

Jessica L. Tomasula, ADOLESCENT SEXUAL ASSAULT AND SUICIDAL BEHAVIORS: INVESTIGATING A NATIONAL SAMPLE (Under the direction of Drs. Laura Anderson and Heather Littleton) Department of Psychology, April 2010.

This study was designed to shed light on two public health concerns: sexual assault and suicidal behaviors among the adolescent population. Sexual assault history, sex differences, and the combination of both sexual assault history and sex were examined when considering suicidal behaviors among high-school adolescents. This study utilized responses from the most recent national survey, 2007 Youth Risk Behavior Surveillance System. Adolescents reporting a history of sexual assault were approximately six times ($OR=6.384$) more likely to have attempted suicide in the past year when compared to adolescents reporting no history of sexual assault. When examining each sex separately, the relationship was stronger for males: Males reporting a history of sexual assault were nearly ten times ($OR=9.757$) as likely to have attempted suicide at least once in the past year when compared to males reporting no such history. Females reporting a history of sexual assault were nearly five times ($OR=4.712$) more likely to have attempted suicide in the previous twelve months when compared to females reporting no such history. When examining suicidal behaviors among adolescents reporting a sexual assault history, the rates between male and female adolescents were indistinguishable. That is, on average, 26% of males and females with a sexual assault history attempted suicide within the past 12 months. In order to investigate the impact on suicide attempts requiring medical attention, the final, iterative logistic regression models included age, sexual assault history, and sex x sexual assault history as an interaction term. A statistically significant sex x sexual assault history emerged, $Wald \chi^2(1, 40)=11.00, p=.002$ (See Figure 1) when examining responses from adolescents reporting suicidal behavior within the past 12 months. That is, males reporting a sexual assault history reported suicide attempts requiring medical attention more frequently than male suicide attempters without sexual assault histories, as well as

both groups of female suicide attempters – both with and without sexual assault histories.

Implications for the existing literature base and potential school-based suicide prevention and intervention programs are discussed.

ADOLESCENT SEXUAL ASSAULT AND SUICIDAL BEHAVIORS:
INVESTIGATING A NATIONAL SAMPLE

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Chapter I

Introduction and Review of the Literature

In 2006, suicide claimed the lives of 4,189 adolescents in the United States, making suicide the third leading cause of death among 15-24 year olds, second only to accidental fatalities and homicide (Centers for Disease Control [CDC], 2007a). According to the most recent national data, the 2007 Youth Risk Behavior Survey (YRBS), 14.5% of U.S. high-school aged students (18.7% of females and 10.3% of males) reported having seriously considered attempting suicide in the previous 12 months, (CDC, 2008). It was further reported that 6.9% of U.S. students (9.3% of females and 4.6% of males) engaged in actual suicide attempts one or more times within the 2006-2007 school year, (CDC, 2008). Although adolescent suicide rates have become startling enough to increase national prevention and intervention efforts (U.S. Department of Health and Human Services, 2007), adolescent suicide remains a taboo topic throughout much of the United States. Given the devastating impact of adolescent suicide on family and community, the idea that many remain unaware or unwilling to acknowledge the seriousness of this issue seems contradictory to the unacceptably high rates of adolescent suicidal behavior.

Common and dangerous myths surrounding adolescent suicide are still quite pervasive despite years of descriptive research. Adults may consider adolescence to be a time of great ‘storm and stress’ and, therefore, ignore warning signs (Arnett, 1999). Some people may believe that adolescents who talk about suicide never actually attempt, while the exact opposite is true. Indeed, discussing suicidal thoughts and plans with others has been labeled a cry for help and an important indicator of risk (Miller & Eckert, 2009). However, adolescents typically do not communicate their suicidal thoughts and plans to their parents or caregivers (Miller & Eckert, 2009). This finding emphasizes the importance of risk assessment in school-based settings.

Because adolescents spend the majority of their waking hours within the school setting, it is imperative that suicide prevention education and screening occur within the schools. Although evidence-based research suggests that students will honestly state their suicidal intentions (Joe & Bryant, 2007; Miller & DuPaul, 1996), schools remain hesitant to provide education and screening efforts due to the fictitious belief that exposure to such sensitive topics increases suicidal thoughts and behaviors. In fact, recent research suggests the contrary (Gould et al., 2005). Fortunately, U.S. schools are given less choice in the matter due to the Garrett Lee Smith Memorial Act (108th Congress). In 2004, Congress called for early intervention and assessment services to be integrated into numerous community organizations, including school systems (Peña & Caine, 2006).

In order to develop appropriate prevention and intervention programs in school-based settings, there is a need to identify risk factors for suicide. One understudied but potentially important risk factor for suicidal behavior among youth is the experience of sexual violence (Browne & Finkelhor, 1986; Howard & Wang, 2005; Martin, Bergen, Richardson, Roeger, & Allison, 2004). Indeed, research indicates that adolescents reporting a history of sexual violence are at significantly increased risk for a number of poor mental health outcomes as well as being at increased risk for engaging in a number of health risk behaviors (Hanson, et al., 2008; Hussey, Chang, & Kotch, 2006).

Prevalence of Sexual Violence in Youth

Sexual violence in youth and adolescence is a major public health concern with long-term, negative biopsychosocial consequences (Browne & Finkelhor, 1986; DeBellis et al., 1994; Hussey et al., 2006; Tyler, Johnson, & Brownridge, 2008). Indeed, the prevalence of sexual violence experiences among youth remains alarmingly high. A recent estimate of sexual abuse prevalence among high school students indicates rates of 7.8% nationwide (CDC, 2008). There are clear

patterns of gender differences with more female adolescents reporting a history of sexual violence than male adolescents relating a similar history (Basile, et al., 2006; Finkelhor & Browne, 1985; Howard & Wang, 2005; Shrier, Dwyer Pierce, Emans, & DuRant, 1998; Turner, Finkelhor, & Ormrod, 2006; Walker, Carey, Mohr, Stein, & Seedat, 2004). During 2004 to 2006, an estimated 55,857 girls and female adolescents aged 10-17 years received medical care in U.S. emergency departments as a result of nonfatal injuries sustained from a sexual assault (CDC, 2009a). An estimated 3,750 male children and adolescents aged 10-14 years received medical care resulting from sexual assault as well. Limited sample size prohibited incidence estimates for the older male adolescent population (CDC, 2009a). Community samples generally identify that between 12% to 35% of women and 4% to 9% of men report that they experienced sexual violence before the age of 18 (Putnam, 2003).

It is important to note that these prevalence and incidence estimates may even under represent the true prevalence of sexual violence among youth due to lack of disclosure. This can be particularly problematic among boys, as they are less likely than girls to disclose their abuse (Browne & Finkelhor, 1986; Priebe & Svedin, 2008; Walker et al., 2004), but boys are no less vulnerable to deleterious outcomes (Banyard, Williams, & Siegel, 2004; Hanson, et al., 2008; Martin et al., 2004). Some of the reasons why boys are less likely to disclose their abuse may include shame about their perceived lack of power and masculinity or fear of being labeled homosexual (Anderson & Tomasula, 2010; Tewksbury, 2007; Walker et al., 2004).

An inconsistent definition of sexual violence utilized in research is also challenging when attempting to estimate rates of sexual violence. Terms used to describe childhood and adolescent sexual violence, including abuse and assault, vary between studies and across fields. The age-discrepancy requirement (i.e., that the perpetrator of the sexual act be a certain age or be older than

the victim by a certain number of years) is typically less for younger children than older children. Generally, however, an act is considered sexual abuse if the victim is younger than 13 years and the perpetrator is at least five years older than the victim, typically an adult in the role of a caregiver or a trusted adult (Senn, Carey & Venable, 2008). In contrast, there is no age discrepancy requirement in instances of sexual assault, which generally includes sexual acts obtained by threat, physical force, or taking advantage of someone incapable of consenting, such as someone incapacitated as a result of substance use. More broadly, sexual violence can be defined as (a) an event of sexual contact that occurs without consent, (b) the perpetrator uses coercion, force, or the threat of force OR the perpetrator takes advantage of someone incapable of consenting, e.g. a child or individual who is incapacitated due to substance use; and (c) the event involves physical contact with perpetrator's and/or victim's sexual body parts.

Although it is apparent that sexual violence among children and adolescents is a frequent and serious societal problem in the United States, the research base indicates large gaps, including potentially important gender differences. Knowledge gaps prevent the public from understanding the seriousness of sexual violence. Extant research on sexual violence does support the clear negative impact of this experience, however. These detrimental outcomes include, but are not limited to, psychopathology, restricted psychosocial functioning, poor physical health, and even suicide.

The Impact of Sexually Violent Experiences

Internalizing behaviors. Victims of sexual violence in childhood and adolescence frequently experience symptoms of depression and anxiety concurrently, and these symptoms often continue into adulthood. This population is at elevated risk for a number of psychological disorders (Banyard, et al., 2004; Boney-McCoy & Finkelhor, 1996; Browne & Finkelhor, 1986; Chen,

Dunne, & Han, 2006; Howard & Wang, 2005; Schilling, Aseltine, & Gore, 2007; Weiss, Longhurst, & Mazure, 1999). For example, studies have found that prevalence rates for affective disorders, like depression, are significantly higher among child and adolescent victims of sexual violence when compared to peers reporting no such history (Putnam, 2003). In one study, boys and girls reporting histories of sexual assault were more depressed in high school and two years later than their peers, regardless of gender, parental education level, and ethnicity (Schilling et al., 2007). Among adolescents reporting a history of sexual violence, results from studies including the influence of gender have been mixed (Gershon, Minor, & Hayward, 2008). Howard and Wang (2005) report no evidence of gender differences in feelings of sadness or hopelessness among adolescents indicating a history of sexual violence. Yet, Bergen and colleagues (2003) found that a history of sexual violence was associated with significantly higher risk for hopelessness in male (OR=9.9) than female adolescents (OR=4.9).

Researchers have also examined the relationship between post-traumatic stress disorder (PTSD) and sexual violence. PTSD occurs after a person has been exposed to an extreme traumatic stressor involving actual or threatened death or serious injury. Symptoms of PTSD include re-experiencing the event in the form of unwanted thoughts, dreams, and memories; avoidance of stimuli that trigger thoughts of the trauma; numbing of general responsiveness to the external world; and increased arousal in daily functioning (American Psychiatric Association [APA], 2000). Although not all children and adolescents develop psychopathology resulting from sexual violence, there is still a substantial proportion (36% to 50%) of youth who demonstrate PTSD symptoms (Walker et al., 2004). Patterns in gender differences are still unclear. In one study, 35% of sexually abused girls and 20% of boys experienced PTSD symptoms (Ackerman, Newton, McPherson, Jones, & Dykman, 1998). Yet, Hanson and colleagues (2008) found that boys were 5.64 times as

likely to meet criteria for PTSD when they reported a history of sexual assault when compared to same-sex non-victims, whereas girls with a sexual assault history were 2.14 times more likely to meet PTSD criteria than same-sex non-victims. Further, McCrae, Chapman, and Christ (2006) surveyed internalizing and PTSD symptoms across children and adolescents who had experienced various types of maltreatment in the National Survey of Child and Adolescent Well-being (NSCAW) study. Those children and adolescents with reported sexual violence histories had higher rates of depression and PTSD than those children and adolescents reporting non-sexual maltreatment. Maltreatment involving sexual violence seems to be associated with particularly detrimental outcomes, even when compared to other forms of maltreatment (McCrae, et al., 2006).

Externalizing behaviors. Not all child and adolescent victims of sexual violence report internalizing behaviors, such as depression and PTSD; some victims demonstrate externalizing behaviors alone or in conjunction with internalizing behaviors. Youth reporting a sexual assault history are more likely to demonstrate behavioral difficulties, such as aggression and delinquent behaviors, when compared to their peers reporting no such history (Hébert, Tremblay, Parent, Daignault, & Piché, 2006). In general, female victims of sexual violence typically present more internalizing behaviors, including nightmares and somatic complaints, including mood disorder symptoms, whereas male victims typically demonstrate significantly more externalizing behaviors, such as aggressive behaviors like fighting (Cleary, 2000; Darves-Bornoz, Choquet, Ledoux, Gasquet, & Manfredi, 1998; Walker et al., 2004).

Psychosocial Dysfunction

In addition to psychopathology, the experience of sexual violence is associated with a number of other negative outcomes including poor academic performance, interpersonal relationship issues, and health risk behaviors. Some adolescent victims of sexual violence engage in

maladaptive coping mechanisms, such as risky sexual behavior, substance abuse, and disordered eating behaviors.

Academic performance. A history of sexual violence can negatively affect adolescents' academic performance (Berkowitz, Bross, Chadwick, & Whitworth, 1993; Chandy, Blum, & Resnick, 1996; Schilling et al., 2007; Tyler, 2002). Child and adolescent victims of sexual violence report overall lower academic achievement and a higher proportion of negative feelings about school compared to non-victims. Sexual assault victims are more likely than non-victims to skip classes and entire days of school and remain at a higher risk for dropping out of school altogether (Chandy et al., 1996; Tyler, 2002). Later in life, female victims are less likely to attend a traditional four year college and report less enjoyment and more conflict in school and work than their non-victimized peers (Schilling et al., 2007).

Dating re-victimization. Victims of sexual violence remain vulnerable to re-victimization during their adolescent years as they begin the dating process (Basile et al., 2006; Howard & Wang, 2005). For example, Hébert and colleagues (2008) reported that a history of sexual abuse in adolescent females is associated with a higher prevalence of psychological dating victimization, physical abuse by a romantic partner, and social coercion in dating relationships. Both male and female victims are equally at risk for engaging in externalizing behaviors, including physical dating violence, than non-victimized adolescents (Basile et al., 2006; Cleary, 2000; Howard & Wang, 2005).

Disordered eating. In a study from the 2003 Youth Risk Behavior Surveillance data, results indicated that high school students reporting a history of forced sex were significantly more likely to use diet pills, fast for 24 hours or more, and vomit to lose weight as compared to their peers reporting no such history (Basile et al., 2006). Interestingly, other researchers (Neumark-Stzainer,

Story, Hannen, Beuhring, & Resnick, 2000; Shrier, et al., 1998) noted a significant relationship between forced sex and bulimia among girls *and* boys. For instance, Shrier and colleagues found that sexually active boys who reported engaging in purging behaviors (i.e. having vomited or used laxatives in the previous 30-day period) were 3.44 times more likely than other sexually active boys to report a history of forced sex.

Alcohol or substance abuse. Adolescents with a history of sexual violence are at an increased vulnerability to engage in alcohol and substance misuse (Chen et al., 2006; Howard & Wang, 2005; Hussey et al., 2006). Both male and female victims of sexual assault are more likely to report using alcohol, tobacco products, and marijuana than peers (Chandy et al., 1996). Excessive use of alcohol is present in this subpopulation where victims of sexual abuse were reported to be 1.6 times more likely to engage in binge drinking and regular alcohol use than their peers reporting no such history (Hussey et al., 2006). Finally, adolescent male victims of sexual assault were twice as likely to report drinking daily and more likely to report regular use of stimulants than their non-victimized male peers (Chandy, Blum, & Resnick, 1997; Tyler, 2002).

Risky sexual behavior. Adolescent victims of sexual violence are more likely to engage in risky sexual behaviors when compared to their peers (Chen et al., 2006; Howard & Wang, 2005; Raj, Silverman, & Amaro, 2000; Senn, Carey, & Vanable, 2008). Both male and female victims of sexual violence often report an earlier onset of sexual intercourse, report higher numbers of sexual partners, and are more likely to report drug or alcohol use prior to sexual activity than their peers relating no history of sexual violence. Similarly, sexual abuse victims are less likely than their same-age peers to use contraception during sexual activity, which accounts for their increased rates of sexually transmitted diseases (STDs) and teenage pregnancy. Adolescent boys reporting a history of sexual violence are especially vulnerable, or at an increased risk, to engage in sexually risky

behaviors, such as engaging in sexual activity at an earlier age, having more sexual partners, and engaging in less frequent use of contraception than adolescent girls reporting a similar history (Chandy et al., 1996; Tyler, 2002).

Overall Psychological Well-Being

The negative impact of sexual violence compounds over time, such that child and adolescent victims report lower overall well-being than their peers (Tyler et al., 2008; Hussey et al., 2006; Anda et al., 2006; Weiss et al., 1999). Victims of sexual violence are more likely to report internalizing behaviors, including symptoms of depression or anxiety, and externalizing behaviors, like risk-taking behaviors, which all indicate heightened levels of psychological distress. This subpopulation of children and adolescents is also less likely to engage in the academic learning environment than their peers, leading to poorer academic achievement and performance. Children and adolescents reporting a history of sexual violence are at an increased risk of engaging in risky behaviors, such as excessive alcohol and substance use, as well as dangerous weight-controlling behaviors. Both male and female adolescent victims of sexual violence are also especially vulnerable to re-victimization as they engage in sexual behaviors. While engaging in dating relationships, girls with a sexual assault history are especially vulnerable to re-victimization through the use of sexual coercion or physical force. Both boys and girls in this subpopulation report engaging in physical dating violence more often than their peers. Sexual risk-taking, such as engaging in unprotected sex and having numerous sexual partners, is also more likely among both boys and girls with a history of sexual violence. Engaging in such risk behaviors can result in difficulty or dysfunction in numerous aspects of life, yet it is still unclear as to *why* some victims of sexual violence are at an increased risk for experiencing life adversities when compared to their peers.

Theoretical Models for Understanding the Impact of Sexual Violence

Experiencing sexual violence in childhood and adolescence is associated with a range of emotional, behavioral, and sexual problems. However, not all victims experience the same negative sequelae. Freyd's (1994) theory of betrayal trauma, Finkelhor and Browne's (1985) seminal work, and Janoff-Bulman's (1989) shattered assumptions theory all provide a framework for understanding the diversity of outcomes among victims of sexual violence as well as potential risk factors for experiencing poor outcomes among victims of sexual violence.

Betrayal Trauma Theory. Freyd's (1994) betrayal trauma theory was developed to explain why certain traumas, such as sexual violence, are associated so strongly with deleterious outcomes despite the fact that these traumas often do not contain elements traditionally thought to be associated with poor outcomes (e.g., high degree of life threat, serious physical injury). Betrayal refers to the awareness that someone on whom the child was dependent has caused them harm. The impact of psychological harm stems from the fundamental ethics of parent-child and similar relationships in which the child expects, and therefore, trusts that caregivers or other adults will protect him/her from harm (Freyd, 1994).

As the perpetrator knowingly disregards this unspoken contract, the victim is left with an internal conflict with potentially devastating psychological effects. If possible, the victim typically avoids interactions with this person. In the case where a child's physical or emotional needs will not be met if the child withdraws from the betrayer, then they must attempt to ignore the abuse. They may then dissociate information from awareness in order to fulfill their attachment behavior and, thus, basic needs (Freyd, 2009). As the intensity or duration of the trauma continues, victims must adjust the level of dissociation and corresponding adaptational strategies, increasing their likelihood of psychosocial negative outcomes. In fact, this type of learning may lead to highly maladaptive

behaviors later in life, such as alterations in affect regulation and the ability to perceive oneself or others. For example, a common result of betrayal is misperceptions of others' intent, resulting in an increased willingness to trust others or an inability to trust others (Browne & Finkelhor, 1986).

Engaging in dissociation in response to threatening situations can increase risk for re-victimization. For instance, DePrince (2005) found that the presence of betrayal trauma before the age of 18 was associated with psychological dissociation and with re-victimization after age 18. A repeated sense of betrayal can also occur if the victim's disclosure of the abuse is not met with a supportive familial network, such that trusted others collude in the victim's betrayal by the perpetrator.

Traumatic Sexualization Model. Finkelhor and Browne (1985) devised a framework in order to understand why sexual abuse, as opposed to other types of abuse and maltreatment, can be particularly harmful. They propose that sexual abuse is especially harmful to one's psychological well-being because it leads to three primary negative cognitive developmental outcomes: traumatic sexualization, feelings of powerlessness, and stigma. Traumatic sexualization refers to the process in which a child's sexuality is shaped in a developmentally inappropriate and interpersonally dysfunctional fashion as a result of sexual abuse (Finkelhor & Browne, 1985). Children and adolescents may experience confusion and misconceptions about sexual behavior, which can lead to maladaptive behaviors. In some cases, victims of sexual violence may learn to use sexual behavior in order to manipulate others into meeting their needs, which may lead to sexual risk taking and later re-victimization. Other children and adolescents who have been sexually traumatized may learn to fear sexual activity due to their associated memories. These fears may translate into heightened anxiety levels or feelings of depression.

Another factor that may be associated with poor psychosocial functioning is the resulting feelings of powerlessness that often accompany one's history of sexual violence. Powerlessness

occurs when the child or adolescent's desires and sense of efficacy are continually disregarded by the abuser. Common reactions to powerlessness are fear and anxiety, but the impact of a diminished sense of efficacy cannot be overlooked due its impact on one's coping skills. Victims may feel unable to cope with their environment resulting in learning problems, running away from home, and even suicidal behaviors (Finkelhor & Browne, 1985). Victims who feel powerless may also be at an increased risk for re-victimization if they feel unable to refuse or resist potential perpetrators.

Finkelhor and Browne (1985) contend that child sexual abuse can also lead to stigmatization. Stigmatization refers to the negative messages, such as shame, blame, or guilt, that are expressed directly or indirectly to the victim by the perpetrator and others, which are then incorporated into the child's self-image. Stigmatization occurs on two levels: personal and societal stigma. In some cases, young victims of sexual abuse are unaware that their prior activity or knowledge is considered deviant or taboo in most societies. Although young victims may have avoided societal and therefore, personal stigma for a period of time, they will mature and begin to interpret the powerful messages of shame that are conveyed by the public. Negative evaluations of oneself and feeling negatively evaluated by others have been found to be strongly associated with depressive and PTSD symptoms as well as poorer self-esteem among victims of sexual violence (Feiring, Taska, & Chen, 2002; Pachankis, 2007).

Shattered Assumptions Theory. Janoff-Bulman (1989) put forward another explanation for the harmful effects of sexual violence that focuses on common responses to traumatic events that lead to cognitive shifts in commonly held assumptions, or schemas, about themselves, others, and the world. More broadly, a schema is a way in which people evaluate, organize, and ultimately justify information received from the environment. Janoff-Bulman proposes that trauma leads to cognitive changes by shattering a number of commonly held schemas such as the illusion of

invulnerability, or the notion, “It (trauma) can’t happen to me.” Janoff-Bulman (1989) asserts that people often have a need to believe in a ‘just world’ where people get what they deserve and deserve what they get. People rationalize that good things happen to good people and, therefore, traumatic experiences only happen to ‘bad’ or immoral. In addition, most individuals believe themselves to be good and worthy overall and thus undeserving of trauma. Finally, most individuals regard others as good and the world as generally a good place, where positive events far outnumber bad ones. . Thus, the experience of trauma represents a clear threat to these extant beliefs that must be resolved. The experience of sexual violence is especially likely to threaten these assumptions because victimization is often perpetrated by trusted adults, thus, shattering the victim’s sense of trust and belief in a just world (Littleton, Axsom, Radecki Breitkopf, & Berenson, 2006).

Victims engage in a number of strategies to resolve their cognitive crises resulting from the traumatic event. Self-blame is a common response to maintain the assumption of the world’s benevolence and meaningfulness. This self-degradation allows for the victim to uphold the cognitive schema that a change in behavior can prevent future negative outcomes, thus, maintaining a sense of invulnerability. Some victims reinterpret the traumatic event as a positive experience, citing an increase in self-knowledge, a reordering of priorities, and a reappraisal of their life (Janoff-Bulman, 1989). This perspective allows victims to maintain schemas that the world is a benevolent place and that their self-worth remains intact. Still others deny the traumatic event in attempts to reduce the cognitive crises and resulting schematic shifts.

Biological Disturbances

In order to fully understand the impact of childhood trauma, potential psychobiological correlates must be considered alongside the potential psychological components of trauma.

Research indicates that early traumatic experiences affect the hypothalamic-pituitary-adrenocortical (HPA) system that regulates the production of the stress hormone, cortisol (DeBellis et al., 1994; van der Vegt, van der Ende, Kirschbaum, Verhulst, & Henning, 2009; van Voorhees & Scarpa, 2004; Weiss et al., 1999). As the HPA axis is activated, cortisol production leads to increased energy and concentration levels. If under extended periods of duress, the delayed effects of increased cortisol production seem to involve the reversal of these actions, resulting in decreased energy, concentration level, and depressed mood (van Voorhees & Scarpa, 2004).

Hypercortisolism, a relative overproduction of cortisol, has been strongly associated in the literature with depression among adults, but it has not been thoroughly investigated in children. Still, studies by Goodyer and colleagues (1991, 1996) suggest that “elevated cortisol levels in children and adolescents with depression may be related to the severity of the disorder, that cortisol levels decline on recovery, and that children may exhibit a similar flattening of the diurnal rhythm of cortisol secretion during depressive episodes as do adults” (Van Voorhees & Scarpa, 2004, pg. 336). It has been suggested that the effects of child sexual abuse and adult onset depression negatively affect the HPA axis in similar ways, suggesting a neurophysiological relationship between the two constructs (DeBellis et al., 1994; Weiss et al., 1999). Weiss and colleagues theorized specifically that childhood sexual abuse might lead to a depressive diathesis, such that individuals who experience early life stressors, like sexual abuse, experience neurobiological changes to the HPA axis, increasing their vulnerability to developing depression following stressful events later in life.

Unlike the adult depression research, studies indicate that sexual abuse victims reporting PTSD symptoms experience hypocortisolism, or a relative underproduction of cortisol (van der Vegt et al., 2009; van Voorhees & Scarpa, 2004). Because cortisol facilitates the containment of the

sympathetic nervous system (SNS) response to stress, then a reduction in cortisol production could impede the process of attaining physiologic homeostasis following stress (Yehuda & LeDoux, 2007). If the body remains in a state of hyperarousal due to prolonged exposure to a traumatic event, then the brain permanently adjusts to the new environmental demands. Much in the same way that repeated exposure to an environmental stimulus produces a cognitive memory, prolonged exposure to a heightened state of arousal results in a 'state memory.' The arousal state is no longer reversible because there is a new homeostatic set point (Perry, Conroy, & Ravitz, 1991). Given that the SNS response of releasing adrenaline assists in the consolidation of traumatic memories (McGaugh & Roozendaal, 2002), failure to restrain this response may lead to strongly encoded and, therefore, more distressing memories of the event. Failing to contain these traumatic reminders could perpetuate the common PTSD symptoms, like intrusive thoughts, reoccurring nightmares, and hyperarousal symptoms (Yehuda & LeDoux, 2007).

Thus to summarize, there are several extant psychosocial and biological models for explaining the significant and persistent impact of sexual violence on victims. These models suggest that experiences of sexual violence are particularly likely to have a harmful effect on victims' functioning via a number of biological, cognitive, and behavioral mechanisms.

Sexual Violence and Suicidality

One particularly harmful potential sequelae of experiencing sexual violence is an increased risk of suicidal behaviors and even completed suicide. Children and adolescents reporting a history of sexual violence maintain higher rates of suicidal ideation and attempt suicide more often than their peers reporting no such history (Basile et al., 2006; Browne & Finkelhor, 1986; Chandy et al., 1996; Cleary, 2000; DeBellis, et al., 1994; Howard & Wang, 2005; Mann, 2003; Molnar, Berkman, & Buka, 2001; Tyler, 2002). In fact, Rosenberg and colleagues (2005) found that sexual assault is

the most strongly associated risk factor for adolescents reporting one suicide attempt when compared to adolescents reporting no such history of suicide attempts. A slight sex difference was noted: adolescent girls reporting a history of sexual assault were more than twice as likely to report a suicide attempt (OR=2.17) than non-abused girls; adolescent boys reporting a history of sexual assault were nearly twice as likely to report a suicide attempt (OR=1.75) when compared to their same-sex peers relating no such history of suicide attempts.

Among adolescent girls reporting a history of sexual violence, the relationship between sexual abuse and suicidality has been found to be mediated by depressive symptomatology, hopelessness, and family functioning (Martin et al., 2004). In contrast, for sexually abused boys, even when the previous three variables are held constant, there is a 10-fold increased risk of making suicidal plans and threats, and a 15-fold increased risk of attempting suicide. More research on sex differences of suicidal behaviors among sexually abused adolescents is needed in order to support a more cohesive evidence base and formulate data for individualized prevention programming.

Investigating Suicidal Behavior

Much like research on sexual violence in children and adolescents, the topic of suicide lacks a common nomenclature and consistent classification procedure (Berman, Jobes, & Silverman, 2006a; Maris, 2002). Research on suicidal behaviors is varied, including self-report data and interviews from adolescent suicide attempters as well as post-mortem investigations of adolescents who completed suicide. Suicidal behaviors span a continuum with suicidal ideation, or serious thoughts of suicide, typifying less severe suicidal behavior. Moving further toward lethal actions on the continuum, a suicide attempt is a self-inflicted act with the explicit or inferred intent to die (Miller & Eckert, 2009). Finally, a completed suicide refers to a lethal, self-inflicted act. Suicidal adolescents may not move through the continuum in a sequential manner (i.e. ideation, planning,

attempting). In fact, gender differences emerge when considering suicidal behavior trends (Miller & Eckert, 2009; Vannatta, 1997; Witte et al., 2008), but more research is warranted.

The most recent national data (YRBS) indicate that 14.5% of students had seriously considered attempting suicide in the previous 12 months, including 18.7% of female and 10.3% of male adolescents (CDC, 2008). During this same period of time, 11.3% of adolescents reported they had made a plan as to how they could attempt suicide (13.4% of females and 9.2% of males). As for those who indicated an actual suicide attempt, 6.9% reported one or more suicide attempts during the 12 months before the YRBS survey, including 9.3% of females and 4.6% of males. Two percent of those who attempted suicide needed to be treated by medical staff (CDC, 2008).

School-Based Investigation

As mentioned previously, schools remain prime locations for suicide prevention and intervention programs because students spend the majority of their time in the school setting and are more likely to disclose to their peers, rather than parents or professionals. Instead of educating the entire school population about suicide or enlisting school personnel as gatekeepers, the direct approach of asking students about their thoughts and behaviors in the form of confidential, self-report surveys has proven much more efficient and effective in identifying suicidal adolescents (Berman, 2009; Eckert, Miller, DuPaul, & Riley-Tillman, 2003; Shaffer & Craft, 1999). In a 2004 study, the CDC sought to determine whether students would be more likely to report sensitive information (e.g. sexual assault history and suicidal behaviors) in home or school settings. Results indicated that students were more likely to report sensitive behaviors in school-based settings, thus supporting the use of YRBS to ascertain relevant information for the purposes of the current study (CDC, 2004). The YRBS employs a confidential, direct approach to collect sensitive information in an unobtrusive manner as the sensitive questions are folded into a larger database of questions.

While this extant database cannot be manipulated, the folding of sensitive questions into a larger group of questions has been found to make the respondent more likely to be truthful (Joe & Bryant, 2007; Miller & DuPaul, 1996) without causing significant distress to the adolescents (Langhinrichsen-Rohling, Arata, O'Brien, Bowers, & Klibert, 2006). In addition, by using data from a nationally representative sample, this study is not limited in scope and its findings have the potential to be generalized to the entire adolescent population across the United States.

Purpose of the Study

The purpose of this thesis is to shed light on two public health concerns: sexual assault and suicidal behaviors among the adolescent population. In order to expose the need for establishing successful prevention and intervention programs, the public must understand that both populations are vulnerable to developing maladaptive coping mechanisms and psychopathology. This sequence of events in adolescence may lead to poor mental and physical health as well as compromised psychosocial functioning in adulthood. Likewise, considering the particularly vulnerable subpopulation of sexual assault victims reporting suicidal behavior, it is imperative that more research is completed to close the pre-existing gap between the two culturally taboo topics. This thesis will contribute to the literature base by analyzing and disseminating data to ultimately inform quality, school-based suicide prevention and intervention programs among adolescents reporting histories of sexual assault. The study will utilize the responses from the Youth Risk Behavior Surveillance System. National survey results from 2007 will be used to analyze the relationship between sexual assault status and suicidal behaviors among high-school adolescents.

Research Questions and Hypotheses

The following questions were addressed by this data analysis. Predicted outcomes are also provided.

1. Will adolescents with a self-reported sexual assault history evidence increased likelihood of reporting a suicide attempt as compared to adolescents reporting no such history?
H₁: Adolescents with a self-reported sexual assault history will be significantly more likely to report a history of a suicide attempt when compared to adolescent non-victims.
2. Will both male and female adolescent sexual assault victims be more likely to report a history of a suicide attempt as compared to their same sex peers with no sexual assault history?
H_{2a}: Adolescent female sexual assault victims will be more likely to report a history of a suicide attempt than their same sex peers who do not report a history of sexual assault.
H_{2b}: Adolescent males with sexual assault history will be more likely to report a history of a suicide attempt than their same sex peers reporting no such history.
3. Among adolescents with a self-reported sexual assault history, will male and females differ in their likelihood of reporting a history of a suicide attempts?
H₃: Adolescent females reporting a history of sexual assault will be more likely to report a history of a suicide attempt when compared to adolescent male victims.
4. Across all adolescents with a self-reported history of a suicide attempt, will the medical severity of attempts, as defined by self-inflicted attempts that require medical attention, differ significantly based on gender and sexual assault history?
H₄: There will be no gender x sexual assault history interaction when examining self-reported history of suicide attempts requiring medical attention among those adolescents who have attempted suicide in the last twelve months.

Definitions of Relevant Constructs

Sexual assault. Question 22 on the YRBS measured sexual assault status. Specifically, this item asks, “Have you ever been physically forced to have sexual intercourse when you did not want to?” Response options included Yes, No, or omission.

Suicide attempts. YRBS Item 26 was one of four specific questions regarding suicidal behaviors. Item 26 queried adolescents regarding whether they attempted suicide during the past twelve months. Responses were dichotomized as follows: 0 = 0 attempts; 1 = 1 or more attempts.

Medical severity of attempts. In order to investigate the degree of medical severity among adolescents reporting suicidal behaviors, YRBS Item 27 was included in the analysis. Item 27 queried adolescents regarding whether their reported suicide attempt required medical treatment by a doctor or nurse. Response options included Yes, No, or ‘I did not attempt suicide during the past 12 months.

Chapter II

Method

This study examined adolescent self-report data from a national database in order to study the prevalence of suicidal behaviors as related to sexual assault status. Sex differences were examined. The study investigated whether frequency of suicide attempts varies by sex. Finally, this study investigated whether the medical severity in suicide attempts as evidenced by an accompanying injury varies by sex.

Design and Sample

The current study, as approved with exempt status by the East Carolina University Institutional Review Board, is an analysis of data from the 2007 YRBS. The YRBS was developed to monitor six categories of risk behaviors that contribute to social problems, disability, and mortality in the United States. Detailed YRBS methodology is available for download on the CDC website. Since 1991, the YRBS has been administered biennially, February through May, utilizing a three-stage, cluster sample design.

Each active year, a nationally representative sample of students from public to private schools in the 50 states and the District of Columbia participate in the self-administered, anonymous questionnaire. In addition to providing demographic data, students in grades 9-12 respond to questions assessing physical activity levels, sexual behaviors, and behaviors associated with violence and injury, tobacco use, alcohol and drug use, and dietary behaviors. Parental consent was obtained as per local procedures. In 2007, the response rate was 81% and 84% for schools and students, respectively (CDC, 2007b). A sample weight based on student demographic data is applied to each record to adjust for non-response and any disproportionate sampling (CDC, 2007b).

In 2007, the national YRBS included 14,041 high school students: the overall response rate was 68%. The 2007 participants were 49.5% female and 50.5% male. 29%, 26.2%, 23.4%, and 21.3% were ninth, 10th, 11th, and 12th grade students, respectively. Race/ethnic group composition was as follows: 1% American Indian; 3.5% Asian; 15.1% Black or African American; 0.8% Native Hawaiian/Pacific Islander; 60.3% Caucasian; 8.6% Latino/Hispanic; and 8.2% and 2.5% multiracial Latino and multiracial non-Latino, respectively (CDC, 2007b).

Current analyses were limited to those records with complete data available. For example, of the original 14,041 records, 223 records excluded information about sexual assault history and over 1,450 records were disqualified due to missing data on suicide attempts.

Variables

Sexual assault. Question 22 on the YRBS measured sexual assault status. Specifically, this item asks, “Have you ever been physically forced to have sexual intercourse when you did not want to?” Response options included Yes, No, or omission.

Suicide attempts. YRBS Item 26 was one of four specific questions regarding suicidal behaviors. Item 26 queried adolescents regarding whether they attempted suicide during the past twelve months. Responses were dichotomized as follows: 0 = 0 attempts; 1 or more attempts = 1.

Medical severity of attempts. In order to investigate the degree of medical severity among adolescents reporting suicidal behaviors, YRBS Item 27 was included in the analysis. Item 27 queried adolescents regarding whether their reported suicide attempt required medical treatment by a doctor or nurse. Response options included Yes, No, or ‘I did not attempt suicide during the past 12 months.’

Data Analyses

Per the CDC, five statistical packages were recommended for use with YRBS due to its complex sampling design (CDC, 2009b). These programs compute more accurately by taking stratification, clustering, and variability of sampling weights into account. Accordingly, SPSS (v.17) Complex Samples© (SPSS Inc., 2009) were used for all statistical analyses.

Data were analyzed in four stages. First, descriptive statistics were calculated and cross-tabulated for variables of interest, resulting in the division of groups for analysis: (a) male/no sexual assault history, (b) female/no sexual assault history, (c) male/sexual assault history, and (d) female/sexual assault history.

Secondly, in order to consider possible confounds, bivariate logistic regression analyses examined gender differences by sexual assault history. Furthermore, univariate analyses were used to evaluate associations between sex, age, and suicidal behaviors, which were completed in order to rule out confounds and determine whether to control for such variables in the final analysis.

The third analysis entailed a logistic regression analysis among the subsample of students who reported a suicide attempt in the past. Bivariate logistic regression analysis was used to assess differences in suicide attempts requiring medical attention based on sexual assault history.

Finally, given CDC-recommended analytic procedures and sample size (i.e., relative to most samples of male and female sexual assault survivors), an interaction between predictor variables was investigated via an iterative, maximum likelihood logistic regression analysis after controlling for age. Product terms representing the interaction of sexual assault history with gender were included in the final model with the outcome variable as suicide attempts. Odds ratios (i.e., with non-attempters as the reference group) adjusted as necessary, were computed. Follow-up, complex

sample analyses (e.g., cross-tabulated χ^2) assisted in interpretation of interaction terms and odds ratios by gender across groups.

Chapter III

Results

Descriptive Statistics and Preliminary Univariate Analyses

Of the original 14,041 students surveyed, 30 students were younger than 14 years and were excluded from this study due to its small subsample size and atypical demographic group.

Therefore, the present study consisted of 13,721 adolescents, including 14-15 year olds (37%), 16-17 year olds (49%), and adolescents aged 18 years or older (13%). Details about each subsample examined in the analysis will be provided below.

Nearly eight percent (7.8%) of the entire sample indicated a history of sexual assault: females reported having been forced to have sex more than twice as often as males, with 11.2% and 4.4% of females and males, respectively, reporting having experienced forced sex. Similar prevalence rates were noted for suicide attempts with nearly seven percent (6.9%) of the sample reporting a suicide attempt within the past twelve months: females reported having attempted suicide more than twice as often as males, with 9.2% and 4.5% of females and males, respectively, having attempted suicide in the last year. Sex differences were also noted in rates of suicide attempts requiring medical attention (e.g., 2.4% of females and 1.4% of males), though this was a function of the increased prevalence rate of suicide attempts in females. The proportion of suicide attempters who required medical attention was actually higher in males – 25.8% of female versus 31.1% of male suicide attempters, respectively. In summary, the sex differences in rates of sexual assault and suicide attempts justified all subsequent analyses being split by sex.

Univariate analyses also revealed differences in suicide attempts based on self-reported adolescent age. These differences were specific to females, ($Wald \chi^2 = 3.02, p=.03$); however, males showed no such association ($Wald \chi^2 = 0.36, p=0.837$). For example, adolescent females ages 14,

15, and 16 indicated the most frequent suicide attempts with 9.7, 9.8, and 10.7 percent, respectively, having reportedly attempted in the last year. As for 17- and 18-year old and older females, 6.9 and 8.6 percent, respectively, self-disclosed a history of suicide attempts. While within-group male age differences in suicide attempts were not evident, between-sex differences relative to age are noteworthy. As an example, the most *frequently* attempting age group in males, 15-year olds, included just 5% of that age group- less than half of the composition of the most frequent suicide-attempting female cohort (e.g., 16-year old females at 10.7%). In sum, the aforementioned differences resulted in all subsequent analyses accounting for age as a control variable.

Analyses based on Hypotheses

Logistic regression analyses, adjusted for age, were computed to assess the association between sex, sexual assault history, number of suicide attempts, and suicide attempts with injury requiring medical attention.

Sexual assault status and self-reported suicide attempts. The first set of analyses included 12,556 adolescents (50.1% girls; 49.9% boys) with complete data on sex, sexual assault, and suicide attempts. The sample included 14-15 year olds (37%), 16-17 year olds (50%), and adolescents 18 years or older (13%). Nearly eight percent (7.5%) of adolescents ($N = 943$) reported a history of sexual assault with gender differences that mirror current national prevalence rates: among victims, 73% of victims were adolescent girls and 27% of victims were adolescent boys. Nearly seven percent (6.8%) of adolescents ($N=848$) reported a history of suicide attempts within the past 12 months (67% girls; 33% boys).

A strong, statistically significant association was found between self-reported sexual assault history and suicide attempts after controlling for age ($Wald \chi^2 = 302.5, p = <.001$). In general, adolescents reporting a history of sexual assault were approximately six times ($OR=6.384$) more

likely to have attempted suicide in the past year when compared to adolescents reporting no history of sexual assault. Among those reporting a history of sexual assault, 26.2% of adolescents reported a history of suicide attempts within the past year compared to 5.3% of adolescents reporting no such history.

When examining each sex separately, a strong, statistically significant association was found in both male and female adolescents. The relationship was stronger for males: Males reporting a history of sexual assault were nearly ten times ($OR=9.757$) as likely to have attempted suicide at least once in the past year when compared to males reporting no such history ($Wald \chi^2=119.264$, $p<.001$). That is, among males reporting a history of sexual assault, 26.4% indicated a history of suicide attempts within the past year while only 3.6% of males reporting no history of sexual assault reported suicide attempts in the same time frame. Furthermore, binary results indicated a significant association between sexual assault history and self-reported suicide attempts for females, after controlling for age ($Wald \chi^2=156.644$, $p<.001$). Females reporting a history of sexual assault were nearly five times ($OR=4.712$) more likely to have attempted suicide in the previous twelve months when compared to females reporting no such history, with rates of 26.2% and 7.1%, respectively.

Sex and self-reported suicide attempts among adolescents reporting a history of sexual assault. The second analysis included only those adolescents who reported a history of sexual assault and indicated whether or not they had attempted suicide in the previous twelve months ($N=943$). This analysis included 31%, 55%, and 14% of 14-15, 16-17, and 18+ year-old adolescents, respectively.

Among those adolescents reporting a history of sexual assault, there was no significant association between sex and self-reported suicide attempts after controlling for age ($Wald \chi^2=.000$, $p=.987$). Of females indicating a history of sexual assault, 26.2% indicated a history of suicide

attempts. Nearly identical prevalence rates existed among male adolescents with a history of sexual assault: 26.4% indicated a history of suicide attempts within the past year. Thus, when examining sexual assault and suicidal behaviors, the rates between male and female adolescents were indistinguishable. That is, on average, 26% of males and females with a sexual assault history attempted suicide within the past 12 months.

Sexual assault history and medical severity of suicide attempts. The third set of analyses examined only those adolescents reporting a suicide attempt within the past 12 months. Within this subsample, 848 adolescents included complete data on sexual assault and suicide attempt with injury (67.7% girls; 32.3% boys). Approximately twenty percent (21.2%) of the female suicidal subsample reported a sexual assault, while 7.7% of the male suicidal subsample reported a sexual assault. Adolescent age groups included: 14-15 year olds (39%), 16-17 year olds (48%), and adolescents 18 years or older (13%). Overall, 27.5% of adolescents who had attempted suicide indicated a history of suicide attempts that required medical attention.

The final, iterative logistic regression models included age, sexual assault history, and sex x sexual assault history as an interaction term in order to investigate the impact on suicide attempts requiring medical attention. A statistically significant sex x sexual assault history emerged, *Wald* χ^2 (1, 40)=11.00, $p=.002$ (See Figure 1). That is, males reporting a sexual assault history reported suicide attempts requiring medical attention more frequently than male suicide attempters without sexual assault histories, as well as both groups of female suicide attempters – both with and without sexual assault histories. For example, males reporting a history of sexual assault were nearly five times (OR=4.974) as likely to report accompanying injuries from suicide attempts within the past year when compared to suicidal adolescent males reporting no such history. Specifically, 59% of adolescent boys reporting a history of sexual assault reported a history of attempt-related injuries

when compared to 22.4% of adolescent boys with no reported history of sexual assault. On the other hand, female adolescents with a sexual assault history are almost one and half times (OR=1.47) more likely to report suicide attempts with injury requiring medical attention when compared to suicidal female adolescents reporting no such sexual assault history. Of those adolescent girls reporting a history of sexual assault, 31.1% reported attempt-related injuries as compared to 23.4% of girls relating no history of sexual assault. While the interaction was significant, the main effect of sexual assault cannot be ignored in the multivariate model (*Wald* χ^2 (1, 40)=25.61, p =<.001).

Sex X Sexual Assault History and Medically Serious Self-Reported Suicide Attempts among Adolescent Suicide Attempters: YRBS, 2007

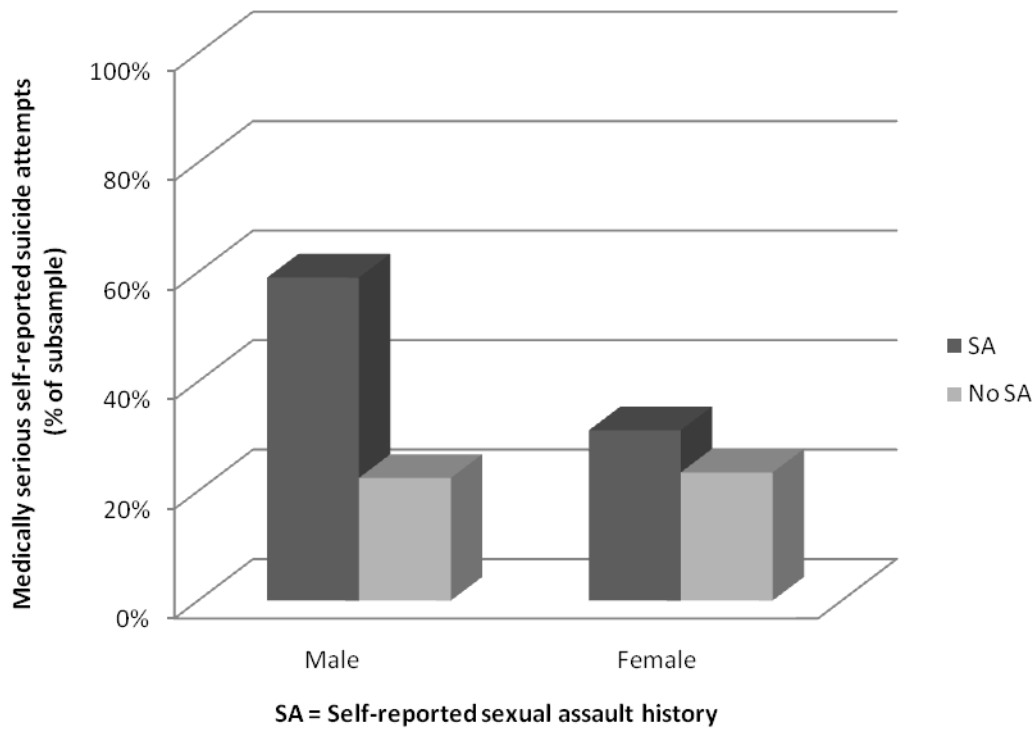


Figure 1. Sex x sexual assault history interaction and self-reported medically serious suicide attempts among adolescents reporting a history of suicide attempts

Chapter IV

Discussion

This thesis sought to identify possible associations between sexual assault and suicide. Results from this cross-sectional study of a national sample of adolescents support previous research findings (Basile et al., 2006; Rosenberg, et al., 2005): the reported experience of sexual assault is strongly associated with increased suicide attempts in both male and female adolescents. It should be noted that, due to significantly different prevalence rates in sexual assault between females and males (e.g. 73% of victims were female and 27% were male), many of our analyses were ultimately split by sex.

When examining the subsample of adolescents reporting a sexual assault history, our hypothesis predicting gender differences in suicide attempts was not supported. That is, sex was not a predictive variable when analyzing suicide attempts among sexual assault victims. This non-significant statistical difference in suicide attempt rates between males and females is clinically significant, as it supports the strong main effect of sexual assault history. Prevalence rates of suicide attempts of this subsample were discrepant from non victimized adolescents, 26.3% as compared to 6.8%. When considering national adolescent suicide prevalence rates separated by sex, there is a clear sex difference with girls attempting suicide about twice as frequently as boys (9.2% girls; 4.5% boys). When one accounts for sexual assault history, rates of suicide attempts drastically increase in both sexes, with over one quarter of all adolescents with sexual assault histories having attempted suicide. Furthermore, boys with sexual assault histories, in this study, attempted at least as often as girls with sexual assault histories. Thus, sex differences in suicide attempts observed among adolescents are eliminated when accounting for sexual assault history.

Considering that boys are more likely to successfully complete suicide than girls (CDC, 2008; Miller & Eckert, 2009), this becomes particularly problematic in this group of adolescents. Therefore, severity of suicide attempt, as defined by an attempt requiring medical treatment by a doctor or nurse was considered as well. To reiterate, we predicted that – across all adolescents who reported a suicide attempt within the year – a positive history for sexual assault history would be associated with more medically serious suicide attempts. Our hypothesis was supported: Logistic regression analyses indicated that reported sexual assault history increased the likelihood of attempt-related injury. These findings support the notion that adolescents with sexual assault histories are more often classified as a “medically serious suicide attempters” (see Swahn & Potter, 2001), thereby increasing the probability of suicide death. Due to the scarcity of research in this area (Beautrais, Joyce, & Mulder, 1996; Swahn & Potter, 2001), more research is needed to further investigate variables, including experiences of childhood trauma (e.g. history of sexual assault) that are associated with, and predictive of, completed suicides.

When examining the influence of sex on attempt-related injury, a history of sexual assault resulted in more deleterious outcomes for boys than for girls. That is, adolescent boys with a history of sexual assault were five times more likely to report attempt-related injuries relative to boys reporting no history of sexual assault. However, girls indicating sexual assault histories were, in comparison, one and half times as likely to report attempt-related injuries when compared to their same-sex peers reporting no such history.

Whether prevalence rates or social norms, or a combination, have emphasized the focus on female victims in sexual assault research, our findings indicate that a history of sexual assault may be equally devastating for adolescent boys. Researchers have alluded to shame and gender role conflict contributing to poor mental health outcomes in males (Hanson et al., 2008; Romano & De

Luca, 2001; Tewksbury, 2007). No doubt, male adolescents who have experienced sexual assault likely experience shame. In fact, Feiring and colleagues (2002) reported that, among adolescents reporting sexual assault histories, levels of shame were initially higher among girls than boys, but girls showed a significant decrease in feelings of shame over time, while boys' feelings of shame remained constant throughout the following year. Shame and embarrassment may limit the potential for disclosure: these feelings, along with the experience of self-disclosing sexual assault, may be more devastating for adolescent males due to traditional gender roles (Priebe & Svedin, 2008). Young men are to be strong, unemotional, and in control. Further, sexual assault may incite questioning one's own sexual or gender identity, especially if sexual arousal was experienced during the assault (Tewksbury, 2007).

Moreover, the psychological consequences of concealing a stigmatizing event (e.g. sexual assault history) must be considered. Pachankis (2007) asserts that living with a perceived stigma can lead to negative affective, cognitive, behavioral, and self-evaluative implications. This finding is particularly relevant to sexual assault victims as Finkelhor and Browne's (1985) seminal theory reminds us that a history of sexual violence is considered to be both a personal and societal stigma. However, Pachankis' cognitive-affective-behavioral model highlights the unique psychological implications of concealing a stigma. Applying the model asserted by Pachankis (2007) to the males in the current study lends understanding and may assist with future research formulation. For example, it may be especially harmful to the self-evaluation of males based on current sociocultural norms. Males with a sexual assault history may feel particularly pressured to conceal this piece of information. Feelings of shame and anxiety coupled with preoccupied or vigilant thoughts may lead to impaired close relationships, social avoidance, and/or isolation along with potential feelings of

inadequacy (e.g. diminished sense of self-efficacy). Many of these behavioral indicators are warning signs of suicidal behavior (Miller & Eckert, 2009).

Limitations

There are several limitations that must be considered when interpreting these findings. First, the study is based on self-reported data: there is no corroboration with other sources. Secondly, due to the cross-sectional nature of the study, we lose information about timing and sequencing related to both sexual assault and suicide attempts. This also restricts our ability to draw any type of causal conclusion. Thirdly, while our sample was large and representative, the YRBS only included presently enrolled high school students. Given that adolescents with a history of childhood traumatization or suicidal behaviors have a higher probability of attending school less regularly and/or dropping out altogether (Flannery, Sneed, & Marsh, 2003; Tyler, 2002), this may bias our findings and potentially underestimate the associations between sexual assault history and suicidal behaviors. Finally, the manner in which the sexual assault question was posed - "Have you ever been physically forced to have sexual intercourse when you did not want to?" - may have led to underreporting. For instance, using the term 'physically forced' negates the fact that perpetrators may use coaxing or less overt coercion, versus physical force, during instances of sexual assault. Also, the term 'sexual intercourse' typically refers to male-female penile-vagina penetration, potentially excluding victims of same-sex assault or those with a history of oral or anal sexual assault. Adolescents with non-penetrative histories of sexual assault (e.g. genital fondling, etc.) may have been overlooked as well. The fact that there is only one question relating to sexual assault in the YRBS also limits important information, such as self-reports of chronicity, duration, severity, disclosure, and perpetrator profiles.

Despite these limitations, this was the first study to examine the associations among sexual assault, suicide attempts, and attempt-related injury in a nationally representative school-based sample of male and female adolescents. Strengths of this study include a nationally representative sample of adolescents. This study included nearly equivalent samples of adolescent girls (49.5%) and boys (50.5%), and the large overall sample size allowed the researchers to examine differential associations between sexual assault and suicidality as a based on gender. Often, research is limited in areas of culturally taboo topics because sensitive questions are omitted from surveys or families and school districts refuse to participate if these questions are included. The YRBS is one of the few surveys that include relevant sensitive questions and is a large enough sample to utilize statistical analyses with predictive power.

Implications/Future Directions

Since male adolescents are less likely to disclose histories of sexual assault (Hanson et al., 2008; Newcomb, Munoz, & Carmona, 2009; Priebe & Svedin, 2008), research on male-specific responses to sexual assault and psychosocial outcomes is limited. Current prevention and intervention programs target female victims due to the prevalent notion of the male perpetrator-female victim pattern of abuse. Yet, alternative patterns of abuse are emerging: Newcomb and colleagues (2009) found that, while 90% of female adolescents reported male perpetrators of abuse, male adolescents reporting a history of sexual assault identified *female* perpetrators in nearly 53% of cases . Since adolescent males may have a higher likelihood of being victimized by both men and women, they may experience complex reactions and patterns of shame. Therefore, school psychologists may seek more training techniques when dealing with this subpopulation. Further, given that male victims may have limited access to supportive social networks and proper mental health care, prevention and intervention programs geared toward adolescent boys (e.g. public

education messages; specialized screenings; evidence-based treatments) would be extremely beneficial.

Future, prospective research studies are needed to control for the limitations associated with the cross-sectional research design. Research that examines both risk and protective factors may provide needed direction for prevention and intervention programming. For instance, school-based suicide screenings have proven to be an efficient and effective method in identifying and intervening with suicidal adolescents (Eckert, Miller, Riley-Tillman, & DuPaul, 2006; Shaffer & Craft, 1999). Secondary suicide prevention programs could also be devised specifically for adolescents with a history of childhood trauma such as sexual assault. Mental health professionals may then work with targeted students to develop decision-making skills, promote peer involvement, and identify resources in the school and community for help (Mazza & Reynolds, 2008). Open communication among children's hospitals, child advocacy centers, and school districts can facilitate a specialized referral system to ensure closer supervision (i.e. suicide screening, specialized intervention services, etc.) for at-risk adolescents. Children's hospitals and community medical centers could screen adolescent victims of sexual abuse for suicidal ideation and behaviors, while child advocacy centers could develop secondary prevention programs for suicidal adolescents.

Since adolescents are more likely to report sexual assault histories to friends rather than parents or professionals (Berman, Jobes, & Silverman, 2006c; Priebe & Svedin, 2008), implementing psychoeducational programs for peers may be beneficial to both parties. Similarly, previous research findings suggest that a child's willingness to disclose is directly tied to parental support (i.e. whether a caregiver is supportive and believes him/her) (Broman-Fulks et al., 2007; Priebe & Svedin, 2008; Putnam, 2009). Therefore, parent training programs may be extremely

valuable as well. For instance, the *Darkness to Light* organization (www.darkness2light.org) offers an evidence-based sexual abuse prevention program that educates parents, educators, and community members on how to best protect their children.

It is especially important to note the complex influence of gender on suicidal behaviors when considering sexual assault history: this is worthy of further investigation. The current study supports existing evidence that boys' responses to sexual assault may be especially devastating when considering the increased rates of suicide attempts and attempt-related injuries when compared to suicidal same-sex peers and girls reporting similar histories of sexual assault, respectively (Hanson et al., 2008; Martin et al., 2004; Molnar, et al., 2001). Catering prevention and intervention programs uniquely to female *and* male adolescents reporting a history of sexual assault may prevent the tragic loss of life within this vulnerable subpopulation. The current findings have serious implications for future research and practice in this area.

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APPENDIX: IRB APPROVAL FORM



University and Medical Center Institutional Review Board
 East Carolina University, 600 Moye Boulevard
 1L-09 Brody Medical Sciences Bldg. • Greenville, NC 27834
 Office 252-744-2914 • Fax 252-744-2284 • www.ecu.edu/irb
 Chair and Director of Biomedical IRB: L. Wiley Nifong, MD
 Chair and Director of Behavioral and Social Science IRB: Susan L. McCammon, PhD

DATE: January 29, 2010

Principal Investigator: Jessica Tomasula, Graduate Student
 Dept./Ctr/Institute: Department of Psychology
 Mailstop or Address: Rawl Bldg.

RE: Exempt Certification
 UMCIRB #: 10-0030
 Funding Source: Unfunded

Title of Research: Adolescent Sexual Assault and Suicidal Behaviors: Investigating a National Sample

Dear Ms. Tomasula:

On January 26, 2010, the University & Medical Center Institutional Review Board (UMCIRB) determined that your research meets ECU requirements and federal exemption criterion #4 which includes use of existing data.

It is your responsibility to ensure that this research is conducted in the manner reported in your Internal Processing Form and Protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB Office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification Request at least 30 days before the end of the five year period.

Sincerely,

Chairperson, University & Medical Center Institutional Review Board

Attachments

pc: Norma Epley, Director

