the diverse manifestation of symptoms in both genders. Failing to do this may ultimately result in a failure to identify both physical and relational aggression in disordered adolescents of both genders (Wicks-Nelson & Israel, 2009). Wolf (2013) found that gender of adolescents who had been traumatized played a significant role in predicting externalizing symptoms. Most notably, males displayed higher levels of externalizing scores, whereas females showed more classic symptoms of PTSD. Wolf (2013) noted that while this may be an accurate illustration of gender effects in traumatic symptomology, externalizing disorders that are more heavily associated with males are more likely to be noticed by clinicians and researchers than the more subtle externalizing symptoms in females. In other research, it was found that conduct disordered females are more likely than conduct disordered males to experience symptoms and diagnoses of PTSD (Reebye et al., 2000). Researchers suggest that this may be due to the prevalence of sexual abuse that female adolescents are exposed to in comparison to their male peers.

Studies have argued that in order to better understand the development of CD in girls, it is pivotal to examine the emotionality, experience, and capacity for empathy and guilt, as well as examine coping patterns and styles (Keenan, Loeber, & Green, 1999). Risk factors for CD differ between males and females, and may also differ across stages of development and ages. Keenan et al. (1999) noted that family conflict has been shown to influence females in terms of its impact on the development of CD.

Furthermore, Zahn-Waxler and colleagues (2008) described how childhood adversities are shown in research to affect boys and girls somewhat differently. For example, McFayden-Ketchum and colleagues (1996) found that mothers who exhibited maltreatment toward their children through coercive behavior and little affection was a predictor of heightened levels of physical aggression and disruptive behavior in young boys between kindergarten and grade three. Interestingly, the same behavior from mothers predicted a decrease in the same behavior in young girls the same age (McFayden-Ketchum et al., 1996; Zahn-Waxler et al., 2008). Other research found that anger directed at preschool age boys by their mother positively predicted conduct problems in later elementary grades, but actually reduced conduct problems for girls of the same age (Cole et al., 2003; Zahn-Waxler et al., 2008). Family influence was also noted in research to affect females a bit differently as well. For example, in comparison to boys, female conduct problems appear to be more impacted by family discord and stressful life events coupled with low family support levels (Davies & Windle, 1997; Windle, 1992; Zahn-Waxler et al., 2008).

With regard to developmental difference, longitudinal studies have found that the degree of gender differences in conduct problems and delinquency in adolescents between the ages of four and seventeen varied with age (Lahey et al., 2006; as cited in Zahn-Waxler et al., 2008). More specifically, conduct issues in female study participants appeared to decline between preschool and later years more than they did in male study participants, which resulted in a doubled proportional difference in gender. These results may have occurred in tandem with the responses adolescents received to their misbehavior from adult figures (Lahey et al., 2006; Zahn-Waxler et al., 2008).

In terms of delinquency, female juvenile delinquents have been shown in research to come more often from homes that have more pronounced and frequent violence and abuse than male juvenile delinquents (Lewis et al., 1991; Zahn-Waxler et al., 2008). Maughan and colleagues (2000) found that females who displayed highly aggressive behavior experienced more family adversity than males do, demonstrating a potentially reciprocal relationship between traumatic stress and conduct issues that is exacerbated by gender. Overall, research suggests that childhood adversities, including traumatic stress and maltreatment, often predict behavioral problems similarly amongst both genders, however girls appear to be highly impacted by parenting quality and family discord (Zahn-Waxler, et al., 2008, p. 284). Researchers have noted that anxiety shares similar risk factors with externalizing disorders and have posited that adolescents with externalizing disorders may generate anxiety-provoking situations on their own (Frick, Lilienfeld, Ellis, Loney & Silverthorn, 1999; Marmorstein, 2007). Marmorstein (2007) posited that males may be more aware of their social issues, and thus more likely to be socially anxious (p. 428). Additionally, it is suggested that males are more likely to act out their anxiety through behavior or associating with negative peers (Marmorstein, 2007).

Some research has shown that gender is *not* an independent risk factor for later externalizing behavior in those exposed to trauma. Wall and Barth (2005) analyzed data retrieved from the National Survey of Child and Adolescent Well-Being (NSCAW) and found that males reported great caregiver relatedness and lower parental monitoring than females did. Furthermore, results showed that aggression and delinquency were predicted by age, below-average social skills, a low sense of caregiver relatedness, and being female (Wall & Barth, 2005). Wall and Barth (2005) found that in females, aggressive and delinquent behavior was found to be significantly positively correlated with hyperactivity/impulsive/attention (HIA)

problems, discipline, and association with deviant peers. Aggressive and delinquent behavior was significantly negatively correlated with social skills, caregiver relatedness, and monitoring. In males, aggressive and delinquent behavior was significantly correlated with caregiver relatedness and monitoring. Multiple regression analyses did not reveal any variables that influenced aggressive and delinquent behavior differently for males and females. As such, gender was not shown to be an independent risk, and may not uniquely predict aggression and delinquency (Wall & Barth, 2005).

Role of Race/Ethnicity in the Relationship between Trauma and Externalizing Disorders

Statistics have shown that racially diverse adolescents experience violent trauma more commonly than White adolescents in the United States (USDOJ, 2009). In fact, research from the Department of Justice Statistics (2009) found that rates for violent trauma for racially diverse adolescents are 46.1 per 1000 adolescents, whereas rates for White adolescents are 42.1 per 1000 adolescents. Researchers have posited that there are several factors that may contribute to the difference in the expression of traumatic symptoms in various ethnic and racial groups. One element is the differences found in historical backgrounds of various people, such as historical racial and ethnic trauma experienced by African-Americans, Jewish Holocaust survivors, and indigenous peoples of North America (Al-Issa & Tousignant, 1997; Brown, 2008; Pole et al., 2008; Wolf, 2013). Another element described by researchers is the unique family processes expressed within different cultures such as the *Machismo* value and *Familism* view in Latino cultures, and layered and extended family structures in African-American cultures (Anderson & Mayes, 2010; Bird & Canino, 1982; Carswell & Carswell, 2008; Cuéllar, Arnold, & Gonzalez, 1995; Deyoung & Zigler, 1994; Hatchett, Cochran, & Jackson, 1991; Torres, 1998; Wolf, 2013). Other elements suggested by researchers also include various differences in seeking treatment, cultural stigmas regarding treatment, socioeconomic ability to seek treatment, and lack of

culturally sensitive or appropriate treatments available (Lester et al., 2010; Roberts, Gilman, Breslau, & Koenen, 2011; Schraufnagel, Wagner, Miranda, & Roy-Byrne, 2006; Wolf, 2013; Zayfert, 2008).

Additionally, some research has indicated that racial and ethnic identity may impact traumatic symptomology and recovery (Wolf, 2013). Roberts and colleagues (2011) noted that some races and ethnicities may be at higher risk for experiencing certain forms of traumatic events, and minorities afflicted with PTSD are often untreated. Researchers have also noted differences in the manifestation of post-trauma symptoms; for example Latino children may experience more somatic symptoms (Choi & Park, 2006; Pina & Silverman, 2004; Wolf, 2013). Furthermore, post-traumatic treatment retention and response additionally may differ among racial and ethnic minorities (Pole et al., 2008; Triffleman & Pole, 2010). Studies have found that that traumatic experiences, reactions, and treatments may differ in adolescents from different ethnic and racial backgrounds, and caution that the "true reason" for such variations are difficult to identify because of the high rate of heterogeneity among minority adolescents, including variations in economic status, geographical location, residential/immigration/refugee experiences or statuses, and levels of acculturation in their communities (Pole et al., 2008; Wolf, 2013).

Wolf (2013) used Bronfenbrenner's ecological model to explore the potential influence of race, culture, and ethnicity on an adolescents' likelihood to experience various forms of traumatic symptoms after experiencing a traumatic event. Wolf (2013) found limited evidence suggesting that symptoms and recovery differ in adolescents of different racial groups when compared to baseline symptoms, and that while there was some impact, it accounted for very little of the variance in the results. More specifically, Wolf (2013) found that African-American adolescents were less likely than White/Caucasian adolescents to display internalizing symptoms

and had a 20% lower chance of being within a clinical range for internalizing symptoms. Adolescents of other racial groups did not differ in their expression of internalizing symptoms suggesting that such symptoms may be more universal than initially thought (Wolf, 2013). Ethnicity, however, was found to impact both externalizing and internalizing behaviors in adolescents affected by trauma (Wolf, 2013). Wolf (2013) noted that Latino adolescents exhibited lower externalizing scores than their peers and were 24% less likely to be within clinical range for internalizing symptoms than non-Latino adolescents were. These differences, however, did not continue at the three-month follow-up interval. Wolf (2013) stated that these statistics demonstrate that while ethnic and racial differences have an important impact on traumatized adolescents, the impact itself is small. Regardless, Wolf (2013) concluded that race and ethnicity appear to play a role in how adolescents illustrate their distress.

Significance of the Current Study

The relationship between trauma and behavior is complicated, and is even more so in adolescents. It is important to understand that trauma has documented impact on behavior, and notable impact on the level of externalizing behavior seen in traumatized adolescents. Various forms of trauma appear to have a unique and large impact on the etiology, development and manifestation of conduct disorder (CD), oppositional defiant disorder (ODD), intermittent explosive disorder (IED), and substance use. Furthermore, although there has been research into the different gender expressions of externalizing disorders as they relate to trauma (Keenan et al., 1999; Lynch, 2003; Marmorstein, 2007; Reebye et al., 2000; Wicks-Nelson & Israel, 2009; Wolf, 2013; Zahn-Waxler et al., 2008), to the author's knowledge there has not been a study to examine the gender effects in relation to adolescents who have been exposed to multiple forms of victimization and/or poly-victimized adolescents on a national level. There is also documented lack of research into traumatic symptomology and its connection to race and ethnicity and we

need to better understand how race and ethnicity may impact the relationship between trauma, symptoms, and behavior. Additionally, some researchers have argued that the correlations and impacts seen are not fully accounting for the poly-victimization often seen in adolescent trauma victims (Finkelhor et al., 2007; Ford, Elhai, Connor and Frueh, 2010; Wolf, 2013), and should be addressed more thoroughly. Though some research has addressed the concept of poly-victimization and the manifestation of traditional PTSD symptomology, there does not yet appear to be literature that examined the relationship between levels of victimization and the lifetime instance of externalizing disorders in adolescents. This study aimed to fill this gap in the research using a national sample of adolescents.

Research Questions and Hypotheses

Research Question 1: Does the number of different forms of traumatic exposure positively correlate with increased lifetime diagnoses of externalizing behavior disorders in adolescents?

$H_1$1: A higher frequency of different traumatic events is positively correlated with lifetime diagnosis of disorders related to externalizing behaviors in adolescents, such as CD, ODD, IED, and substance use disorders.

Research Question 2: When controlling for incidences of trauma exposure and race/ethnicity, does gender have an effect on the lifetime diagnosis of externalizing behavior disorders in adolescents?

$H_1$2: When incidences of trauma exposure and race/ethnicity are controlled for, gender does not have a significant effect on whether or not an adolescent is diagnosed with a lifetime diagnosis of an externalizing behavior disorder.

Research Question 3: When controlling for incidences of trauma exposure and gender, does racial/ethnic background have an effect on the lifetime diagnosis of externalizing behavior disorders in adolescents?

$H_1 3$: When incidences of trauma exposure and gender are controlled for, race/ethnicity does not have a significant effect on whether or not an adolescent is diagnosed with a lifetime diagnosis of an externalizing behavior disorder.

Chapter 3: Research Design and Method

Population and Procedure

The population for this study came from the National Comorbidity Survey-Adolescent (NCS-A). This survey was administered by researchers from the University of Michigan, Ann Arbor, in a face-to-face fashion using computer assisted personal interviewing (CAPI) to 10,148 adolescents aged 13-18 years between February of 2001 and January of 2004 (Kessler, 2011; Kessler et al., 2009b; Kessler et al., 1998). The study was designed to estimate the current prevalence rates of various disorders, as well as identify the approximate amount of lifetime (to date) diagnoses of various disorders. The NCS-A also includes data which can be used to estimate risk and protective factors for various disorders, as well as the onset and persistence of various disorders. The NCS-A utilized a dual-frame model to comprise the sample of participants and they included both school and household subsamples from the same neighborhoods used in the National Comorbidity Survey-Replication (NCS-R) (Coker et al., 2014; Kessler, 2011; Kessler et al., 2009b; Merikangas et al., 2009). Recruitment of the participants, as well as the consent procedures, were approved by both the Human Subjects Committee of Harvard Medical School and the Human Subjects Committee of the University of Michigan, Ann Arbor (Kessler, 2011; Kessler et al, 2009a; Kessler et al, 2009b).

The diagnostic areas of the interviews given to participants were structured on a variation of The World Health Organization's Composite International Diagnostic Interview (CIDI) (Kessler et al, 1998). This instrument is a structured clinical interview utilized when diagnosing mental disorders according to DSM-IV (APA, 1994) criteria. There were some amendments made by researchers so it could be used with adolescents. Specifically, externalizing behavior disorders (with the exception of oppositional defiant disorder with or without conduct disorder, and substance use disorders that include abuse and dependence) were made using the hierarchy

rules found in the DSM-IV-TR (APA, 2000). Furthermore, the NCS-A utilized pointed evidence-based information-gathering methods to improve the recall of the adolescents surveyed. These procedures helped to strengthen reliability when pinpointing lifetime disorder prevalence in the adolescents surveyed (Coker et al, 2014; Kessler et al, 1998; Kim-Cohen et al, 2003). More descriptive information related to statistics, design, weighting methods, and measures can be found elsewhere (Kessler et al., 2009a; Kessler et al., 2009b; Merikangas et al, 2009).

Researchers conducting the NCS-A obtained confidentiality certificates, and confidentiality measures were explained to adolescent participants (and their parents) in the consent forms these procedures were required before beginning the study. Prior to signing consent and assent, parents' concerns and questions were addressed by researchers, as were those of the adolescent participants. Once the surveys were completed, researchers weighted the cases for variations in sampling and also weighted the cases for residual variations between that of the sample set and the U.S. population based upon known sociodemographic variables. Further information regarding the weighting procedures is located in the NCS-A user guide (Kessler et al, 2009a; Kessler et al, 2009b).

The NCS-A was received as a de-identified dataset and thus this author has does not possessing any knowledge of identifying information. This author has also protected the data received from the University of Michigan by keeping it on an encrypted portable drive. In order to secure access to the dataset, the proposal for the current study went through standard IRB procedures at The Chicago School of Professional Psychology. This author then submitted an application to the research consortium at the University of Michigan for access to the data used in this research project. Once granted permission, this author downloaded the dataset files and

respective code books to a secure drive that was password protected and encrypted. There does not appear to be any ethical risk imposed on participants by this author's use of the data.

Statistical Analyses

SPSS Statistics for Windows (IBM Corp., 2011) was used to analyze all data in the dataset received by this author. The dataset received was sent in SPSS format, and no original data implementation or coding was done on the raw data by this author. In preparing the data for analysis, this author selected 19 variables that were questions related to trauma experiences. Five variables were removed by this author due to ambiguity or self-initiated events (e.g. "Did you ever have a very upsetting event that you didn't report because you didn't want to talk about it," and "Did you ever on purpose seriously injure, kill, or torture another person"). Of the 19 used, this author created a variable that summed for each participant the number of traumas they reported across the 19 identified incidences. This sum was analyzed against seven dichotomous variables that assessed the lifetime diagnosis of externalizing disorders. Specifically, the lifetime diagnosis of alcohol abuse, alcohol dependence, conduct disorder, drug abuse (any substance measured by the DSM-IV, with the exception of caffeine and nicotine), drug dependency, intermittent explosive disorder, and oppositional defiant disorder.

To examine the relationship between the frequency of different forms of traumatic exposure in adolescents and lifetime diagnoses of externalizing behavior disorders, first a point-biserial correlation was conducted using the data from the NCS-A. Point-biserial correlations are considered appropriate when the research purpose is to evaluate if a relationship exists between a continuous variable (frequency of trauma exposure) and a dichotomous variable (lifetime diagnosis of externalizing behavior disorders, either endorsed or not endorsed), and to find the magnitude of the correlation. The point-biserial determines the strength of the relationship between two variables and how the distribution of the z scores varies. A correlation coefficient,

r_{pb}, can range from 0 (no relationship) to -1 (perfect negative linear relationship) to 1 (perfect positive linear relationship) (Statistics Solutions, 2013). In a positive relationship there is a direct relationship, that is, as the frequency of trauma exposure increases, the instances of lifetime diagnosis of externalizing behavior disorders increase. A negative correlation is described as an inverse relationship; as the frequency of trauma exposure increases, the instances of lifetime diagnosis of externalizing behavior disorders decreases. Cohen's standard was used to assess the correlation coefficient on a scale where .10 indicates a weak association between the two variables; .30 indicates a reasonable association, and .50 represents a strong association (Statistics Solutions, 2013). The resulting r_{pb} is not considered to be a level of causation, however it is a measurement of interdependency among the two variables.

The point-biserial correlation was chosen over other forms (i.e. biserial correlation) in order to streamline the analysis. The traumatic incidences questioned and inventoried by the original researchers were not manipulated or artificially created by the researchers themselves, and are thought to be naturally occurring variables in the subjects' lives. The questions regarding trauma asked by researchers in the data set are specific and are dichotomous (yes/no) in nature, and ask the adolescents about prior experiences. The answers were then quantified by this researcher, where "yes" was equal to 1 and "no" was equal to 0. There were 19 questions in all used by this researcher; all "yes" (1 values) were summed to create a single variable, which then became a continuous variable. Within the point-biserial correlation, the dichotomous variable is the presence of a lifetime diagnosis of externalizing behavior disorders.

A forward binary logistic regression was then to assess the predictive quality that exposure to various forms of trauma has on the incidence of a lifetime diagnosis of an externalizing disorder. In the same forward binary logistic regression, the data was also analyzed

to examine whether or not ethnic/racial identification or gender has an effect on lifetime diagnoses of eternalizing behavior disorders. The data and analysis met the assumptions noted by Meyers et al. (2012) that are required for the above analyses. Namely, the data had an absence of multicollinearity between the predictors in the model, the model was correctly specified, the categories on the dependent variable are assumed to be mutually exclusive and dichotomous, and the sample size was adequate, where there were at least 30 times as many cases as there were predictor variables in the analysis. To address the inflated family-wise error, a significance cutoff of .01 was used.

Measures

Conduct Disorder (CD)

As previously mentioned, research participants were given the CIDI, a structured interview used to determine diagnoses according to the DSM-IV. This measure was modified for administration to adolescents. Lifetime diagnosis of CD was assessed based upon lifetime DSM-IV criteria and exclusion rules. Lifetime diagnosis of CD was a dependent variable in this study.

Oppositional Defiant Disorder (ODD)

Using the CIDI, researchers assessed and determined lifetime diagnosis of ODD based upon lifetime DSM-IV criteria and exclusion rules. ODD diagnoses made without hierarchy rules were used to avoid overlapping of data with CD. Lifetime diagnosis of ODD was a dependent variable in this study.

Intermittent Explosive Disorder (IED)

Using the CIDI measure, researchers assessed and determined lifetime diagnosis of IED based upon lifetime DSM-IV criteria and exclusion rules. IED diagnoses made without hierarchy

rules were used to include all diagnosable cases. Lifetime diagnosis of IED was also a dependent variable in this study.

Substance Abuse

Using the CIDI measure, researchers assessed and determined lifetime diagnosis of substance abuse base upon lifetime DSM-IV criteria and exclusion rules. Substance use assessed by researchers for this topic included usage of amphetamines, cannabis, cocaine, hallucinogens, inhalants, opioids, phencyclidine (PCP), and sedatives such as hypnotics and anxiolytics. Nicotine, caffeine, and alcohol were measured separately. Diagnoses made without hierarchy rules were used for this variable to avoid overlap with substance dependence. Lifetime diagnosis of substance abuse was a dependent variable in this study.

Substance Dependence

Using the CIDI measure, researchers assessed and determined lifetime diagnosis of substance dependence based upon lifetime DSM-IV criteria and exclusion rules. Substance dependence assessed by researchers for this topic included dependence on amphetamines, cannabis, cocaine, hallucinogens, inhalants, opioids, phencyclidine (PCP), and sedatives such as hypnotics and anxiolytics. Nicotine, caffeine, and alcohol were measured separately. Diagnoses made without hierarchy rules were used for this variable to avoid overlap with substance abuse cases. Lifetime diagnosis of substance dependence was a dependent variable in this study.

Alcohol Abuse

Using the CIDI measure, researchers assessed and determined lifetime diagnosis of alcohol abuse based upon lifetime DSM-IV criteria and exclusion rules. Diagnoses made without hierarchy rules were used for this variable to avoid overlap with alcohol dependence cases. Lifetime diagnosis of alcohol abuse was a dependent variable in this study.

Alcohol Dependence

Using the CIDI measure, researchers assessed and determined lifetime diagnosis of alcohol dependence based upon lifetime DSM-IV criteria and exclusion rules. Diagnoses made without hierarchy rules were used for this variable to avoid overlap with alcohol abuse cases. Lifetime diagnosis of alcohol dependence was also a dependent variable in this study.

Frequency of Trauma

Twenty-four questions from the NCS-A survey related specifically to incidences of trauma. After consideration for elements that would be beyond a person's own control, such as being the victim of a trauma, only nineteen questions were assessed and recoded into dichotomous variables indicating whether an adolescent had or had not experienced a particular event. Specifically, adolescents answered yes or no to these 19 questions and the total amount of "yes" answers endorsed were summed to create a lifetime frequency of trauma variable, and was used as an independent variable.

Racial/Ethnic Minority

The NCS-A includes racial/ethnicity demographic variables for the sample. The racial/ethnic minority variable was create by recoding and placing the adolescents in one of two categories: (1) racial/ethnic minorities; and (2) Caucasian. This variable was also an independent variable.

Gender

The NCS-A includes data on the adolescent's gender. Gender was also an independent variable.

Chapter 4: Findings

Demographic Analysis

The sample consisted of 10,148 adolescents between the ages of 13 and 18. Of that total, 5,183 were female and 4,965 were male. In terms of race and ethnicity, the sample appeared well-balanced between White adolescents and Racial/Ethnic Minority adolescents. Specifically, the sample included 5,648 White adolescents, 1,955 Black adolescents, 1,922 Hispanic adolescents, and 623 adolescents who identified their race as "Other." The average age of the adolescents was 15.18 years (Table 1). The average number of types of traumas experienced by all adolescents was 1.3, with a range of 0 to 14 (SD =1.584) (Table 2).

Table 1

Demographic Characteristics of the Sample

	Total *N* = 10,148	Racial/Ethnic Minority* *n* = 4,500	White *n* = 5648
Gender			
Male	4,965 (48.9%)	2199 (48.9%)	2766 (48.9%)
Female	5,183 (51.1%)	2301 (51.1%)	2882 (51.1%)
Age (years)			
Overall Mean (SD)	15.2 (1.5)	15.1 (1.5)	15.3 (1.5)
Male Mean (SD)	15.2 (1.5)	15.1 (1.6)	15.2 (1.5)
Female Mean (SD)	15.2 (1.5)	15.1 (1.5)	15.3 (1.5)

Note. *This category includes African Americans (*n*2= 1,955), Hispanics (*n* = 1,922), and "Other" (*n* = 623). SD = Standard Deviation, N = Number of total cases.

Table 2

Demographic Characteristics of the Sample: Number of Types of Trauma Experienced

	Total *N* = 10,148	Racial/Ethnic Minority* *n* = 4,500	White *n* = 5648
Trauma Types			
Overall Mean (Max, SD)	1.3 (14, 1.6)	1.5 (13, 1.7)	1.1 (14, 1.5)
Male Mean (Max, SD)	1.3 (14, 1.5)	1.5 (11, 1.6)	1.1 (10, 1.4)
Female Mean (Max, SD)	1.3 (14, 1.6)	1.5 (13, 1.8)	1.2 (14, 1.5)

Note. *This category includes African Americans (*n* = 1,955), Hispanics (*n* = 1,922), and "Other" (*n* = 623). Max = Maximum amount of traumatic experiences per case found in this group.

Among the adolescents surveyed, 97.7% experienced five or less different types of trauma throughout their lifetime (Figure 1). The data show that 3,946 adolescents from the sample experienced no form of trauma, 2,871 experienced one form, 1,595 experienced two forms, 817 experienced three different forms, 422 experienced four forms, and 265 experienced five forms of trauma total. It should be noted that the figures obtained in all of this study's analyses include all cases examined, and did not remove any numerical outliers. This was done deliberately, as the nature of the data and study required the use of all cases of trauma. Ultimately it was decided that there was merit in including all data due to what was being measured.

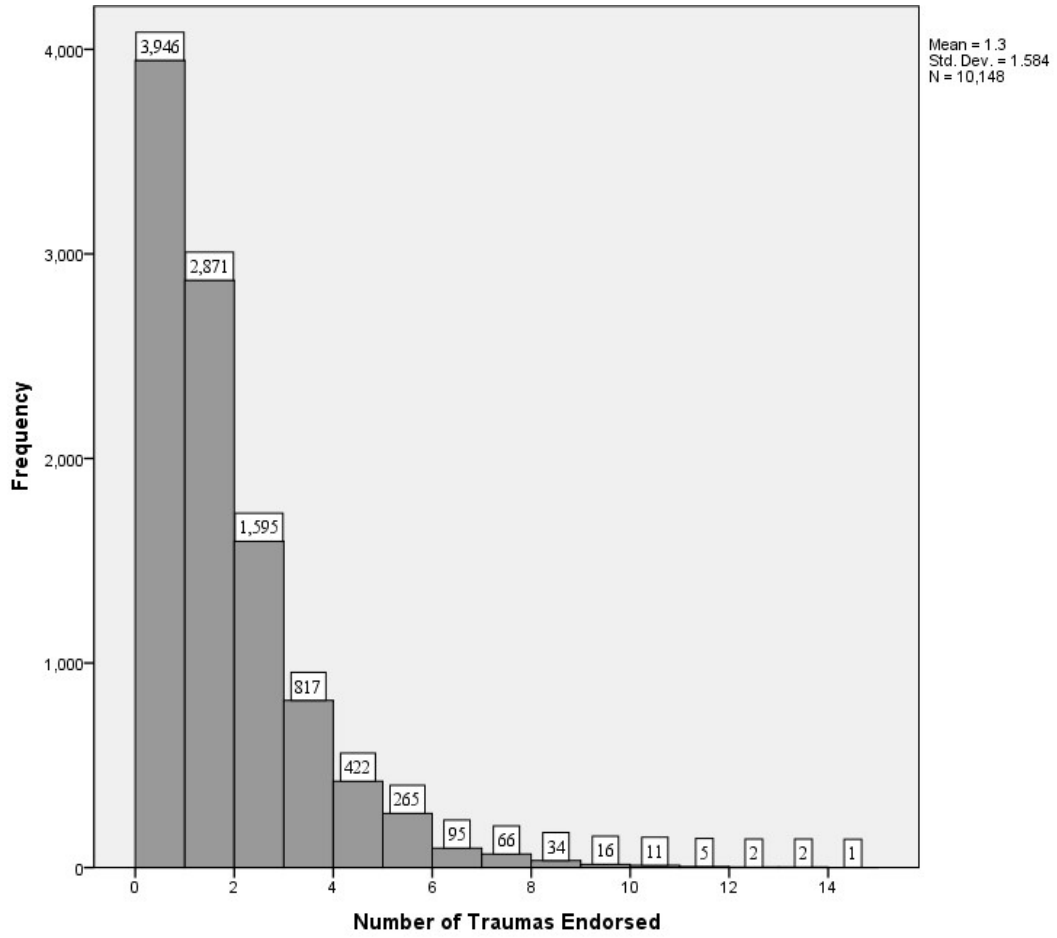

Figure 1. Histogram of frequency of number of traumas endorsed within total sample.

Among the different externalizing behavior disorders examined, Intermittent Explosive Disorder had the highest level of endorsement, where 13.7% of adolescents sampled met criteria for lifetime diagnosis. Oppositional Defiant Disorder was the next highest in terms of endorsement; 10.3% of the adolescents sampled met criteria for lifetime diagnosis. Drug Abuse was next with 8.7% of adolescents meeting lifetime diagnostic criteria, then Alcohol Abuse at 6.7% of adolescents sampled, followed by Conduct Disorder at 5.8%, Drug Dependence at 1.9%, and Alcohol Dependence at 1.1%.

Point Biserial Correlation: Hypothesis One

The first analysis run in this study tested the first hypothesis; H_1: A higher frequency of different traumatic events is positively correlated with lifetime diagnosis of disorders related to externalizing behaviors, such as CD, ODD, IED, and substance use disorders. Based upon the analysis, it appears that all of the externalizing behavior disorders examined were significantly correlated with the amount of different traumatic events one is exposed. More specifically, presence of a lifetime diagnosis of Alcohol Abuse was positively correlated with trauma exposure ($r_{pb} = .239, n = 10148, p = .000$), as was Alcohol Dependence ($r_{pb} = .145, n = 10148, p = .000$), Conduct Disorder ($r_{pb} = .264, n = 10148, p = .000$), Drug Abuse ($r_{pb} = .272, n = 10148, p = .000$), Drug Dependence ($r_{pb} = .203, n = 10148, p = .000$), Intermittent Explosive Disorder ($r_{pb} = .206, n = 10148, p = .000$), and Oppositional Defiant Disorder ($r_{pb} = .228, n = 10148, p = .000$) (Table 4). While the correlations are not considered strong, due to them being between .1 and .3 in value, they were statistically significant (Nussbaum, 2014; Table 4).

Table 3

Correlations Between Number of Traumas Endorsed and Various Externalizing Behavior Disorders

	Number of Traumas Endorsed	AAL	ADL	CDL	DAL	DDL	IED	ODD
Number of Traumas Endorsed	-	.239**	.145**	.264**	.272**	.203**	.206**	.228**
AAL	.239**	-	.391**	.282**	.466**	.316**	.140**	.145**
ADL	.145**	.391**	-	.202**	.283**	.359**	.110**	.118**
CDL	.264**	.282**	.202**	-	.299**	.232**	.146**	.240**
DAL	.272**	.466**	.283**	.299**	-	.447**	.165**	.164**
DDL	.203**	.316**	.359**	.232**	.447**	-	.098**	.123**
IED	.206**	.140**	.110**	.146**	.165**	.098**	-	.200**
ODD	.228**	.145**	.118**	.240**	.164**	.123**	.200**	-

Note. AAL = Alcohol Abuse Lifetime, ADL = Alcohol Abuse Lifetime, CD = Conduct Disorder Lifetime, DAL = Drug Abuse Lifetime, DDL = Drug Dependence Lifetime, IED = Intermittent Explosive Disorder Lifetime, ODD = Oppositional Defiant Disorder Lifetime; **p=.000 (1-tailed and 2-tailed).

Forward Logistic Regression Analysis, Predictive Quality of Trauma: Hypothesis One

A forward stepwise binary logistic regression analysis was performed to identify significant predictors of lifetime diagnoses of externalizing behavior disorders while controlling for race/ethnicity and gender. This method of binary logistic regression was used to produce a predictive model that is parsimonious and accurate, as this method will exclude variables that do not contribute to explaining differences in the diagnosis of an externalizing disorder. A test of the full model (with trauma, race/ethnicity, and gender as predictor variables) compared with a constant-only or null model in all disorder analyses showed that the number of trauma types that an adolescent was exposed to was a statistically significant predictor of externalizing disorders.

Strength of the association between trauma exposure and lifetime diagnosis of disorders varied by disorder.

Alcohol Abuse, Lifetime

Forward logistic regression was conducted to determine which independent variables (number of types of trauma one is exposed to, race/ethnicity, and gender) were predictors of endorsement of a lifetime diagnosis of alcohol abuse. Regression results indicated the overall model of three predictors was statistically reliable in distinguishing between diagnosis and non-diagnosis χ^2 (3, N=10148) =520.973, p = .000) (Table 5). The strength of the association between trauma and a lifetime diagnosis of alcohol abuse in adolescents was relatively weak with Nagelkerke's R^2 = .129, when controlling for race/ethnicity and gender; as such, trauma, race/ethnicity, and gender only account for 12.9% of the variance in the logistic regression model (Table 4). The model correctly classified 93.3% of cases overall. It was found that the number of types of trauma to which one was exposed was a significant predictor of lifetime alcohol abuse diagnosis in adolescents within this study, Wald χ^2 (1, N=10148) = 486.519, p = .000. Using the predictor of trauma exposure, it was found that for every one unit increase in type of trauma that an adolescent is exposed to the odds of endorsement of a lifetime diagnosis of alcohol abuse increased by 54%, or 1.54 times (Table 5).

Table 4

Prediction of Diagnosis of Alcohol Abuse, Lifetime:
Omnibus Test of Coefficients (Overall Model Evaluation) and R^2-type Indices

Test		$\chi 2$	Df	Sig. (*p*)
Overall Model Evaluation				
Likelihood Ratio Test		520.973	3	.000
R^2-type Indices				
Cox and Snell R^2	.050			
Nagelkerke (Max Rescaled) R^2	.129			

Table 5

Forward Binary Logistic Regression Analysis, Final Step:
Prediction of Diagnosis of Alcohol Abuse, Lifetime

Disorder & Variable	β	S. E.	Wald $\chi 2$	df	*p*	Exp(B)	95% C.I for Exp(B)	
							Lower	Upper
Alcohol Abuse								
Number of	.435	.020	486.519	1	.000	1.544	1.486	1.605
Traumas	.759	.089	72.135	1	.000	2.136	1.793	2.544
Race/Ethnicity (1)	.425	.084	25.637	1	.000	1.530	1.298	1.804
Gender (1)	-4.115	.105	1524.72	1	.000	.016		
Constant			8					

Alcohol Dependence, Lifetime

Regression results indicated the overall model of three predictors was statistically reliable in distinguishing between diagnosis and non-diagnosis of alcohol dependence χ^2 (3, *N*=10148) =148.150, *p* = .000) (Table 6). The strength of the association between trauma and a lifetime diagnosis of alcohol dependence in adolescents was relatively weak with Nagelkerke's R^2 = .125, when controlling for race/ethnicity and gender. As such, trauma, race/ethnicity, and gender only account for 12.5% of the variance in the logistic regression model (Table 7). The model correctly classified 98.9% of cases overall. It was found that the number of types of trauma to which one was exposed was a significant predictor of a lifetime alcohol dependence diagnosis, Wald $\chi 2$ (1,

N=10148) = 174.627, *p* = .000. Using the predictor of trauma exposure, it was found that for every one unit increase in type of trauma that an adolescent is exposed to, the odds of an endorsement of lifetime diagnosis of alcohol dependence increase by 58%, or 1.58 times (Table 7).

Table 6

Prediction of Diagnosis of Alcohol Dependence, Lifetime: Omnibus Test of Coefficients (Overall Model Evaluation) and R^2-type Indices

Test		$\chi 2$	Df	Sig. (*p*)
Overall Model Evaluation				
Likelihood Ratio Test		148.150	3	.000
R^2-type Indices				
Cox and Snell R^2	.014			
Nagelkerke (Max Rescaled) R^2	.125			

Table 7

Forward Binary Logistic Regression Analysis, Final Step: Prediction of Diagnosis of Alcohol Dependence, Lifetime

Disorder & Variable	β	S. E.	Wald $\chi 2$	df	*p*	Exp(B)	95% C.I for Exp(B)	
							Lower	Upper
Alcohol Dependence								
Number of	.460	.035	174.627	1	.000	1.583	1.479	1.695
Traumas	.526	.198	7.074	1	.000	1.692	1.148	2.492
Gender (1)	.808	.209	14.979	1	.000	2.244	1.490	3.378
Race/Ethnicity (1)	-6.237	.254	604.896	1	.000	.002		
Constant								

Conduct Disorder, Lifetime

Regression results indicated the overall model fit of three predictors was statistically reliable in distinguishing between diagnosis and non-diagnosis of conduct disorder χ^2 (3, *N*=10148) =544.572, *p* = .000 (Table 8). The strength of the association between trauma and a

lifetime diagnosis of conduct disorder in adolescents was relatively weak with Nagelkerke's R^2 = .146, when controlling for race/ethnicity and gender. As such, trauma, race/ethnicity, and gender only account for 14.6% of the variance in the logistic regression model (Table 8). The model correctly classified 94.1% of cases overall. It was found that the number of types of trauma to which one was exposed was a significant predictor of a lifetime conduct disorder diagnosis in adolescents within this study, Wald χ^2 (1, N=10148)= 496.538, p = .000. For every one unit increase in type of trauma that an adolescent is exposed to, the odds of an endorsement of lifetime diagnosis of conduct disorder increase by 58%, or 1.58 times (Table 9).

Table 8

Prediction of Diagnosis of Conduct Disorder, Lifetime:
Omnibus Test of Coefficients (Overall Model Evaluation) and R^2-type Indices

Test		χ2	Df	Sig. (p)
Overall Model Evaluation				
Likelihood Ratio Test		544.572	3	.000
R^2-type Indices				
Cox and Snell R^2	.052			
Nagelkerke (Max Rescaled) R^2	.146			

Table 9

Forward Binary Logistic Regression Analysis, Final Step:
Prediction of Diagnosis of Conduct Disorder, Lifetime

Disorder & Variable	β	S. E.	Wald χ2	df	p	Exp(B)	95% C.I for Exp(B)	
							Lower	Upper
Conduct Disorder								
Number of Traumas	.455	.020	496.538	1	.000	1.575	1.514	1.640
Gender (1)	.601	.092	42.972	1	.000	1.824	1.524	2.184
Race/Ethnicity (1)	-.277	.090	9.464	1	.002	.758	.635	.904
Constant	-3.853	.102	1419.982	1	.000	.021		

Drug Abuse, Lifetime

Regression results indicated the overall model of three predictors was statistically reliable in distinguishing between diagnosis and non-diagnosis of drug abuse (χ^2 (3, N=10148) = 641.592, p = .000) (Table 10). The strength of the association between trauma and a lifetime diagnosis of drug abuse in adolescents was relatively weak with Nagelkerke's R^2 = .138, when controlling for race/ethnicity and gender. As such, trauma, race/ethnicity, and gender only account for 13.8% of the variance in the logistic regression model (Table 10). The model correctly classified 98.9% of cases overall. It was found that the number of types of trauma to which one was exposed was a significant predictor of a lifetime drug abuse diagnosis in adolescents within this study, Wald χ^2 (1, N=10148) = 594.476, p = .000. For every one unit increase in type of trauma that an adolescents is exposed to, the odds of an endorsement of lifetime diagnosis of drug abuse increase by 57%, or 1.57 times (Table 11).

Table 10

Prediction of Diagnosis of Drug Abuse, Lifetime:
Omnibus Test of Coefficients (Overall Model Evaluation) and R^2-type Indices

Test		χ2	Df	Sig. (p)
Overall Model Evaluation				
Likelihood Ratio Test		641.592	3	.000
R^2-type Indices				
Cox and Snell R^2	.061			
Nagelkerke (Max Rescaled) R^2	.138			

Table 11

Forward Binary Logistic Regression Analysis, Final Step: Prediction of Diagnosis of Drug Abuse, Lifetime

Disorder & Variable	β	S. E.	Wald $\chi 2$	df	*p*	Exp(B)	95% C.I for Exp(B)	
							Lower	Upper
Drug Abuse								
Number of Traumas	.450	.020	594.476	1	.000	1.569	1.513	1.627
Gender (1)	.494	.089	43.058	1	.000	1.639	1.414	1.899
Race/Ethnicity (1)	.467	.084	36.730	1	.000	1.595	1.371	1.855
Constant	-3.697	.105	1664.116	1	.000	.025		

Drug Dependence, Lifetime

Regression results indicated the overall model of two predictors (trauma and race/ethnicity) was statistically reliable in distinguishing between diagnosis and non-diagnosis of drug dependence (χ^2 (2, N=10148) =253.214, p = .000) (Table 12). The strength of the association between trauma and a lifetime diagnosis of drug dependence in adolescents was relatively weak with Nagelkerke's R^2 = .146, when controlling for race/ethnicity and gender. As such, trauma, race/ethnicity, and gender only account for 14.6% of the variance in the logistic regression model (Table 12). The model correctly classified 98.1% of cases overall. It was found that the number of types of trauma to which one was exposed was a significant predictor of a lifetime drug dependence diagnosis in adolescents within this study, Wald χ^2 (1, N=10148) = 291.249, p = .000. For every one increase in type of trauma that an adolescent is exposed to, the odds of an endorsement of lifetime diagnosis of drug dependence increase by 62%, or 1.627 times (Table 13).

Table 12

Prediction of Diagnosis of Drug Dependence, Lifetime:
Omnibus Test of Coefficients (Overall Model Evaluation) and R^2-type Indices

Test		$\chi 2$	Df	Sig. (*p*)
Overall Model Evaluation				
Likelihood Ratio Test		253.214	2	.000
R^2-type Indices				
Cox and Snell R^2	.025			
Nagelkerke (Max Rescaled) R^2	.146			

Table 13

Forward Binary Logistic Regression Analysis, Final Step:
Prediction of Diagnosis of Drug Dependence, Lifetime

Disorder & Variable	β	S. E.	Wald $\chi 2$	df	*p*	Exp(B)	95% C.I for Exp(B)	
							Lower	Upper
Drug Dependence								
Number of Traumas	.487	.029	291.249	1	.000	1.627	1.539	1.721
Race/Ethnicity (1)	.456	.158	8.355	1	.004	1.577	1.158	2.148
Gender*	-	-	-	-	.011	-	-	-
Constant	-5.509	.189	847.977	1	.000	.004		

Note. *Gender (*p*=.011) was not significant as a predictor for drug dependence, and was not included in the final step of the model. The significance is noted in the table only for clarification.

Intermittent Explosive Disorder, Lifetime

Regression results indicated the overall model of two of the three predictors (trauma and gender) was statistically reliable in distinguishing between diagnosis and non-diagnosis of intermittent explosive disorder (χ^2 (2, *N*=10148) =388.315, *p* = .000) (Table 14). The strength of the association between trauma and a lifetime diagnosis of intermittent explosive in adolescents was relatively weak with Nagelkerke's R^2 = .068, when controlling for gender. As such, trauma and gender only account for 6.8% of the variance in the logistic regression model (Table 14). The model correctly classified 86.1% of cases overall. It was found that the number of types of trauma to which one was exposed was a significant predictor of a lifetime intermittent explosive

disorder diagnosis in adolescents within this study, Wald χ^2 (1, N=10148) = 376.219, p = .000. For every one unit increase in type of trauma that an adolescent is exposed to, the odds of an endorsement of lifetime diagnosis of intermittent explosive disorder increase by 36%, or 1.36 times (Table 15).

Table 14

Prediction of Diagnosis of Intermittent Explosive Disorder, Lifetime: Omnibus Test of Coefficients (Overall Model Evaluation) and R^2-type Indices

Test		χ2	df	Sig. (p)
Overall Model Evaluation				
Likelihood Ratio Test		388.315	2	.000
R^2-type Indices				
Cox and Snell R^2	.038			
Nagelkerke (Max Rescaled) R^2	.068			

Table 15

Forward Binary Logistic Regression Analysis, Final Step: Prediction of Diagnosis of Intermittent Explosive Disorder, Lifetime

Disorder & Variable	β	S. E.	Wald χ2	df	p	Exp(B)	95% C.I for Exp(B)	
							Lower	Upper
Intermittent Explosive Disorder								
Number of Traumas	.304	.016	376.219	1	.000	1.355	1.314	1.398
Gender (1)	.316	.059	28.251	1	.000	1.372	1.221	1.541-
Race/Ethnicity (1)*	-	-	-	-	.230	-	-	
Constant	-2.484	.053	2186.038	1	.000	.083		

Note. *Race/Ethnicity (p=.230) was not significant as a predictor for IED, and was not included in the final step of the model. The significance is noted in the table only for clarification.

Oppositional Defiant Disorder, Lifetime

Regression results indicated the overall model of one predictor (trauma) was statistically reliable in distinguishing between diagnosis and non-diagnosis of oppositional defiant disorder (χ^2 (1, N=10148) =416.045, p = .000) (Table 16). The strength of the association between trauma

and a lifetime diagnosis of oppositional defiant disorder in adolescents was relatively weak with Nagelkerke's R^2 = .083. As such, trauma accounted for 8.3% of the variance in the logistic regression model (Table 16). The model correctly classified 89.5% of cases overall. It was found that the number of types of trauma to which one was exposed was a significant predictor of a lifetime oppositional defiant disorder diagnosis in adolescents within this study, Wald χ^2 (1, N= 10148) = 429.968, p = .000. For every one unit increase in type of trauma that an adolescent is exposed to, the odds of an endorsement of lifetime diagnosis of intermittent explosive disorder increase by 42%, or 1.42 times (Table 17).

Table 16

Prediction of Diagnosis of Oppositional Defiant Disorder, Lifetime: Omnibus Test of Coefficients (Overall Model Evaluation) and R^2-type Indices

Test		χ2	df	Sig. (p)
Overall Model Evaluation				
Likelihood Ratio Test		388.315	2	.000
R^2-type Indices				
Cox and Snell R^2	.038			
Nagelkerke (Max Rescaled) R^2	.068			

Table 17

Forward Binary Logistic Regression Analysis, Final Step: Prediction of Diagnosis of Oppositional Defiant Disorder, Lifetime

Disorder & Variable	β	S. E.	Wald $\chi 2$	df	*p*	Exp(B)	95% C.I for Exp(B)	
							Lower	Upper
Oppositional Defiant Disorder								
Number of	.350	.017	429.968	1	.000	1.419	1.373	1.467
Traumas	-	-	-	-	.833	-	-	-
Race/Ethnicity	-	-	-	-	.067	-	-	-
(1)**	-2.748	.048	3300.944	1	.000	.064		
Gender**								
Constant								

Note. **Race/Ethnicity (*p*=.833) and Gender (*p*=.067) were not significant predictors for ODD, and were not included in the final step of the model. Their significance levels are noted in the table for clarification only.

Forward Logistic Regression Analysis, Effect of Gender on Model: Hypothesis Two

The variable of gender was examined within the above run forward step binary logistic regression analyses. Based upon the varying literature, it was hypothesized that gender does not have a significant effect on the lifetime diagnoses of externalizing behavior disorders when the model controlled for number of trauma types and race/ethnicity.

Regression analysis results indicated that gender was significant, Wald $\chi 2$ (1, *N*=10148) = 25.637, *p* = .000 and when trauma and race/ethnicity were controlled for, male adolescents were 53% (1.53 times) more likely to endorse a lifetime diagnosis of alcohol abuse when compared to female adolescents (Table 5). Regarding alcohol dependency, gender was significant, Wald $\chi 2$ (1, *N*=10148) = 7.074, *p* = .008 and when trauma and race/ethnicity were controlled for, male adolescents were 69% (1.69 times) more likely to endorse a lifetime diagnosis of alcohol dependency when compared to female adolescents (Table 7). Gender was found to be a significant predictor of conduct disorder, Wald $\chi 2$ (1, *N*=10148) = 42.972, *p* = .000

and when trauma exposure and race/ethnicity were controlled for, male adolescents were 82% (1.82 times) more likely to endorse a lifetime diagnosis of conduct disorder when compared to female adolescents (Table 9). Gender was found to be a significant predictor of drug abuse, Wald $\chi 2$ (1, N=10148) = 43.058, p = .000 and when trauma exposure and race/ethnicity were controlled for, male adolescents were 63% (1.63 times) more likely to endorse a lifetime diagnosis of drug abuse when compared to female adolescents (Table 11).

Regarding intermittent explosive disorder, gender was a significant predictor, Wald χ^2 (1, N=10148) = 28.251, p = .000 and when trauma and race/ethnicity were controlled for, male adolescents were 37% (1.37 times) more likely to endorse a lifetime diagnosis of intermittent explosive disorder when compared to female adolescents (Table 15). Gender was not a significant predictor of a lifetime diagnosis of drug dependence (Table 13) or oppositional defiant disorder (Table 17).

Forward Logistic Regression Analysis, Effect of Race/Ethnicity on Model: Hypothesis Three

The variable of race/ethnicity was examined within the above run forward step binary logistic regression analyses. Based upon the varying literature, it was hypothesized that race/ethnicity does not have a significant effect on the lifetime diagnoses of externalizing behavior disorders when the model also controlled for number of trauma types and gender. The hypothesis that race/ethnicity does not have a significant effect on the lifetime diagnoses of externalizing behavior disorders when trauma and gender were controlled for was only supported when applied to Intermittent Explosive Disorder (Table 15) and Oppositional Defiant Disorder (Table 17), where it was omitted from the forward logistic regression model.

Race/ethnicity was a significant predictor of a lifetime diagnosis of alcohol abuse, Wald χ^2 (1, *N*=10148) = 72.135, *p* = .000 and when gender and trauma were controlled for, Caucasian adolescents were 113.6% (2.136 times) more likely to endorse a lifetime diagnosis of alcohol abuse when compared to Racial/Ethnic minority adolescents (Table 5). Race/ethnicity was a significant predictor of a lifetime diagnosis of alcohol dependency, Wald χ^2 (1, *N*=10148) = 14.979, *p* = .000 and when traumatic exposure and gender were controlled for, Caucasian adolescents were 124.4% (2.24 times) more likely to endorse a lifetime diagnosis of alcohol dependency when compared to Racial/Ethnic minority adolescents (Table 7). Race/ethnicity was a significant predictor of drug abuse, Wald χ^2 (1, *N*=10148) = 36.730, *p* = .000 and when trauma exposure and gender were controlled for, Caucasian adolescents were 59.5% (or 1.595) more likely to endorse a lifetime diagnosis of drug abuse when compared to Racial/Ethnic minority adolescents (Table 11). Regarding drug dependency race/ethnicity was a significant predictor of drug dependence, Wald χ^2 (1, *N*=10148) = 8.555, *p* = .003 and when trauma exposure and gender were controlled for, Caucasian adolescents were 58.6% (or 1.586 times) more likely to endorse a lifetime diagnosis of drug dependence when compared to Racial/Ethnic minority adolescents (Table 13).

Regarding conduct disorder, race/ethnicity was a significant predictor, Wald χ^2 (1, *N*=10148) = 9.464, *p* = .002. When traumatic exposure and gender were controlled for, Caucasian adolescents were 24.2% (.758 times) less likely to endorse a lifetime diagnosis of conduct disorder when compared to Racial/Ethnic minority adolescents (Table 9).

Chapter 5: Discussion and Conclusions

Prior studies examining the impact of trauma on adolescents have illustrated various important elements affecting their symptoms and later diagnoses. The form and type of trauma exposure, its perceived impact, the proximity to an incident, and ultimate severity of experienced traumas are important considerations for researchers and clinicians. Furthermore, many researchers have suggested that gender and racial/ethnic background also contribute to the overall experience of trauma, and can be associated with one's response to trauma (Anderson & Mayes, 2010; Carswell & Carswell, 2008; Maughan et al., 2000; Reebye et al., 2000; Roberts et al., 2011; Torres, 1998; Wolf, 2013;Zahn-Waxler et al., 2008). Despite this, few studies have examined how being exposed to various types of trauma (as well as specific poly-victimization) can affect adolescents, and even fewer have examined it in regard to gender and race/ethnicity, and its subsequent impact on later externalizing behavior disorders. This study aimed to address whether multiple forms of traumatization and/or poly-victimization in adolescents is associated with adolescent externalizing behavior disorders and whether gender and race/ethnicity are significant in such a relationship.

In hypothesis one it was predicted that the total amount of traumas one was exposed to would be positively correlated with an increase in the likelihood of a diagnosis of an externalizing behavior disorder. Adolescents in the current study experienced an average of 1.3 traumas and the associations were positive and significant across all externalizing disorders measured. These findings are consistent with prior research. Ford et al. (2010) found that adolescents exposed to multiple forms of trauma were more likely to have a psychiatric diagnosis and were more likely to be involved with delinquent peers and behaviors (i.e., known elements of externalizing behavior disorders such as conduct disorder). Also, Finkelhor et al.'s (2007)

study noted that that poly-victimization is a higher risk factor for trauma symptoms than is experiencing a single incident of trauma. Furthermore, the current study's findings underscore Ford et al.'s (2010) suggestion of healthcare and mental health professionals strongly considering the presence of poly-victimization as a potential risk for behavioral and legal issues.

Gender was not a significant predictor of a lifetime diagnosis of drug dependence or ODD in adolescents when trauma exposure levels and race/ethnicity were controlled for. These results mirror findings by Greene et al. (2002) who found that ODD remained a significant correlate for difficulties in adolescents even after comorbid conditions, gender, and socioeconomic status were controlled for. These results also mirror findings by Kilpatrick et al. (2000), who also found gender to not be significantly related to substance dependence after the Bonferroni (family-wise error) correction was applied, as it was in this study. The other disorders analyzed revealed that gender was a significant predictor of several lifetime externalizing disorders diagnoses when trauma exposure and race/ethnicity were controlled for, such that being male increased odds of a diagnosis by anywhere between 37.2-82.4%. Wicks-Nelson and Israel's (2009) research suggested gender differences among externalizing disorders may have to do with gender differences in aggression expression, a higher tendency for expression of relational aggression and status violations in females (Crick et al., 1996; Loeber & Keenan, 1994; Zahn-Waxler et al., 2008), and the tendency for males to express trauma externally (Wolf, 2013). Our findings are contradictory to Wall and Barth's (2005), where it was found that gender did not influence aggressive or delinquent behavior differently for males and females, and that gender was not shown to be an independent risk or uniquely predict aggression or delinquency (behavioral characteristics of CD). Despite this, it is cautioned in research that oftentimes the etiology of externalizing disorders are limited by gender, and males tend to be focused upon

more so than females (Keenan et al., 1999). Nonetheless, the data showed that within a balanced sample of males and females, males have a higher likelihood of diagnosis of most externalizing disorders when trauma exposure and race/ethnicity was controlled in the model.

As the only two disorder analyses aligned with this study's third hypothesis, intermittent explosive disorder and oppositional defiant disorder were not significantly predicted by race/ethnicity when trauma exposure and gender were controlled for. These findings underscore previous research that noted that recovery and symptomology in traumatized adolescents do not differ largely among different racial/ethnic groups (Wolf, 2013). However, this study suggested that Caucasians were 24.2% less likely than Racial/Ethnic Minorities to endorse a lifetime diagnosis of conduct disorder when trauma exposure and gender were controlled. For all other disorders examined, Caucasian adolescents were between 56.8-124.4% more likely than their Racial/Ethnic minority peers to have a lifetime diagnosis when trauma exposure and gender were controlled in the model. These results partially mirror previous research conducted by Deater-Deckard, Dodge, Bates and Pettit (1998), where prediction of externalizing behaviors in sampled adolescents were found for European American children. It was contradictory to research done by McLaughlin, Hilt and Nolen-Hoeksama (2007), who found Black males to have reported the highest levels of overtly aggressive behavior although the study focused solely on behaviors rather than the presence of externalizing disorders. The current study's results are notable, considering that statistics show that when compared to Caucasians, ethnic minorities (particularly of African and Latino descent) in the United States have a much higher risk of trauma through maltreatment as children (Roberts et al., 2011). Other possible explanations for the higher likelihood of behavior disorders in Caucasian adolescents may reside within cultural differences, perceptions of traumatic experiences (Wolf, 2013), and access to treatment and

arenas where one can be properly assessed and treated (Roberts et al., 2011; Schraufnagel et al., 2006; Zayfert, 2008). Furthermore, the higher likelihood of ethnic/minority adolescents endorsing Conduct Disorder may be explained in prior research, as previously it has been found that Black and Native Hawaiian adolescents are more likely than their White peers to be diagnosed with disruptive behavior disorders. This was found even after age, gender, functional impairment, and socioeconomic status were controlled for (Nguyen et al., 2007). This is notable, particularly when research has shown that self-reported national samples illustrate that when compared to Black adolescents, White adolescents are less likely to engage in assaults and thefts of over $50, however are just as likely to carry a handgun, carry a weapon on school property, run away, commit vandalism, steal less than $50, and sell illicit drugs (Arya et al., 2008); these are all elements that may contribute to conduct disorder diagnoses. Further racial disparity in juvenile justice systems may contribute to the likelihood of a CD diagnosis as well; Black adolescents are more likely to be arrested, referred to juvenile justice systems, be detained, placed in correctional facilities, and transferred to adult courts (Arya et al, 2008) than are White adolescents. Black adolescents are also less likely to be sent to diversion programs or given probation than White adolescents are in the US (Arya et al, 2008).

Various researchers, however, caution strongly that “truly identifying” variations in responses to trauma are difficult to fully identify among minority adolescents due to variations in economic status, geographical location, acculturation levels, and the high rate of heterogeneity among minority adolescents in the United States (Pole et al., 2008; Wolf, 2013). Furthermore, research suggests that while the impact of race/ethnicity on diagnosis related to trauma impact is highly important, the impact itself is likely small (Wolf, 2013).

It should be noted that while all of the statistical models were significant, the predictors accounted for only small amounts of variance in whether an adolescent was ultimately diagnosed with an externalizing behavior disorder. Overall, results from this study show that in most cases, the predictors of trauma exposure, gender, and race/ethnicity were statistically significant, but their ability to explain the variance in diagnosis compared to non-diagnosis is clinically limited. Overall, this mirrors prior research that attempted to relate trauma exposure to subsequent disorders and behaviors, wherein it is nearly always cautioned that several factors may have interactional or unique contributions, but may not be examined within research models.

Adolescents who have experienced complex trauma or complex traumatic stress tend to manifest their symptoms differently when compared to those who experience trauma later in life and less in quantity (Roach, 2013; van der Kolk & McFarlane, 1996). These differences are seen in affect regulation, information processing, self-concept, behavior control, interpersonal relationships, and even in biological processes (Roach, 2013; van der Kolk & McFarlane, 1996).

Recommendations and Implications

Based on the findings from the current study, it is recommended that future research involving trauma more pointedly assess the impact that various types and amounts of trauma can have on a person. Results suggest that further examination of these issues may be helpful in learning and understanding more of the predictive capacity that various elements have when assessing externalizing disorders. Considering the impact that various types of disorders can have on a community, the economy, and the criminal justice system as a whole, it would likely benefit society for clinicians to better understand the etiology of externalizing behavior as it relates to trauma, gender, and ethnicity, as this may be helpful in prevention and treatment.

Limitations

There were several limitations to this study. First, because the collection of this data was done by other researchers, access to the participants was not available for this author. The timeframe and location in which it was collected was out of the control of this author. Furthermore, though this author assumes that all participants were answering truthfully to the questions asked by researchers, the truthfulness of their responses and their full understanding of the questions asked are not completely known to this author. With regard to trauma, there may be incidences of trauma that were not counted during this author's analysis. These elements were removed in order to ensure that the traumatic events were limited to those that could be objectively assessed by initial researchers, and considered by this author to be out of the immediate control of participants.

Because this study is limited only to trauma exposure, gender, and race/ethnicity, it may be limited in its applicability, as many factors can influence subsequent behavior after a trauma. However, Kolbo and colleagues (1996) found support for a connection between adolescents who witness violence and go on to display both externalizing and internalizing behaviors. Prior studies have emphasized that the connection between trauma and displays of externalizing behaviors are not simple or clear-cut, but rather very dependent upon other variables as well (Arata, Langhinrichsen-Rohling, Bowers, & O'Brien, 2007; Kerig, Ward, Vanderzee, & Moeddel, 2009; Muller, Goebel-Fabbri, Diamond, & Dinklage, 2000; Zinzow et al., 2009). Other issues such as school failure, poor social competence, and poorer language and cognitive functioning may all contribute to an adolescent engaging in socially deviant behavior (McGee & Williams, 1999).

Furthermore, it is important to note that the numerical amount of trauma types that one had experienced is unable to truly give a subjective account or chronological order of the trauma experienced by adolescents. As such, it is important to consider that the severity of the trauma, its full impact on each adolescent and their subsequent behavior, could not be fully analyzed within the scope of this particular study. Despite this, the results show that as an adolescent is exposed to more forms of trauma, their likelihood of endorsing a lifetime externalizing disorder increases. Also, many different forms of trauma experienced close in time or repeatedly, can introduce its own unique form of symptoms that may or may not be categorized best by a PTSD diagnosis and may manifest in externalizing behavior, particularly if they are experienced during early developmental periods (Becker et al., 2003; McCabe et al., 2005; Roach, 2013; van der Kolk & McFarlane, 1996).

Additionally, it is possible that participants could have been untruthful or limited in their memory or explanation of traumatic events. It is also possible that participants could be misattributing symptoms to traumatic exposure and in fact be suffering from related issues that are of other origins (i.e., depression, generalized anxiety, etc.). Furthermore, while the level of victimization that an adolescent was exposed to was a significant predictor, it accounted for a small amount of variance and thus the findings of this study should be interpreted with caution.

Furthermore, this study uses data from the NCS-A which is based on the DSM-IV (APA, 2000) versus the most recent decided upon criteria (from the DSM-5; APA, 2012). Because there have not been any major changes that would disqualify a prior diagnosis of an externalizing disorder made to the DSM-5 criteria, this author is confident that the data will translate. Also, in the NCS-A, adolescents were only asked about substance dependence if they first met criteria for substance abuse. This may be a limitation to the validity of the data, because the two can be

mutually exclusive, where someone can have dependence without history of abuse. Furthermore, research suggests that substance abuse tends to be diagnosed more in adolescents, particularly due to the less severe nature of the diagnosis. Research has challenged the adequacy of using adult checklists for adolescents, based on the argument that the DSM-IV criteria do not fully consider the unique elements of adolescent substance use (Chassin et al., 2003). For example, there have been reports of between 13-30% of surveyed adolescents endorsing one or two dependence criteria, but no abuse criteria, and thus not being eligible for a substance use disorder diagnosis, per the DSM-IV-TR criteria (Harrison, Fulkerson, & Beebe, 1998; Lewinsohn, Rohde, & Seeley, 1996; Pollock & Martin, 1999).

Conclusion

Childhood and adolescent trauma has been shown time and again to have a profound effect on one's health, environment, sociological well-being, and safety. These events can manifest in many different forms and the subsequent wounds left by trauma exposure can be difficult to heal when they are compounded. This study aimed to better understand the relationship between the frequency of different forms of traumatic experiences and lifetime diagnoses of externalizing behavior disorders, and aimed to do so in a way that accounted for basic demographic differences of gender and race/ethnicity. Overall, the frequency of trauma exposure significantly predicted a lifetime diagnosis of externalizing disorders. This study adds to other emerging literature that is starting to be cognizant of the compounding nature of multiple traumas and how it can affect adolescents in terms of manifesting externalizing behavior disorders. More studies are needed with diverse populations to expand the field's understanding of how these elements affect our most vulnerable adolescents. Moreover, we need to consider how adolescents are treated in clinical settings when they have a history of trauma, multiple traumas, or poly-victimization, but do not present in manners typical of traditional explanations

of PTSD. It is important that clinicians and researchers work together to recognize and explore these issues and do so in a way that appreciates the differences based on gender and race/ethnicity.

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