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Traumatic Stress as a Predictor of Suicidality

Sherry Malana Todd
Old Dominion University

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TRAUMATIC STRESS AS A
PREDICTOR OF SUICIDALITY

by

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B.A., Virginia Wesleyan College, 1987
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A Dissertation Submitted to the Graduate Faculty of
Old Dominion University in Partial Fulfillment of the
Requirements for the Degree of

DOCTOR OF PHILOSOPHY
COUNSELING

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Suicide is a deliberate act of annihilation against one’s self due to a crisis of problem solving. Far too many youth are dying by their own hands resulting in suicide being the third leading cause of death for 10-19 year olds (CDC, 2005). Suicide is particularly problematic for adolescents due to the impulsivity inherent in adolescent development. Since 1980, the national suicide rate of African American youth has increased by 114 percent (CDC). Suicidality has been positively correlated with depression and posttraumatic stress disorder (PTSD; Kessler et al., 1999). Suicidality is more prevalent when a person experiences a tragic or traumatic event (SAMHSA, 2009). Traumatic stress is increasingly being experienced by students, especially those living in urban environments (Bell, 2007). Traumatic stress left untreated can cause numerous problems for a developing youth (National Child Traumatic Stress Network, 2006).

The intention of this study was to determine whether traumatic stress more accurately predicts suicidality than major depression or posttraumatic stress disorder in urban high school students identified as possibly at risk for depression or suicide. An additional question that will be explored by this study will be whether the student is willing to participate in counseling services provided in the school setting. The data were archival and from the 2008-2009 school year. The sample was ninth grade students who scored as
possibly at risk for depression or suicide on the Brief Screen for Adolescent Depression. Binary logistic regression was the statistic used in this study. Traumatic stress appears to be a predictor of suicidality in urban ninth grade students possibly at risk for depression or suicide, over and above a major depressive episode or PTSD. The results of the analysis indicate that the majority of students, 75%, reported that they are willing to participate in school based counseling services.

Dissertation Committee: Dr. John A. Nunnery
Dr. Vivian McCollum
ACKNOWLEDGEMENTS

This endeavor would not have been possible without the contributions of many people to whom I am eternally indebted. First I want to acknowledge Edward and Sonia Todd, my parents, for the unconditional love and support they have provided throughout my lifetime. They have always encouraged me to pursue my dreams. The completion of this dissertation would not have been possible without them. My nephew, Cody Todd’s enthusiasm about the topic was inspiring. He has been a resource in my work with teens and his contributions are especially treasured. The support of my supervisor, Pamela Slobe and my co-workers Alex Dryden, Annmay Morant, and Grace Taylor, has been genuinely appreciated and their assistance invaluable.

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I would also like to recognize several others who directly contributed to the completion of this work. It is with much gratitude that I acknowledge Dr. Danica Hays.
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The graduate interns and professionals who assisted in the development of the scoring scales are truly appreciated for the time and effort they devoted to this project. Jennifer Evans and Annmay Morant devoted many hours to scoring and re-scoring the data and I genuinely appreciate their time and the thoughtfulness of their efforts. A special thanks to Melody Moreno for her assistance with data entry, statistics, and her commitment to the study in general. Melody consistently reminded me of the end goal and for her encouragement I am remarkably thankful. I am truly blessed to have extraordinary advisors, mentors, friends, family, and colleagues.
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CHAPTER ONE
INTRODUCTION

Background

Suicide is a personal tragedy and a national health problem. Despite the Surgeon General’s 2001 *National Strategy on the Prevention of Youth Suicide*, which followed his call to action in 2000, there has been little change in the youth suicide rate. The 2000 General Assembly directed the Commission on Youth, with the assistance of the Departments of Health, Education, and Mental Health, Mental Retardation, and Substance Abuse Services, to develop a comprehensive youth suicide prevention plan. Yet the most recent statistics indicate that suicide among the nation’s youth remains the third leading cause of death for 15-19 year olds. The most recent reports from the Centers for Disease Control (CDC) show that suicide has now increased to the third leading cause of death for 10-14 year olds as well. In 2005 the CDC reported more teens died from suicide than from cancer, heart disease, AIDS, birth defects, stroke, pneumonia, influenza, and chronic lung disease combined. It is painfully obvious professionals in the United States have not yet found a successful approach to reduce the rate of youth suicide. This study provides a closer look at the predictor variables for suicide, which hopefully will eventually help lead to a reduction in the numbers of suicides by youth in the United States.

Key Constructs

Numerous predictors have been associated with suicidality. Regardless of the impressive amount of research in the area of suicide among adolescents (Bell, 2007), teen
suicide continues to be a national health problem (Centers for Disease Control, 2005). Since the Surgeon General's call to action on the Prevention of Youth Suicide in 2000, adolescent suicide has received a great deal of attention. Major depression is the psychiatric condition most frequently associated with suicidality both for adults and youth (Jacobs & Pigeon, 2006). Suicidality has been positively correlated with depression and Posttraumatic Stress Disorder (PTSD; Kessler et al., 1995). Yet the focus of clinical attention has been on depression (APA, 2005; Bell, 2007; Galaif et al., 2007).

Several studies have found PTSD to be a predictor of suicidality (Kessler et al., 1999; Nye & Bell, 2007; Waldrop et al., 2007). A depressed mood is an experience often reported by people who have been diagnosed with PTSD (Everly & Lating, 1995). Several symptoms are shared by both major depression and PTSD. Shared symptoms include sleep disturbance, eat disturbance, difficulty concentrating, and loss of interest in usual activities (Everly & Lating, 1995). Misdiagnosis of depression and the under diagnosis of PTSD (Peruzzi & Bongar, 1999) may have an impact on the rate of suicide (Zuckerbrot et al., 2007). The problem of suicide appears to be further complicated by incorrect diagnoses (Sheeran & Zimmerman, 2002). Incorrect diagnoses may result from the overlap in symptoms among depression, anxiety, and posttraumatic stress or the patients’ report of the presenting problem may be unclear (Wong & Escudero, 2007).

Most people will experience at least one traumatic event in their lifetime (Flannery, 2004; Kessler et al., 1999). Exposure to a traumatic event may be prolonged, repeated, or brief. Traumatic experience can be classified as Type I or Type II. Type I traumatic experience is defined as a brief or single incident, such as a robbery or car accident (Terr, 1991). Type II traumatic experience is prolonged, repeated, chronic, or a
catastrophic incident such as sexual abuse, combat, or domestic violence (Terr, 1991). The majority of those people who experience a traumatic event will not suffer any long term problems (Everly, 2006). However, there are a percentage of people who will develop problems as a result of unresolved traumatic stress symptoms. Posttraumatic stress disorder (PTSD) is the psychological condition most commonly associated with traumatic experience (Flannery, 2004). Not all people who experience a traumatic event and develop symptoms will actually meet the full *Diagnostic and Statistical Manual for Mental Disorders 4th Edition Revised* (DSM-IV-TR; APA, 2000) diagnostic criteria for PTSD. Those people are experiencing symptoms of *traumatic stress* (Lerner & Shelton, 2005) without the associated disorder. Traumatic stress is evidenced by symptoms described in the DSM-IV-TR (APA, 2000) diagnostic criteria for PTSD. Many people who have experienced trauma do meet criteria B symptoms of re-experiencing the traumatic event, criteria C symptoms of avoiding people, places, and things that remind the individual of the traumatic event, and D symptoms of arousal (p. 468). But many people who have experienced trauma do not meet criteria F, experiencing a disruption in functioning.

Many people are living with the symptoms of traumatic stress including re-experiencing symptoms (criterion B), avoidant symptoms (criterion C), and arousal symptoms (criterion D), as a result of having had a traumatic experience (criterion A), but do not meet the DSM-IV-TR (APA, 2000) diagnostic criteria for PTSD. That is, they are not experiencing clinically significant distress in at least one area of their lives (criterion F). For example, people may experience a traumatic event and begin to avoid the place the event occurred (criterion C), may have nightmares (criterion B), and may have
difficulty concentrating and trouble staying asleep (criterion D). Because they are not experiencing an impairment of functioning at work or with their relationships (criterion F) they do not meet the diagnostic criteria for PTSD. Rather they are experiencing symptoms of traumatic stress or PTS (posttraumatic stress).

Symptoms of traumatic stress are no less disturbing for individuals than if they met the criteria for the disorder. Many people find ways to compensate for symptoms, through avoidance or risky behavior (Flannery, 2004). Others self medicate in an attempt to treat the symptoms of traumatic stress which may mask the underlying cause while the substance problem is the focus of treatment (Dayton, 2000; Ford & Smith, 2008).

There is a continuum of traumatic stress, with a traumatic event and no symptoms at one end, and dysfunction or posttraumatic stress disorder at the other (Figure 1). In a 2004 study by Shell, Marshall, and Jaycox, participants reported being most bothered by symptoms in criterion D, the arousal symptoms, and least bothered by avoidant or numbing, criterion C symptoms. Therefore, avoidant symptoms would more likely be placed toward the no symptoms end of the continuum and arousal symptoms would placed toward the disorder end of the continuum. There can be any number of symptoms from any or all of criteria B, C, or D without meeting the F criteria necessary for the diagnosis of the disorder. Thus experiencing a larger number of symptoms would also be placed toward the disorder end of the continuum, while fewer symptoms being experienced would be placed toward the no symptoms end. Nye and Bell (2007) found that the criterion B symptoms, or re-experiencing the event, to be strongly correlated to suicidality. This traumatic stress continuum (Figure 1) described above is a key construct for this study.
Despite findings about adolescent suicide, few programs are available to address the increasing incidence of youth suicide. Studies have shown that students in urban neighborhoods have less access to resources when a problem is identified (Bell, 2007). In a recent study conducted with the Los Angeles Unified School District, students were significantly more likely to use services provided through the school than in the community, despite the community services being free, even when transportation and child care were offered (Wong & Escudero, 2007). The findings of this study suggest that the schools may be in the best position to address the mental health needs of the students, as well as to offer suicide prevention programs to address this serious problem.

Importance of the Study

Each year suicide kills more teens than cancer, heart disease, AIDS, birth defects, stroke, pneumonia, influenza, and chronic lung disease combined (Centers for Disease Control, 2005). Depression is the clinical problem most frequently associated with suicide (APA, 2005). Recently, a pharmaceutical company advertised that 2 out of 3 people being treated for depression with anti-depressants still suffer from symptoms of depression (Abilify, 2008). This is a serious statement that suggests that anti-depressants are not working to eliminate the symptoms of depression for the majority of people using anti-depressants. The statement that 2 out of 3 people being treated for depression with anti-depressants still suffer with symptoms of depression may suggest we are treating the wrong psychiatric condition. Ultimately this validates the need to explore different predictors of suicidality. Because traumatic stress affects a significant portion of the population and PTSD has been a covariate in numerous studies on suicidality,
investigating the role of traumatic stress in predicting adolescent suicide appears to be an appropriate starting point.

Studies show a significant portion of the population will experience a traumatic event during their lifetime (Flannery, 2004; Kessler et al., 1995). The majority of those people will not develop PTSD; however, many will experience traumatic stress symptoms. Interestingly, loss has been strongly correlated to depression and loss is a part of every trauma. Many of the symptoms of depression and PTSD overlap (i.e., sleep or eat disturbance, change in interests, etc.). PTSD has been identified as a covariate in several studies on adolescent suicide (Bell, 2007; Nye & Bell, 2007; Tarrier & Gregg, 2007; Waldrop et al., 2007; Zivin et al., 2007). Finally, studies suggest that suicide assessments are not thorough and often do not include a history of traumatic experience which may lead to misdiagnosis of depression and under diagnosis of traumatic stress (Courtois, 2004; Ferrada-Noli et al., 1998; Peruzzi & Bongar, 1999; Zuckerbrot et al., 2007).

The importance of this study is the impact it may ultimately have in reducing the rate of suicide for adolescents and quite possibly adults. The ramifications are far reaching. If traumatic stress is a more accurate predictor of suicidality than depression, mental health professionals will need to consider making several noteworthy changes. First, the manner in which suicide assessments and evaluations are conducted will need to change to include questions about a history of traumatic experience and symptoms of resulting stress. The treatment of suicidality would need to be changed to emphasize trauma treatment, rather than the current treatments for suicide such as anti-depressants. Causal diagnosis and treatment would be recommended. The impact on the
pharmaceutical industry could be profound. Counselors would need to obtain trauma
treatment credentials and skills necessary to treat traumatic stress.

Further, this study may be of importance to school boards, educators, and school
counselors. Research supports the benefits of mental health screening in the schools
(Flaherty & Weist, 1999; Jaycox, Morse, Tanielian, & Stein, 2006; Weist et al., 2005).
Screening is likely to identify students experiencing a plethora of problems resulting from
traumatic stress symptoms. After identifying adolescents experiencing problems,
Zuckerbrot et al. (2007) found that primary care physicians often do not make referrals to
mental health treatment. When referrals are made approximately, one half of those
referred never seek treatment (Mellin & Sommers-Flanagan, 2008; Zuckerbrot et al.).
Therefore screening and treatment in the schools may be beneficial to students suffering
from mental health problems (Adelman et al., 1999). Thus the next logical step would
seem to be the implementation of mental health counseling services in the schools. All
children and adolescents are mandated to attend school and generally the school is
viewed as part of the community. This places schools in an optimal place to reach youth
at risk for suicide and other mental health problems on the schools' turf (Adelman et al.;
Jacox et al.; Wong & Escudero, 2007). Questions related to the implementation of mental
health counseling services include how to provide the services needed to the students
who need the services most, where they will have the largest access to the service (i.e.,
the schools, recreation centers, etc.), and who will provide the services. Because there is
already a proven link between traumatic stress and impaired learning (Jacox et al.), this
study could have a significant impact on the provision of mental health counseling
services in schools, especially in areas where traumatic stress is prevalent. Ultimately this research study may have a profound impact on the students.

**Purpose of the Study**

Since 1999 significant attention has been given to the topic of adolescent suicide, yet the suicide rate among adolescents has not changed, with the exception of an increase in the rate of suicide among 10-14 year olds. The purpose of this study is to determine if traumatic stress resulting from exposure to traumatic experience is a predictor of suicidality over and above the mental health problems most commonly associated with suicide: major depression and posttraumatic stress disorder. An additional aim of this study is to determine whether students would be willing to participate in counseling services provided within the school.

The research questions examined by this study are as follows:

1) Among ninth grade students who scored as possibly at risk for depression or suicide on the BSAD, does
   a. a significant relationship exist between traumatic stress and suicidality?
   b. traumatic stress, a major depressive episode, or PTSD contribute more to the odds of experiencing suicidality?

2) Is one type of traumatic experience, Type I, Type II, or combined types more closely correlated with suicidality among ninth grade students who scored as possibly at risk for depression or suicide on the BSAD?

3) Are ninth grade students who present as possibly at risk for depression or suicide willing to participate in school based mental health counseling services?

**Delimitations and Limitations**

Delimitations are the set or fixed parameters of the research study set by the researcher. The delimitations include using traumatic stress, PTSD, and major depression as variables, excluding a number of other possible predictors of suicidality. Other
delimitations of this study include the data analyzed in this study being from one particular school system in the south rather than locations across the nation, and using only ninth graders as participants. These delimitation mean that the results of this study have limited generalizability.

The limitations of a research study are the parameters that exist that the researcher has no ability to change. Archival data was used in this study, therefore additional questions and instruments could not be incorporated which was a limitation. Data from teachers and parents were not collected and therefore could not be included in this study. An additional limitation was that students who were absent for any reason during the school’s scheduled screening did not participate in the program and were not included in the study. Because the data were archival there was no means of identifying how many students were absent during the scheduled program. Finally, the overlap in symptoms of PTSD, traumatic stress, and depression is a limitation.

Assumptions of the Study

This study assumed that all the students participating in the suicide screening understood the classroom presentation and the screening instrument (Brief Screen for Adolescent Depression, BSAD). The students were all presented the same information and in a similar manner was also an assumption of the study. The students who were screened individually via the clinical interview are assumed to have provided accurate information to the best of their ability and answered honestly. Counselors who screened the students individually are also assumed to have conducted the interviews in a similar manner. Because the subjects were students in an urban school system, it is assumed that
there was a higher level of depression, suicidality, and traumatic experience than students experience in non-urban school systems (Bell, 2007).

**Definitions**

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<td><strong>Completed Suicide</strong></td>
<td>death as a result of an individual’s intentional act of self-induced annihilation.</td>
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<td><strong>Major Depression</strong></td>
<td>the psychiatric condition in which symptoms of “low mood, anhedonia, and other neurovegetative symptoms” persist (Zuckerbrot et al., 2007, p. 1300). Major depression is the psychiatric condition most often associated with suicidality (Bell 2007; Galaif et al., 2007).</td>
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<td><strong>Posttraumatic Stress Disorder</strong></td>
<td>a psychiatric diagnosis given to those individuals who “continue to experience a host of disturbing symptoms after exposure to an extreme traumatic stressor” (Lerner &amp; Shelton, 2005, p. 18) or traumatic event. The DSM-IV-TR states to meet the criteria for the disorder, the disturbance must “cause clinically significant distress or impairment in social, occupational, or other important area of functioning” (APA, 2000, p. 468). This is also known as the F Criterion and the key to distinguishing traumatic stress from PTSD.</td>
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<td><strong>Suicidal Gesture</strong></td>
<td>the act of self-harm generally not intended to end one’s life or be fatal, but should not be ignored as it is an indicator of a person’s thoughts toward self-induced annihilation</td>
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(Merck, 2009). Pseudocide is a term that has also been used to describe suicide gestures.

Suicidal Ideation: thoughts or cognitions about ending one’s own life.

Suicide: a deliberate act of self-induced annihilation, best understood as a multidimensional dissatisfaction in a needful individual who sees no other solution to a perceived problem (Schneidman, 1993).

Suicide Attempt: a non-fatal act of self-induced annihilation that is not completed; the intention is ending one’s own life.

Suicidality: inclusive term used to cover suicidal ideation, gestures, behaviors, and attempts.

Traumatic Events: also referred to as “critical incidents” (Learner & Shelton, 2005, p.18) are “extremely stressful incidents, usually accompanied by threat of injury or death to the person who experiences them or to others in close proximity. The person exposed to the event feels terrified, horrified, or helpless” (Jacox et al., 2006, p. 7). Traumatic events “compromise our sense of safety and security, and leave us feeling insecure and vulnerable” (Lerner & Shelton, 2005, p.18). There are a large number of potentially traumatic events. These might include but are not limited to the following:

- natural disasters (hurricane, tornado, earthquake)
• death of a loved one (sudden or violent)
• assault (physical or sexual)
• robbed with or without a weapon
• child abuse (emotional, physical or sexual abuse)
• medical trauma (a sudden or chronic illness, surgery)
• refugee or war-zone experiences
• terrorist incidents
• car accident (self or someone else seriously injured)
• witnessing violence (home, school, or community)

A traumatic event or experience is the first requirement in meeting the criteria for PTSD, Criterion A (APA, 2000).

Traumatic Stress

"...the emotional, cognitive, behavioral, physiological and spiritual experience of individuals who are exposed to, or who witness, events that overwhelm their coping and problem solving abilities," (Lerner & Shelton, 2005, p.18).

Evidence of traumatic stress can be found in any of the symptom clusters, Criteria B, C, and D, identified in the DSM diagnostic criteria for PTSD. Traumatic stress can be any combination of Re-experiencing the traumatic event (Criterion B), Avoidance (Criterion C), and/or Arousal (Criterion D) without causing a significant disruption or
impairment in functioning (F Criterion). May also be referred to as posttraumatic stress or PTS (Nye & Bell, 2007).

**Type I Trauma**
brief or single event, critical incident, or traumatic experience; isolated incidents (van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005).

**Type II Trauma**
(or complex trauma) multiple, chronic, or prolonged traumatic experience (Terr, 1991); tends to escalate over time or can be a catastrophic single event (Courtois, 2004).
CHAPTER TWO
LITERATURE REVIEW

The purpose of this section is to explore the literature related to depression, posttraumatic stress disorder, and traumatic stress as predictors of adolescent suicidality. Substantial literature exists on the subject of suicide (DiCanio, 2000; Scherff, 2007). The relationship between depression and suicide has been meticulously explored (Bell, 2007; Galaif, Sussman, Newcomb, & Locke, 2007; Zivin et al., 2007; Zuckerbrot et al., 2007). Studies that explore the relationship between posttraumatic stress disorder (PTSD) and suicide are not as abundant (Afifi et al., 2008; Borges et al., 2008; Borowsky, Ireland, & Resnick 2001; Brown, 2005; Tarrier & Gregg, 2004; Weaver et al., 2007), with PTSD generally surfacing as a covariate (Bell; Borowsky et al.; Brown; Ferrada-Noli, Asberg, Ormstad, Lundin, & Sundbom 1998; Kessler et al., 1995; Nye & Bell, 2007; Waldrop et al., 2007; Zivin et al.). Minimal literature focused specifically on traumatic stress and suicide is available (Gould, Fisher, Parides, Flory, & Shaffer, 1996; Tarrier & Gregg). One study explored the PTSD symptom clusters as predictors of suicidality and found re-experiencing symptoms to be strongly correlated to suicide (Nye & Bell). The findings of the Nye and Bell study support the hypothesis that traumatic stress or symptoms of PTS that do not meet the criteria for the DSM disorder are related to suicidality and require attention.

Suicide by its very nature is a multi-faceted and difficult topic. Suicidologists must continually demystify the misconceptions associated with suicide (Moskos, Achilles, & Gray, 2004). A serious problem was identified in a study by Peruzzi and
Bongar (1999). According to 256 psychologists in the United States who were asked to rank predictors of suicidality, acute life stress (traumatic experience) was ranked as only a moderately important factor in a suicide assessment (Peruzzi & Bongar, 1999). The study found that psychologists assigned little importance to a history of traumatic experience as it related to current suicidality. Ferrada-Noli et al. (1998) stated the “...improvement of diagnostic routines in identifying history of trauma experiences and suicidal behavior among immigrants . . . should be a principal clinical research task in refugee psychiatry” (p. 110). This researcher advocated that all lethality assessments should include interviewing persons at risk for suicide regarding their traumatic experiences and symptoms of traumatic stress. Ferrada-Noli said that thorough interviewing when assessing suicidality is vital and asking about a history of traumatic experience and stress is imperative to accurate diagnosis and appropriate treatment. Ferrada-Noli suggested that traumatic stress resulting from traumatic experience is a more accurate predictor of suicidality than depression.

The National Strategy for Suicide Prevention (Satcher, 2001) took a strong position that suicide prevention efforts should be implemented in the community in order to reach the largest number of adolescents possible. The community includes schools, mental health providers, community service agencies, primary care physicians, and all resource service providers. School based mental health services and screenings are the most effective method of reaching the majority of adolescents. School based mental health screenings appear necessary if the rate of adolescent suicide is going to be reduced.
The Freedom Commission, the National Children’s Mental Health Screening and Prevention Act, and the Garrett Lee Smith Memorial Act all support and encourage the development of suicide prevention and intervention programs for adolescents. Despite evidence to the contrary, Moskos et al. (2004) suggested that unfortunately the myths of suicide are still believed as truths. Schools are apprehensive about introducing the topic of suicide for fear the students will then think about or become suicidal. The fear of school officials indicates that more evidence based research is needed to reduce the elevated rates of youth suicide in this country (Moskos et al.) and to encourage schools to take on the task of suicide screening as part of the prevention efforts.

Suicide

Suicide is an act of self annihilation deliberately completed by a person in extreme distress who sees no other solution. Suicidality is the current term used to encompass suicidal thoughts (ideation), gestures or behaviors, and attempts. In 2005 there were 32,637 reported suicides in the United States. For each completed suicide there are an estimated 6 people affected by the suicide (WHO, 2000, 2001; CDC 2005). The annual number of suicides in the United States was 31,484 in 2003 and 32,637 in 2005, evidencing a slight but steady increase in the number of suicides for 2003, 2004, and 2005 (Table 1). Most experts agree that suicides are frequently underreported due to misclassification for numerous reasons (i.e. misclassified as accidents, undetermined death, or homicides) and some have suggested the suicide rate is significantly higher than reported (Satcher, 2000).

Adolescent Suicide

Suicide is particularly problematic for adolescents due to the impulsivity inherent
Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th># of Completed Suicides</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>30,903</td>
</tr>
<tr>
<td>1997</td>
<td>30,535</td>
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<tr>
<td>1998</td>
<td>30,575</td>
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<tr>
<td>1999</td>
<td>29,199</td>
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<td>31,484</td>
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<td>2004</td>
<td>32,439</td>
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<tr>
<td>2005</td>
<td>32,637</td>
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</tbody>
</table>

in adolescent development. Suicide remains the third leading cause of death for teens ages 15-19, and the latest statistics show that in 2005 suicide became the third leading cause of death for 10-14 year olds. Since 1980, the national suicide rate of African American youth between the ages of 10 and 19 has increased by 114 percent. The suicide rate among African American youth in Maryland, Virginia, and the District of Columbia, has increased by 214 percent. Durant, lead author of the federal report from the Centers for Disease Control, indicated the authors were not sure what is causing these drastic changes, but the significant narrowing of the gap in the suicide rates between Black and
White youth really warrants much more consideration (Durant et al., 2006; Sanchez, 1998). In 2003 the rate of suicide attempts requiring medical treatment for African American and Hispanic adolescents surpassed the suicide rate of Caucasian adolescents for the first time (Molock et al., 2007). Molock et al. found that although 76% of the African American adolescents who participated in the study reported having been exposed to a suicidal peer, they were largely unaware of the gravity of the problem among African Americans.

Although suicidality is common among adolescents experiencing mental health distress (Zuckerbrot et al., 2007), an adolescent will not necessarily exhibit symptoms of depression when experiencing suicidality (DiCanio, 2000). In a study that examined risk factors for suicide, a national sample of adolescents was interviewed (Kessler et al., 1995). A number of factors were correlated with suicidal ideation and attempts. Results suggested that 23.3% of adolescents reported suicidal ideation and 3.1% reported having made a suicide attempt. Suicidal ideation and attempts were both positively correlated with depression and posttraumatic stress disorder (PTSD). Suicidal ideation was positively correlated with exposure to violence and attempts were correlated to victimization. Borowsky et al. (2001) reported similar findings for predictive factors of suicide attempts. Victimization, violent offenses, previous suicide attempts, school problems, and substance use were all identified as predictors of suicide attempts. Suicide of a friend, somatic symptoms, and a history of mental health problems were all additional predictors for suicide attempts among adolescent females (Borowsky et al.). Among adolescent males additional predictors included carrying a weapon to school and same gender attraction (Borowsky et al.).
Shaffer (1974) conceptualized two types of suicidal adolescents: those with psychiatric problems and those with conduct type problems. Those with conduct problems may not evidence signs of depression and hopelessness typically associated to suicidality. Low frustration tolerance, impulsivity, and anti-social acts may be seen in an adolescent with conduct problems who is at risk of suicide (DiCanio, 2000).

A recent study with incarcerated youth found that less than one half of the juveniles who had experienced suicidal ideation had told anyone that they were feeling that way (Abram et al., 2008). An essential step toward preventing teen suicide is being able to identify adolescents who are at risk for suicidality, particularly those who have experienced trauma. The best practices in suicide prevention encourage the use of psycho-educational programs that provide information about teen suicide and offer a screening tool to identify students who may be at risk (Molock et al., 2007; Satcher, 2001).

**Major Depression**

The literature on depression and suicide is substantial. Major depressive disorder is the psychiatric condition in which symptoms of “low mood, anhedonia, and other neurovegetative symptoms” persist (Zuckerbrot et al., 2007, p. 1300). Depression is the psychiatric condition most often associated to suicidality. “Depression is the most significant biological and psychological risk factor for teen suicide,” (Galaif et al., 2007, p. 28). Bell (2007) cited numerous studies that correlate adolescent depression and suicidality. Decades of research exists on the topic of suicide and depression. Interestingly, the literature also indicates that “depression is associated to a variety of severe stressors [trauma]” (Bell, p. 26).
Hardcastle and Hardcastle (2003) reported 30% of all consults with a general practitioner involved a mental illness or mental health concern. Zivin et al. (2007) reported that 10-25% of women and 5-12% of men will experience a major depressive episode at some point during their lives. Approximately 20-40% of adolescents report having experienced a depressed mood (Galaif et al., 2007). Of patients being treated for depression 2-7% will complete suicide (Zivin et al.). Further, major depression may increase the risk of suicidality more in older adults than in younger people (Zivin et al.). Zuckerbrot et al. (2007) reported that 2 out of 3 adolescents with depressive symptoms who seek treatment from primary care physicians are not identified and therefore they do not receive any type of treatment. Despite more complex treatment plans and resource intensive interventions, results have shown only small improvements in treatment outcomes (Zuckerbrot et al.).

Zuckerbrot et al. (2007) reviewed the current research available on instruments that measure depression and found that no ideal depression screening tool exists. Although not ideal, there are many assessments that will adequately detect and assess risk of depression in adolescents. Therefore, Zuckerbrot et al. suggested that for optimal diagnosis in addition to a screening tool, a clinical interview should be conducted and other reporters (parents, teachers, coaches, etc.) interviewed. The clinical interview provides a more comprehensive evaluation than a screening instrument alone and should include a thorough psycho-social history.

Depressive symptoms can be categorized as mild, moderate, and severe (clinical depression). Mild depression can be identified as having a shorter period of time experiencing symptoms and meeting only 5-6 of the 9 criteria for Major Depressive
Disorder in the Diagnostic and Statistical Manual IV-TR (DSM-IV-TR; APA, 2000)

Severe, clinical, or major depression would evidence all of the 9 criteria including an impairment of functioning. Therefore moderate depression would fall between 7 and 8 of the 9 criteria found in the DSM-IV-TR (Zuckerbrot et al., 2007) without an impairment of functioning.

**Posttraumatic Stress Disorder**

Posttraumatic Stress Disorder (PTSD) can be defined as a “psychiatric disorder” (Lerner & Shelton, 2005, p. 29) or condition in which a person continues to experience and re-experience significantly disturbing and distressing symptoms. Those symptoms must interfere with the person’s ability to function in school, work, or with interpersonal relationships, the F Criterion, in order to meet the diagnostic criteria of the disorder. PTSD symptoms are categorized into clusters: re-experiencing or Criterion B symptoms, avoidant/numbing or Criterion C symptoms, and arousal or Criterion D symptoms (APA, 2000). A 2007 study with combat veterans experiencing chronic PTSD evidenced a strong correlation between the re-experiencing or Criterion B symptoms and suicidal ideation (Nye & Bell, 2007).

One study’s finding that PTSD plays a distinct role beyond that of depression and substance use disorders in explaining suicidality is consistent with the results of other studies using smaller urban samples (Waldrop, et al., 2007). “Lifetime PTSD was entered last, and was associated with suicidal ideation even after controlling for all other variables in the model” (Waldrop, et al., p. 874), suggesting the need to explore PTSD as a predictor of suicidality. Tarrier and Gregg (2004) found high prevalence of suicidality among PTSD patients and noted a correlation between suicidality and higher life
impairment scores. Ferrada-Noli et al. (1998), in a study with refugees who experienced severe trauma, found that comorbidity of PTSD and depression increased the reports of suicidal ideation; while patients with PTSD and no depression reported increased rates of suicide attempts. Zivin et al. (2007) in their study supported the findings and found that co-occurring depression and PTSD increase the risk of suicide radically.

PTSD and victimization have a well documented relationship (Baldry & Winkle, 2003; Helzer, Robins, & McEvoy, 1987). Although suicide and PTSD have not been studied as thoroughly, and there are very few studies addressing the issue of adolescent suicide and PTSD, chronic PTSD has been associated with suicidality amid other mental health problems (Brown, 2005) for both adults and young people. Waldrop et al. (2007) reported that they were unaware of studies that investigated both PTSD and major depression as predictors of suicidality. Nye and Bell (2007) suggested that research on the predictors of suicidality in combat veterans with chronic PTSD is crucially needed to “improve the management and care of these patients” (p. 1144). Research in the area of PTSD and traumatic stress as predictors of suicidality are essential to correct diagnoses and appropriate treatment planning for all people experiencing suicidality.

PTSD is now thought to be much more prevalent than first believed largely due to misdiagnoses (Sheeran & Zimmerman, 2002). One reason misdiagnoses occur is because traumatic experience is often not the presenting problem. Clients may seek treatment for substance abuse, depression, relational issues, or an anxiety related problem. Children frequently do not display symptoms of PTSD until years after a traumatic experience has ended. Additionally, clients have difficulty articulating trauma-related symptoms which further facilitates the diagnostic problem. Foster, Kuperminc, and Price (2004) conducted
a study to examine the research on comorbidity and reviewed the symptoms of posttraumatic stress seen in the clinical setting rather than the most recent DSM criteria because the DSM criteria is unclear and difficult to quantify, further impeding correct diagnoses. As with most psychiatric disorders, PTSD rarely occurs devoid of comorbidities (van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005).

**Traumatic Experience/Event**

A traumatic event, as defined in Chapter I, is typically unexpected and uncontrollable. The American Psychiatric Association (2000) defined traumatic experience as an event in which there is a threat of death or injury to self or others in which intense feelings of fear, helplessness, or horror are experienced (e.g., rape, combat, witnessing violence, disaster survival, or the sudden death of a loved one). Children and adolescents are exposed to traumatic events at disturbing rates. Violence and abuse are far too common a part of children’s lives.

Exposure to a traumatic event may be prolonged, repeated, or brief. Brief or single events (mugging, car accident, rape) are generally referred to as Type I traumas and prolonged or repeated events are referred to as Type II traumas (Everly & Lating, 1995; Terr, 1991). Type II or complex trauma tend to escalate over time and are intentional (e.g., domestic violence, combat, child abuse, human trafficking) or can be a catastrophic single event (e.g., surviving 911, natural and technological disasters, mass murder; Courtois, 2004; Lerner, Lindell, & Volpe, 2006). Tarrier and Gregg (2004) reported finding a strong correlation between suicidality and traumatic experience.

Kessler et al. (1995) conducted a study of 5,877 people in the United States and found that 50% of women and 60% of men reported having experienced a trauma. More
than 25% of that group experienced two or more traumas. Although a significant portion of the population experiences at least one traumatic event, only a small percentage of the trauma-exposed population develops PTSD. Phenomenological Variant of Ecological Systems Theory (PVEST), which emphasizes identity and meaning-making, postulated that it is a person’s interpretation of [social] events, not the actual event, that causes symptoms of distress (Bell, 2007) and determines whether trauma exposure will lead to other mental health problems.

It is imperative to recognize that any traumatic experience has the potential to cause serious distress (Lerner et al., 2006). Trauma exposure is a powerful factor in predicting an increased risk for immediate and lifetime mental health problems (Ganzel et al., 2007). Suicidality is more prevalent when a person experiences a tragic or traumatic event (SAMHSA, 2009). Stressful life events have received the most attention in the literature on psychological autopsy of completed suicides (Gould et al., 1996). Stressful life events are more prominent in areas where there is a lower socioeconomic status such as urban neighborhoods (Bell, 2007). Residing in a high stress urban area is a significant risk factor associated with depressive symptoms and suicidality as evidenced in epidemiological and longitudinal statistics (Bell).

Traumatic Stress

Traumatic stress is not an uncommon or a new phenomenon, rather it has a long history dating back as far as the 16th Century B.C. Traumatic stress had been referred to as Battle Fatigue, War Neurosis, Gross Stress Reaction, and Adjustment Reaction of Adult Life to mention a few terms. Traumatic stress results from exposure to, experience of, or witnessing of a traumatic event that is extreme and often life threatening (Lerner et
Great attention in research and literature has been devoted to children and traumatic stress due to strong awareness of the abuses children are enduring (Ovaert, Cashel, & Sewell, 2003) and disaster mental health advances.

Traumatic stress and PTSD are multi-faceted problems requiring thorough assessment and multimodal treatment interventions. Symptoms of PTSD and traumatic stress can be the same with the exception of the F Criterion, which is a “clinically significant impairment in social, occupational, or other important area of functioning” (APA, 2000, p.220) and is required to meet the PTSD diagnostic criteria. Nye and Bell (2007) found a significant correlation between the re-experiencing symptom cluster and suicidal ideation. This finding supports the hypothesis that traumatic stress may be a more accurate predictor of suicidality than PTSD or major depression. One recommended procedure of assessment is to ask questions concerning a clients’ history of traumatic experience and resulting traumatic stress symptoms in the initial intake appointment (Courtois, 2004).

Van der Kolk et al. (2005) stated, “...it is clear that traumatized individuals develop a range of shifting maladaptive patterns” (p. 396). Children who have experienced a traumatic event generally report some substantially distressing symptoms despite not meeting the criteria for PTSD (Brown, 2005). Lerner et al. (2006) stated children are more susceptible to developing traumatic stress reactions and PTSD than adults. Ganzel et al. (2007) reported that persons who have experienced a traumatic event but do not meet the criteria for PTSD evidence higher levels of stress chemicals in their bodies than persons who have not experienced a traumatic event. This suggests that we experience a physiological change from traumatic experience ultimately proving
traumatic stress exists. Traumatic stress does not necessarily develop into PTSD. There is little research on the effects of traumatic stress.

Traumatic stress is increasingly being experienced by students, especially those living in urban environments (Bell, 2007). In urban environments the rate of witnessing community violence is as high as 70% (Brown, 2005). The types of events considered to be traumatic are experienced by urban youth in alarming rates. Research is estimating that 17% to 55% of urban youth have witnessed a person being robbed or attacked (Jacox et al., 2006), 43% to 75% have witnessed someone being beaten or shot, and 70% to 90% have witnessed the shooting of guns in their neighborhood (Voisin et al., 2007). Studies have suggested that adolescents who experience considerable stressors (e.g., family dysfunction, physical/sexual abuse, neglect, traumatic experience) are likely to experience recurrent depression (Peruzzi & Bongar, 1999; Zuckerbrot et al., 2007) and may suffer from symptoms of traumatic stress (Read et al., 2001; Tarrier, Khan, Cater, & Picken, 2007; Terr, 1991; Voisin et al.).

Traumatic stress left untreated can cause numerous problems for a developing youth (National Child Traumatic Stress Network, 2006). Traumatic experience and the resulting traumatic stress have a profound impact on learning that manifests in several ways. Research has shown that exposure to a traumatic event may lead to the following school problems (Jacox et al., 2006):

- decreased IQ and reading ability (Delaney-Black et al., 2003)
- lower grade-point average (Hurt et al., 2001)
- higher absenteeism (Beers & DeBellis, 2002)
- decreased rates of high school graduation (Grogger, 1997)
significant deficits in attention, abstract reasoning, long-term memory for verbal information, decreased IQ, and decreased reading ability (Beers & DeBellis, 2002).

The need for school personnel to identify and address the experiences of the students and staff are paramount. The long term effects of traumatic experience and untreated traumatic stress are more thoroughly documented in literature than the correlation between traumatic stress and suicidality. The school setting may be the most effective and efficient place to identify mental health problems, especially those that interfere with learning.

School Based Counseling Services

Schools have a critical role within the community as the schools’ boundaries extend far beyond the classroom. Weist, Paternite, and Adelsheim (2005) reported that schools have to take more responsibility in providing community based mental health services to students. Recent large scale disasters, including terrorism, violence on campuses, and natural disasters have resulted in schools having to address mental health concerns, specifically traumatic events. Schools are not only being tasked with addressing mental health concerns following large scale events, but every day events such as violence in the homes, schools, and community much be explored as well (Jacox et al., 2006). It has been well documented that in order for students to learn and perform effectively, mental health problems must be dealt with (Adelman et al., 1999).

Mellin and Sommers-Flanagan (2008) reported, despite the significant number of youth needing mental health services, only a small percentage of those who need treatment receive it. Early intervention may mitigate the long term effect of traumatic
experience in young people who often respond well to trauma treatment interventions (National Child Traumatic Stress Network, 2006). Research is very supportive of crisis intervention, early intervention and treatment, and prevention programs implemented through the schools (Adelman et al., 1999). The children who need treatment the most are the very same children whose parents do not follow through with obtaining services. The acknowledgment that adolescents’ mental health problems are not being addressed illuminated the fact that a comprehensive counseling component must be developed for schools (Flaherty & Weist, 1999).

School based mental health services are a controversial concept (Adelman et al., 1999) because some believe schools should focus only on academics. Mental health professionals working in the schools is a topic most school systems are addressing in various ways. Kennedy (2008) reported that in a landmark 2007 decision that may have serious ramifications on the practice of school counseling, Connecticut became the first state in the nation to pass “legislation certifying MFT’s [marriage and family therapists] to work in school settings” (p. 1). The American School Counselor Association (ACA, 2008) does address children’s concerns; however, mental health is not mentioned (Mellin & Sommers-Flanagan, 2008). This movement toward placing mental health professionals in schools, and the reluctance of school counselors to address mental health issues of students suggest that there is not only a need, but that mental health professionals may have a distinct role in schools.

In a study conducted with school faculty, researchers found that 78% reported having known an adolescent who had attempted or completed suicide, and 73% of the teachers reported having had concerns about a student being suicidal (Westefeld, Jenks,
Kettmann, Lovmo, & Hey, 2007). Despite being in an excellent position to identify adolescent suicidality, teachers are rarely considered stakeholders in discussions of youth suicide (Westefeld et al.). Westefeld et al. concluded that the most noteworthy finding in their study was that teachers need training in suicidality (WHO, 2000). Consequently, schools are legally obligated to provide suicide prevention training for staff (Gibbons & Studer, 2008).

According to data from the U.S. Department of Health and Human Services (1999) approximately “one in five youth has a diagnosable mental health or addictive disorder,” (Mellin & Sommers-Flanagan, 2008, p. 32). Despite being identified as having a mental health problem, adolescent referrals from primary care physicians to mental health treatment are very low. Even when adolescents are identified as having mental health problems, only about one half of those adolescents who are referred actually receive appropriate treatment (Zuckerbrot et al., 2007).

The role of the school is changing and reaching out into the community to assist children has become necessary (Jacox et al., 2006). The school has taken on the responsibility of not only educating children, but providing shelter in the wake of disaster, disseminating information, and maintaining a positive relationship with the parents and community. Parents and others invested in children’s wellbeing seek guidance from the schools for education, mental health, and behavioral needs (Jacox et al.).

The Los Angeles Unified School District conducted a study comparing individual and group treatment. Individual services were offered in the community and groups through the schools. The implications of the study are quite interesting. Individual
treatment services in the community were free; and transportation and child care were provided. The study showed 60 students were referred and 7 completed treatment. However, when services were offered through the schools, of 58 students referred, 53 completed the 10 group sessions (Wong & Escudero, 2007). Opening the school doors to licensed mental health professionals may be the only way to access the children who desperately need assistance (Wong & Escudero).

In a study with Bosnian war exposed adolescents, one of the results of a trauma focused grief group provided in schools was increased compliance with classroom rules and school interest, as well as a decrease in PTSD symptoms, depression, anxiety, and school withdrawal (Layne et al., 2001). Zuckerbrot et al. (2007) identified the importance of collaboration with community resources and suggested a need for peer support groups, advocacy, and traditional treatment for adolescents who are at risk for mental health problems. Collaboration between primary care physicians and schools is necessary for effective treatment with adolescents experiencing problems.

School Based Suicide Prevention

Startling statistics on adolescent suicide have made the task of suicide prevention the responsibility of the schools (Gibbons & Studer, 2008). One school based program designed to address the issue of adolescent suicide is the SOS Signs of Suicide Prevention Program (Jacobs & Pigeon, 2006). The SOS Signs of Suicide Prevention Program combines two prominent suicide prevention strategies: awareness through education and self-screening. The educational component reduces suicidality through increasing adolescent awareness and understanding while developing more healthy attitudes toward depression and suicide. The SOS Program teaches students to respond to
any indicators of suicidality as mental health crises requiring an emergency response (Aseltine & DeMartino, 2004). The program’s curriculum includes a video featuring vignettes of students responding to direct and indirect suicidal cues from their peers, and interviews with real people whose lives have been disrupted by suicide. A discussion guide is also included to guide classroom follow up to the video. Finally, students are asked to complete the Brief Screen for Adolescent Depression (BSAD).

SOS Signs of Suicide Prevention Program was highlighted by former Surgeon General, David Satcher, MD, in his introduction of the National Strategy to Prevent Suicide in 2001. The SOS Signs of Suicide Prevention Program is a high school prevention program developed by Douglas G. Jacobs, MD, a renowned suicidologist and the Screening for Mental Health’s Executive Director. The National Association of School Psychologists, American School Counselor Association, National Association of School Nurses, and many other organizations have endorsed the SOS Program (Aseltine & DeMartino, 2004). Additionally, in a randomized controlled study by Gould et al. (1996), there were no iatrogenic effects evidenced from suicide screening of teens.

The SOS Program is demonstrating positive results. In a study of multiple sites, the evaluation found that the number of students seeking counseling services for suicidality or depression was significantly higher than the previous year. An increase of nearly 150% was evidenced (Aseltine & DeMartino, 2004). Thirty days following the implementation of the program, there was a 70% increase in the number of students seeking counseling for concerns about a friend. Additionally, in the 3 months following the implementation of the SOS Program, the percentage of youth seeking counseling services remained elevated as compared to the previous year (Aseltine & DeMartino).
Molock et al. (2007) reported young people were likely to seek help from counselors who are younger adults, empathic, non-judgmental, keep confidentiality, and are seen as natural helpers.

The SOS Program makes the most of the developmental characteristics of adolescents. A feature of adolescent development is the importance placed on social and peer group involvement and interaction. The SOS Program empowers adolescents to intervene when a friend is experiencing distress. The SOS Program has demonstrated that students who participate in the program show increased knowledge and understanding of suicidality. The data from studies of the SOS Program demonstrate a promising impact on the attitudes and behaviors of high school students about suicide (Aseltine, James, Schilling, & Glanovsky, 2007). The success of the program has been shown through the reduction of self-reported suicide attempts in the months following the program’s implementation (Aseltine et al).

Summary of Relevant Literature

An extensive review of the literature suggests that suicide is largely an "expression of severe depression in response to extreme stress. Consequently, chronic life stressors occurring at different ecological levels independently predict depressive outcomes and suicide behavior," (Bell, 2007, p. 56). There is very little literature on the topic of traumatic stress and adolescent suicidality. There is even less on the impact of school based services for addressing traumatic stress. The literature that is available focuses a great deal of attention on depression as a predictor of suicidality and the treatment of depression. Other areas linked to suicidality are hopelessness, violence,
substance abuse/use, mental illnesses, and victimization. There was little literature found on the topic of traumatic stress and adolescent suicide.

Critique of Relevant Literature

Although there is a wealth of information on suicide, there appears to be very little in the literature exploring how traumatic stress appears to be the underlying factor in many instances. Depression has been identified as the most frequently associated mental health problem related to suicidality. Despite this conclusion, too many lives are lost to suicide. In a study with dually diagnosed women, “virtually all participants (98%) reported their first trauma before the age of 18,” (Najavits, Weiss, & Shaw, 1999, p. 101). Read, Agar, Barker-Collo, Davies, and Moskowitz, 2001, reviewed the files of 200 outpatients and their data “revealed that child abuse was related . . . to past and present suicidality” (p. 367). In the same study, current suicidality was predicted more accurately by child sexual abuse than by a current diagnosis of depression, (Read et al). Yet depression continues to be the clinical problem most commonly associated with suicide (Jacobs & Pigeon, 2006). Clearly, treating depression is not resolving the problem. This research reviews the issues associated with suicide with the intent of identifying additional variables associated with this phenomenon.

Posttraumatic stress consistently appears as a covariate in predicting suicidality. There are few studies that specifically investigated PTSD or traumatic stress as predictors of suicidality. Numerous problems arise with attempting to assess PTSD and traumatic stress. One such problem has been defining traumatic experience, as it has a great deal to do with a person’s perception. Traumatic stress and PTSD are on the same continuum with PTSD differentiated only by *impairment in functioning*. Another problem is that loss
is a part of any traumatic experience and with loss people typically experience depression. Suggesting that differentiating depression from traumatic stress and PTSD is difficult at best.
CHAPTER THREE

METHODOLOGY

Suicide is a deliberate act of annihilation against one’s self due to a crisis of problem solving. For young people this is particularly problematic because of the impulsivity inherent to the adolescent phase of development. “Suicide is a permanent solution to a temporary problem,” (Jacobs & Pigeon, 2006). Causes of suicide, predictors of suicide, and treatments for suicide have all gained attention since the Surgeon General’s Call to Action to Prevent Suicide in 1999 (DPH) and the President’s New Freedom Commission for Mental Health (DHHS, 2003), which also addressed the issue of suicide. The Centers for Disease Control (CDC, 2005) reports have shown that among 15-19 year olds the suicide rate has remained relatively consistent as the third leading cause of death; while the suicide rate increased from the forth to the third leading cause of death among 10-14 year olds. Therefore, suicide is the third leading cause of death for young people ages 10-19. Suicide is a national health problem and youth suicide rates are disconcerting.

Depression is the clinical problem most often associated with suicide (APA, 2005; Jacobs & Pigeon, 2006). Even with education programs, awareness campaigns, and screenings in schools, the suicide rate among young people has increased for pre-teens and younger adolescents and has not improved for older adolescents. Despite the number of children and adolescents being treated for depression with psychotropic medications and psychotherapy, the suicide rate has not been significantly decreased.
The aim of this research study was to determine how well traumatic stress predicts suicidality in urban high school students identified as possibly at risk for depression or suicide. Traumatic stress as defined in Chapter I is any combination of symptoms resulting from a traumatic experience in which the person does not experience a clinically significant disruption or impairment in functioning. Traumatic stress, Posttraumatic Stress Disorder (PTSD), and major depression were the variables of interest used in this study. The Diagnostic and Statistical Manual IV-TR (DSM-IV-TR; APA, 2000) criteria for Posttraumatic Stress Disorder (PTSD) and the DSM-IV-TR criteria for a Major Depressive Episode were utilized to create a quantitative score for traumatic stress and major depression. Traumatic Stress and PTSD were derived from the traumatic stress score. PTSD was dummy coded and created a dichotomous variable based on the F Criterion of the DSM-IV-TR, clinically significant impairment in functioning. Any symptoms that do not meet the criteria for PTSD are considered traumatic stress. Statistical analyses were conducted to determine whether the type of traumatic experience an adolescent has experienced predicts suicidality. Finally, an additional question that was explored by this study was whether the student was willing to participate in counseling services provided in the school setting.

The major assumption of this study was that traumatic stress would more accurately predict suicidality than a major depressive episode or PTSD. It was further thought that the type of trauma, I, II, or combined types, may correlate differently with suicidality. The final premise of this study was that the majority of ninth grade urban high schools students would be willing to participate in counseling services if the counseling services were provided in the school setting. The data used in this study were archival.
The data were gathered during the 2008-2009 academic year from a suicide screening program in an urban school district in the South.

Research Questions

1) Among ninth grade students who scored as possibly at risk for depression or suicide on the BSAD, does
   a. a significant relationship exist between traumatic stress and suicidality?
   b. traumatic stress, a major depressive episode, or PTSD contribute more to the odds of experiencing suicidality?

2) Is one type of traumatic experience, Type I, Type II, or combined types more closely correlated with suicidality among ninth grade students who scored as possibly at risk for depression or suicide on the BSAD?

3) Are ninth grade students who present as possibly at risk for depression or suicide willing to participate in school based mental health counseling services?

Participants

Participants in this study were students attending public schools in an urban school district in the South. The population was students enrolled in the ninth grade Health and Physical Education course and who attended class the day of the program. Depression and suicide are part of the ninth grade curriculum. Student participation in the SOS Signs of Suicide Prevention Program was voluntary. Student information was collected from five high schools. Subjects for this study were those students who scored as possibly at risk for depression or suicide as indicated from the students self reported score on the Brief Screen for Adolescent Depression (BSAD), described below. The age range of students was from 13-18, with the mean age being 14 years and 9 months. Data from approximately 400 interviews were used in the study. Because the data was archival the entire sample of students identified as possibly at risk for depression or suicide were
used in this study. This number is within an acceptable range for statistical procedures to be reliable.

The number of participants or the sample size is determined by the type of research being conducted, the number of variables, type of variables, and statistic being used in the study. Bivariate logistic regression, the statistic being used in this research requires larger sample sizes for valid interpretation of the results (Meyers, Gamst, & Guarino, 2006). Using a minimum of 30 times as many subjects as factors being studied is the recommendation of Pedhazur (Meyers et al).

Demographics

Demographic information was collected from two sources. The student self report survey, the Brief Screen for Adolescent Depression, provided the students’ report of age, gender, race-ethnicity, and grade level. The clinical interview, conducted face to face with each student identified as possibly at risk for depression or suicide, provided information to validate the students’ self report of demographic information. In some cases the student’s schedule provided demographic information. The demographic information used in this study included students’ age, gender, and race-ethnicity.

The students were asked to identify themselves as male or female. Data from the student self report survey, the BSAD and clinical interviews were used. The results indicate that the majority of students who scored as possibly at risk for depression or suicide were female (64.6%) \( n = 250 \), with males representing slightly over one third (35.4%) of the sample \( n = 137 \).

Students completed the age question on the BSAD, this was confirmed through the individual interviews and the students schedule which listed birthdates. The student
ages ranged from 13 years old to 18 years old, as indicated in Table 2. The majority of the students were 14 (40.3%) and 15 (37.5%) years old. Fourteen and 15 year olds accounted for 77.8% of the sample and is the chronological the age of most ninth grade students. Only one student reported being 13 years old, while 22.1% of the students report being between the ages of 16 and 18 years old.

Students also completed a question about which race-ethnic group they associated themselves. The school system used in this study was an urban district in the south. The racial-ethnic composition of the sample is represented in Table 3. African American students made up the majority of the sample with 50.9% of the students identifying as

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<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
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</tr>
<tr>
<td>16</td>
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</tr>
<tr>
<td>17</td>
<td>18</td>
<td>4.7</td>
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</tr>
<tr>
<td>Total</td>
<td>387</td>
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</tbody>
</table>
African American. The second largest group was students who identified themselves as Caucasian (23%). The remaining students identified themselves as Other (7%), Multiracial (5.2%), Biracial (3.6%), Hispanic/Latino (4.1%), Asian (3.9%), Pacific Islander (1.6%), and American Indian (0.8%).

Instrumentation

Although this study used archival data, the instrumentation and procedures are thoroughly explored. The Brief Screen for Adolescent Depression (BSAD; Jacobs & Pigeon, 2006) is the screening tool provided with the SOS Signs of Suicide Prevention

Table 3

<table>
<thead>
<tr>
<th>Frequency of Race and Ethnicity</th>
<th>Frequency</th>
<th>Percent</th>
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</thead>
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<tr>
<td>African American</td>
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<td>Multi-racial</td>
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<td>5.2</td>
</tr>
<tr>
<td>Other</td>
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<tr>
<td>Total</td>
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<td>100.0</td>
</tr>
</tbody>
</table>
Program for high schools. Students who score in the significant range on the BSAD, those responding yes to three or more of the seven questions or a yes response to question numbers 4 or 5, which is indicative of suicidality (suicidal ideation or attempt), were screened further. Additional screening consisted of a clinical interview with each individual student. Students were assessed individually with a structured interview developed by the mental health professionals employed by the school system. The clinical interview identified Posttraumatic Stress Disorder (PTSD), a Major Depressive Episode, traumatic experience, and traumatic stress. Traumatic experience was assigned one of three categories: Type I, Type II or combined types. In addition to the clinical interview, students were asked to identify symptoms [of traumatic stress] that they experience more often than not during a week. The experiencing of symptoms validated that the traumatic experience had an impact without necessarily meeting the criteria for PTSD.

The BSAD is a “seven-question screening tool for depression” that was developed specifically for the SOS Program (Jacobs & Pigeon, 2006, p. 3). The tool is a self report completed by students after participating in the SOS presentation (Jacobs & Pigeon). The BSAD is not a diagnostic tool; rather it is a means of identifying students who may be experiencing problems that place them at risk for depression or suicide.

The clinical interview was developed by the mental health professionals in the school district specifically for the use with the SOS Program. It was determined that a standardized interview would assist all of the people who individually screen at risk students. Approximately five years ago, the mental health team created a data base and a structured clinical interview that has been in use since that time. Revisions to the clinical
interview in 2008 included questions to identify PTSD and major depression, and specifically listed traumatic experiences and symptoms of traumatic stress.

The interview is structured in a manner so the interview begins in the cognitive domain and works into the affective domain, exploring traumatic experience and then returning to the cognitive domain through identification of coping skills, supports, and resources. The interview was designed to follow the crisis intervention technique referred to as the *Diamond Technique* in the *Individual Critical Incident Stress Management* course (Everly, 2006).

**Procedures**

The SOS Signs of Suicide Prevention Program has been in use in the school system in which this research project was completed since 2001 in response to the *Surgeon General’s Call to Action to Prevent Suicide*. The SOS Program is a high school prevention program developed by Douglas G. Jacobs, MD, a renowned suicidologist and the Screening for Mental Health’s Executive Director. Many organizations have endorsed the SOS Program (Aseltine, James, Schilling, & Glanovsky, 2007). The program was selected by the school psychologists’ supervisor in the school district and includes a collaboration of many departments and stakeholders. The SOS Program is presented to the students in a classroom or small assembly setting.

The program consists of a presentation and discussion, a 25 minute video, and the completion of a screening tool. The presentation created by the mental health professionals covers myths of suicide, statistics, and the signs and symptoms of suicidal ideation. The presentation is in power point form and was updated in 2008 to include recent statistics and more adolescent oriented imagery. The presentations and discussions
were conducted by local university counseling graduate students or local community mental health counselors working in the schools. The Friends for Life video was created by the Mental Health Screening Institute, the creators of the SOS Program. The screening tool developed specifically for the SOS Program is the BSAD. The BSAD identifies students who may be at-risk for depression or suicide. The BSAD was administered to all students who were present for the program. Participants for this study were the students who had BSAD scores indicative of the student being possibly at risk for depression or suicide. Students who respond yes to questions number four or five, which suggest lethality, were seen by one of the mental health professionals or someone on their team who is specifically trained in suicide assessment. Students who did not indicate lethality, suicidal ideation, or attempt were seen by a school counselor or one of the mental health professionals. Students who were seen by school counselors or mental health professional were interviewed about resources and supports. Parents of students who present as having a mental health concern or other problem requiring action were contacted. Referrals were made to local hospitals, local mental health agencies in the community, outpatient treatment providers, and school based services, such as mental health counselors, resource officers, or school counselors. To ensure accurate assessment and linkage to resources, counselors or mental health professionals conducted follow up sessions with students. Although follow up sessions may have been conducted sooner in some cases, most students were seen 10, 20, or 30 days after the initial contact. The time was determined based on the severity of the concern.

The clinical interview began by asking students if they think they are depressed. This was followed by questions to determine whether the students met the DSM-IV-TR
criteria for major depressive episode. Students were then asked about current mental health treatment or a history of mental health treatment and whether they use psychotropic medication. Suicidal thoughts, plans, and attempts were discussed, as well as the student's family history of depression and suicide. Other self harmful behavior was identified as well. Students were then asked about traumatic experience. Counselors actually read aloud a list of various traumatic experiences and asked students whether they have had such experiences. If the student identified one or more traumatic experiences, the counselor conducting the interview then asked a series of questions to walk the students through the traumatic experience so strengths could be identified and some sense can be made of the event. Students were also asked to identify any signs or symptoms that they experienced frequently during a usual week. Coping skills and resources were identified. Finally, students were asked if they were willing to participate in counseling provided at the school.

Students' parents were contacted if the student evidenced suicidality or other concerns that may interfere with his or her health and wellbeing. The state agency handling child abuse and the police were contacted when cases required reporting. Finally, referrals were made to appropriate school resources and community agencies when indicated. Every effort was made to assist students in identifying and utilizing resources.

After the student had been screened completely and referrals made as screening indicated, the physical data were entered into the ACCESS database. Physical data were categorized into groups according to lethality and followed up by the professionals assigned to conduct the follow up session. The physical data were securely stored, but available for reference by the mental health professionals. The most current data, 2008-
2009, were used for this research study. To ensure subjects’ confidentiality and researcher blindness, the data were transferred to EXCEL without names, schools, or original identification numbers. Further, the data were entered in a random order so it cannot be traced back to any individual participant or specific school. The data were re-coded while in EXCEL and then transferred to SPSS for analysis.

The data that were re-coded included all the categories that were yes/no responses. When transferred to EXCEL those responses were converted to true/false responses. As suggested by Meyers et al. (2006), the true responses were re-coded to 1 indicating the event occurred and the false responses were re-coded to 0 indicating the event did not occur. The variables that were re-coded include the following: question 4, question 5, depression, suicidal ideation, suicide attempt, willing to participate in school counseling services, and call to parent. Additionally, PTSD was re-coded to create a dummy code. The criteria for PTSD were either met or not met creating a dichotomous variable. Therefore, PTSD was re-coded on the basis of having met the F criteria for PTSD diagnosis indicated by a 1 or not having met the criteria indicated by a 0.

Anticipated Data Analysis

SPSS version 16 was used to complete all statistical procedures. The data were analyzed using discriminate analysis. Specifically, binary logistic regression was the statistic used in this study as the objective was to determine which predictor variables increase the odds of the criterion variable occurring. The purpose of this study was to determine whether traumatic stress, PTSD, or a major depressive episode is a more accurate predictor of suicidality, the criterion variable.
Suicidality was determined by a positive response to question number 4 or 5 on the BSAD or a confirmed positive response to the suicidal ideation or attempt questions in the clinical interview with school counseling or mental health professionals. From the clinical interview, a severity score of 0-9 was determined based on the assessment of the responses. The predictor variables were the quantitative score of 0-9 based on the DSM-IV-TR criteria for PTSD and the quantitative score of 0-9 based on the DSM-IV-TR criteria for Major Depressive Episode. Due to the continuum of traumatic stress including both traumatic stress (symptoms in Criteria B, C, and D) and PTSD (Criteria B, C, D, and F), there was one traumatic stress quantitative score. A score of ‘9’ would indicate the diagnostic criteria for PTSD had been met evidenced in a report of an impairment of functioning. Therefore, PTSD was coded to create a dichotomous variable indicating whether or not the F criterion of the DSM-IV-TR PTSD diagnosis was met. Traumatic experience was processed by type of trauma: Type I, Type II, or combined types as reported by students in the clinical interview. The Pearson Correlation Coefficient was used to determine the percentage of students who scored in the possibly at risk range on the BSAD and who were willing to participate in school based counseling services.

Binary logistic regression, an extension of simple linear regression, is a technique frequently used in contemporary research particularly in the behavioral sciences. Constructs in the behavioral sciences are thought to be multiply determined. Therefore, using multiple predictor variables will provide a more complete view of the problem (Meyers et al., 2006). The ultimate objective of the logistic regression analysis was to determine group membership in the suicidality variable by calculating the chances that a predictor variable would belong to the suicidality group.
The predictor variables of the traumatic stress score, the major depressive episode score, and PTSD were configured together in this model to maximize prediction accuracy. Thus we can say that one of the predictor variables was able to predict the criterion variable to a specific extent. The variables included in this study were chosen based on the clinical experience of the researcher, as well as the theoretical and empirical evidence found in the literature. The model was built through researcher controlled methods for the aforementioned reason.

The predictor variables were whether or not the F criterion of the DSM-IV-TR PTSD diagnosis was met, the score for a major depressive episode, and the traumatic stress score as evidenced through the clinical interview and identification of symptoms. The predictor variables were analyzed using binary logistic regression to identify the unique individual contribution of each to predicting suicidality. Therefore, the results addressed the question of the degree to which a major depressive episode, PTSD, or traumatic stress was able to predict suicidality. An adjusted odds ratio was computed to determine the relative contribution of each variable to the predictive power of the model (Meyers et al., 2006, p. 237).

For the purpose of this study, the predictor variables of major depressive episode score and traumatic stress score were transformed into dichotomous variables because both were strongly skewed (Meyers et al., 2006). The new variables were symptoms of traumatic stress representing traumatic stress symptoms and major depression representing symptoms of major depression. Additionally, the race-ethnicity variable was transformed into a dichotomous variable of African American, indicating that a student was either African American or All Others. The All Others group included Caucasian,
Asian, Bi-racial, Multi-racial, Hispanic/Latino, Pacific Islander, and American Indian students. The PTSD variable was a dichotomous variable as a case either met the criteria or did not. The same was true for the gender variable, coded as female = 1 and male = 0. The transformations described above resulted in all variables in this study being dichotomous.

The key objective of the binary logistic regression procedure was to predict a case’s membership in the criterion variable group of suicidality by calculating the odds or probability that the predictor variables would increase those odds. The model developed to examine the problem was a five predictor model with the dichotomous predictor variables of major depression, symptoms of traumatic stress, PTSD, African American, and gender.

Internal and External Validity Threats

Certain validity threats were inherent to this study because the data were archival. Internal validity threats were a risk in this study as the researcher had little control over the internal factors in the study. By using existing data there was no chance of controlling inside the study. We had no control over the setting or the instrumentation. We used all the existing data available. Sample size is crucial to ensuring validity. The sample size was large enough for the binary logistic regression analysis to be performed and considered valid (Meyers, 2006).

External validity threats exist in the sense that the sample was a very specific group found within a very specific population. The sample was ninth grade students who scored as possibly at risk for depression or suicide on the BSAD in an urban school system in the south. This research study focused on a very specific group and therefore
the results cannot be generalized to the entire population of high school students. The results may be generalized, however, to similar school systems and grades.

Summary

Since the Surgeon General’s Call to Action to Prevent Suicide in 1999, the causes of suicide, predictors of suicide, and treatments for suicide have all gained attention. Depression is the clinical problem most frequently associated with suicide (Jacobs & Pigeon, 2006). The number of adolescents being treated for depression is on the rise and efforts to raise awareness have increased. Despite the aforementioned facts, the suicide rate for older adolescents has remained the same and it has actually increased for younger adolescents.

The intention of this study was to determine how well traumatic stress predicts suicidality in ninth grade students in an urban school district. It was hypothesized that traumatic stress would more accurately predict the chances of suicidality occurring than a major depressive episode or PTSD. The type of traumatic experience was correlated with suicidality. Finally, students’ willingness to participate in school based counseling services was analyzed.

The data were collected from the suicide prevention program used by the school system, and were archival. The statistic that was used was binary logistic regression. This chapter has identified the research questions. The participants, procedures, instrumentation, anticipated data analysis, and validity threats have all been discussed in detail in this chapter.
CHAPTER FOUR

RESULTS

The intention of this study was to determine whether traumatic stress more accurately predicts suicidality than major depression or posttraumatic stress disorder. The data were archival and collected from the SOS Signs of Suicide Prevention Program presented to ninth grade students in an urban school district in the south. Participation in the SOS Program was voluntary. The SOS Program was presented to a total of 1,983 students across the school district. The Program was presented through the Health and Physical Education course as it was part of the ninth grade curriculum. Each of the students completed the Brief Screen for Adolescent Depression (BSAD). The BSAD is a 7 question self report survey included with the SOS Program. The sample was students identified as possibly at risk for depression or suicide as indicated by a significant score on the BSAD. A significant score is defined as affirmative answers to 3 or more of the 7 questions or answering ‘yes’ to questions 4 or 5 indicating suicidal ideation or an attempt. Students were interviewed individually and the information from those clinical interviews provided the data for this research study. The predictor variables were the traumatic stress score, major depressive episode score, and posttraumatic stress score. Additional variables included in the study were gender and race-ethnicity. The criterion variable was the suicide score, transformed into a dichotomous variable suicidality.

The results of the research study are presented in this chapter. The initial data screening and the findings are included. The overall findings include the descriptive statistics followed by the predictive model and the correlation test. The statistical procedures performed in the predictive model were the Nagelkerke pseudo $R^2$ as an
indication of overall model fit, the odds ratio to measure effect, and the Wald Test to measure the relative strength of the individual predictor variable. The Wald Test allowed for the comparison of the unique contributions of each variable. This chapter is concluded with the Pearson Correlation Coefficients which identify the magnitude of relationships between type of traumatic experience and suicidality.

Data Screening

Each case's clinical interview was independently scored in four areas by three different raters. The three raters were mental health professionals working across counseling venues. The clinical interviews were scored on a 0-9 scale in the areas of Depression (Appendix B), Suicidally, and Traumatic Stress (Appendix B). The correlation coefficients were computed among the three raters for each of the three scales to ensure the scales were measuring scores the same. The results of the correlation analysis evidenced that all the correlations were statistically significant and were greater than or equal to .993. The correlation among the raters for the Suicide Scale was the lowest although significant, $r (384) = .993, p < .001$. The inter-rater reliability is positively correlated suggesting the scales were measuring the symptoms in the same manner.

The PTSD score was a dichotomous score derived from meeting all the criteria on the Traumatic Stress Scale as indicated by the DSM-IV-TR criteria, which includes a disruption in usual functioning. PTSD was represented by a score of 9 on the traumatic stress scale. The suicide score was transformed into a dichotomous variable, suicidality. The data were then screened using frequencies in the SPSS program. There were no extreme minimum or maximum values observed in the variables gender, age, depression.
Table 4

Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
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</tr>
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<tbody>
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</tr>
<tr>
<td>Age</td>
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</tr>
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<td>Depression Score</td>
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</tr>
<tr>
<td>Suicide Score</td>
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<td>2.542</td>
</tr>
<tr>
<td>Traumatic Stress Score</td>
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<td>3.439</td>
</tr>
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<td>PTSD Indicated</td>
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<td>Willing to Participate in Sch Counseling</td>
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<td>Type of Traumatic Experience</td>
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<td>.999</td>
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<td>Suicidality</td>
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<td>.500</td>
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<td>.477</td>
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<td>.294</td>
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<td>Any Symptoms of Traumatic Stress</td>
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<td>.454</td>
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<td>.493</td>
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<td>Type II Trauma</td>
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<td>.113</td>
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<tr>
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<td>.413</td>
</tr>
<tr>
<td>African American</td>
<td>.50</td>
<td>.501</td>
</tr>
<tr>
<td>Valid Number of Cases</td>
<td>387</td>
<td></td>
</tr>
</tbody>
</table>
score, suicidality, traumatic stress score, posttraumatic stress disorder, school services, and type of traumatic experience. Several variables were transformed to perform specific statistical procedures. The transformed variables were depression yes representing any symptoms of depression and major depression representing meeting the criteria for a major depressive episode or a score of 7-9 on the depression scale. The variable experience represented having experienced a traumatic event, or a 1-9 on the traumatic stress scale. Traumatic stress symptoms represented experiencing any symptoms of traumatic stress, or a score of 2-9 on the traumatic stress scale. Symptoms of traumatic stress represented meeting at least one of the four DSM-IV-TR PTSD criteria, or a score of 4-9 on the traumatic stress scale. Type of traumatic experience was re-coded into separate variables: Type I, Type II, and Type III representing combined type I and II traumatic experience. Means and standard deviations for all the variables were within appropriate ranges and were deemed feasible (Table 4). In the categorical variable race-ethnicity, there were no code violations. The conclusion that these variables were clean was determined from the initial process.

Findings

The SOS Program was presented to a total of 1,983 students across the school district. The sample was students identified as possibly at risk for depression or suicide as indicated by a significant score on the BSAD. Clinical interviews were used to further assess the students’ risk and provided the data for this study. A total of 401 students were identified as possibly at risk for depression or suicide and 387 of those students were individually screened. Data were missing for 14 cases and those cases were manually deleted prior to performing any of the statistical analyses. Approximately 19.51% of the
total number of students who participated in the SOS Program (n = 1983) were identified as possibly *at risk for depression or suicide*.

**Descriptive Statistics**

The variable *suicidality* represented whether the students reported suicidality or not. Of the 387 students in the sample, 51.9% reported experiencing suicidality. A total of 40.6% reported suicidal ideation alone and 16.3% reported having made an attempt. Of the students whose BSAD scores indicated they were possibly *at risk for depression or suicide*, 34.9% (n = 106) reported experiencing symptoms of depression and 76.5% (n = 296) report experiencing symptoms of traumatic stress.

The variable *experience* was defined as experiencing *any* type of traumatic event identified in the clinical interview. Of the sample, n = 387, 81.1% (n = 314) reported having experienced some type of traumatic event. Students reported experiencing some symptoms of traumatic stress in 76.5% of the cases, 71.1% met at least one of the four diagnostic criteria for PTSD, and 27.4% met the full diagnostic criteria for posttraumatic stress disorder as described by the DSM-IV-TR.

The *Type* variable was used to determine the number of students reporting Type I, Type II, or Combined Types of traumatic experience. Type I traumatic experiences are brief or single events, and isolated incidents. Students reported experiencing Type I traumatic experience in 58.7% of the cases. Type II traumatic experiences are multiple, prolonged, or chronic experiences, or a single catastrophic event. Type II trauma was identified in 1.3% of the cases. Combined Types I and II are as stated, students who have experienced both a single event and more enduring traumatic events. Combined Types I and II were reported in 21.7% of the cases.
The depression score was used to identify the number of students in the sample who reported experiencing any symptoms of depression. Of the sample, 34.9% reported experiencing some type of depressive symptoms. While 9.6% of the sample met the criteria for a major depressive episode using the Depression Scale scores of 7, 8, or 9.

Descriptive analysis was used to address the question of whether students were willing to participate in school based mental health counseling services. There were 387 students identified as possibly at risk for depression or suicide. From this group, 74.7% (n = 289) of the students said they would participate in mental health counseling if services were offer in the school. This left 8.5% of the sample stating they were not sure if they would participate or they did not answer the question, and 16.8% report they would not participate in counseling services in the school setting.

Predictive Model

The purpose of this study was to determine whether traumatic stress predicts suicidality more accurately than major depression or PTSD. To answer this question, binary logistic regression analysis was used. Results of the binary logistic analysis indicated that the five predictor model provided a statistically significant improvement over the constant only model. Statistical procedures conducted included Nagelkerke pseudo $R^2$ as an indication of overall model fit, the odds ratio to measure effect, and the Wald Test to measure relative strength of the predictor variables. The findings of the analysis were presented in this section.

The constant only model suggested that 51.9% of the sample will experience suicidality. These results are what may occur by chance while controlling for all other variables. The results of the constant only model provided a baseline for comparison with
the five predictor model. The five predictor model suggested there was an 11.18% improvement in the ability to predict suicidality over chance, $\chi^2 (5, N = 16) = 63.08, p < .001$. Therefore the null hypothesis was rejected.

To determine how well the model fits the data, the Nagelkerke pseudo $R^2$ was used as a measure of how well the five predictor model predicted over the constant only model. The five predictor model accounted for 21% of the total variance between the models as indicated by the Nagelkerke pseudo $R^2$. This result suggested that the predictor variables were able to discriminate between scores representing experiencing suicidality and scores which did not indicate experiencing suicidality. The Hosmer and Lemeshow Chi-square is another test of predictive accuracy of the five predictor model, the non-significant chi-square indicated a good model fit, $\chi^2 = 8.84, p = .356$. The overall predictive accuracy of the model was 63.08%, an improvement over the constant only model baseline of 51.9% or what would occur by chance.

The probability of experiencing suicidality can also be predicted through the odds ratio. The odds ratio is the amount that the criterion variable increases or decreases when influenced by the predictor variables. Symptoms of traumatic stress and major depression both have a strong influence on suicidality, as indicated by the adjusted odds ratio (Table 5). The odds of experiencing suicidality compared to not experiencing suicidality, on the basis of a major depressive episode, are increased by a factor of 5.29 : 1 (CI = 1.81 – 15.76). The odds of experiencing suicidality compared to not experiencing suicidality, on the basis of experiencing traumatic stress, are increased by a factor of 3.37 : 1 (CI = 1.98 – 5.73). These results controlled for all the other variables in the model and provided results comparing the odds ratio of experiencing suicidality for each covariate. The odds
ratio is a different method of presenting the same information as the unstandardized logit coefficients and is a measure of effect.

The Wald Test is a relative measure used to test the statistical significance of the unique role of each coefficient in the model and allows for the comparison of covariates. Some concerns have been identified with the use of the Wald Test statistic. One of the concerns is that the Wald Test statistic may not be appropriate for smaller sample sizes. Logistic regression requires larger sample sizes for the results to be interpreted accurately. Although there is no agreement on precise sample sizes, Meyer et al. (2006) suggested “using at least 30 times as many cases as parameters being estimated” (p. 222). The sample size of this study was 387 using 5 variables. As a result, the sample size was appropriate for use of the Wald Test statistic in this study. Because this study is comparing the unique role of the individual covariates, the Wald Test was the test statistic that was emphasized.

The results of the Wald Test (Table 5) suggested that traumatic stress was statistically significantly associated with suicidality independent of the other variables used in the model, Wald = 20.15, p < .001. This suggests that a student in this study who was experiencing symptoms of traumatic stress was 20 times as likely to experience suicidality as a student who was not experiencing symptoms of traumatic stress. A major depressive episode was statistically significantly associated to suicidality (Wald = 9.22, p < .05). This result suggests that a student in this study who experienced a major depressive episode was 9 times as likely to experience suicidality as a student who was not experiencing a major depressive episode. Being African American (Wald = 4.50, p < .05) and PTSD (Wald = 3.94, p < .05) were also statistically significantly associated to
suicidality independent of the other variables used in the model Gender was not statistically significantly associated to suicidality, Wald = .09, $p = .75$.

Pearson Correlation Coefficients were used to identify correlations between the type of traumatic experience and suicidality. To determine this correlation, the TYPE variable was recoded into Type I, Type II, and Type III. Type I traumatic experiences are single or brief events, type II traumatic experiences are more enduring or catastrophic, and type III represented a combination of type I and II traumatic experiences. The results of the correlation analyses were recorded. Combined Type I and II traumatic experiences were significant for suicidality $r = .268, p < .001$. Type II traumatic experience was correlated with suicidality $r = .110, p < .05$. Type I traumatic experience was not significantly correlated to suicidality $r = .001, p > .05$.

Table 5
Logistic Regression Results for Determining Whether Traumatic Stress is a More Accurate Predictor of Suicidality than a Major Depressive Episode or PTSD

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
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<th>Upper</th>
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<td>9.217</td>
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<td>.002</td>
<td>5.342</td>
<td>1.811</td>
<td>15.760</td>
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<td>Traumatic Stress</td>
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<td>.271</td>
<td>20.154</td>
<td>1</td>
<td>.000</td>
<td>3.374</td>
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<td>PTSD</td>
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CHAPTER FIVE

DISCUSSION

Chapter five is a discussion of the analyses and results that answer the research questions posed by this study. The research questions are answered through the results of the statistical procedures performed with the data collected. The outcomes are presented first. The existing literature on the predictors of suicidality as related to the results is then addressed. The limitations of this research study follow. The chapter concludes with a discussion of implications for counselors, counselor educators, and implications for future research. The findings of the data analyses are substantial and suggest further research on traumatic stress and suicidality is critical.

To determine the ability of the variables to accurately predict suicidality in the sample, binary logistic regression analysis was used. The type of trauma was correlated to suicidality using the Pearson Correlation Coefficient. Finally, frequencies were recorded to determine the percentage of students who stated they would participate in mental health counseling services if they were offered in the school setting.

Analyses of the Data

Nearly 2,000 ninth grade students in an urban school district in the south participated in the SOS Signs of Suicide Prevention Program through Health and Physical Education classes. Approximately 20% of the 2,000 students, who participated in the SOS Program scored as possibly at risk for depression or suicide on the Brief Screen for Adolescent Depression (BSAD). Those students were then individually interviewed by a counselor or mental health professional and composed the sample group.
The sample was representative of the school system population. The city's Juvenile Justice Collaborative Newsletter reported the youth population is 53% African American, 39% Caucasian, and 8% Other. Of the sample, 51% of the students self identified as African American and 23% self identified as Caucasian. The remaining students identified themselves as Other (7%), Multiracial (5.2%), Biracial (3.6%), Hispanic/Latino (4.1%), Asian (3.9%), Pacific Islander (1.6%), and American Indian (0.8%). The majority of students (65%) who scored as possibly at risk for depression or suicide were female. Males who scored as possibly at risk (35%) represented slightly over one third of the sample. The average age of students in the sample was 14 years and 9 months, which is the age of most ninth grade students.

Of the 20% of the students whose BSAD scores indicated they were possibly at risk for depression or suicide, 52% reported experiencing suicidality. A total of 41% reported suicidal ideation alone and 16% reported having made an attempt. Further, 35% of the students in the sample reported experiencing symptoms of depression. Possibly one of the most important findings was that 77% of the students in the sample reported experiencing at least one symptom of traumatic stress or PTS, as described in Chapters 1 and 2. Finally, 71% met at least one diagnostic criterion (B, C, or D) for PTSD, and 27% of the students met the full diagnostic criteria for posttraumatic stress disorder as described by the DSM-IV-TR which includes a disruption in usual functioning.

Research Question One

Research question number one (a) states: “Among ninth grade students who scored as possibly at risk for depression or suicide on the BSAD, does a significant relationship exist between traumatic stress and suicidality?” The purpose of this question
was to determine whether or not a statistically significant relationship existed between traumatic stress and suicidality. Traumatic stress is defined as any symptoms of re-experiencing the event, avoiding reminders of the event, or arousal symptoms that do not include a disruption in usual functioning. The results of the binary logistic regression analysis indicated that there was a statistically significant relationship between traumatic stress and suicidality, $p < .001$.

Research question number one (b) states: “Among ninth grade students who scored as possibly at risk for depression or suicide on the BSAD, does traumatic stress, a major depressive episode, or PTSD contribute more to the odds of experiencing suicidality?” The purpose of this question was to determine the predictability of some of the psychiatric conditions most commonly associated to suicidality. The results of the binary logistic regression analysis support the assumption that traumatic stress contributed more to the predictability of suicidality than a major depressive episode or PTSD.

The outcome of the analysis suggests that traumatic stress is a noteworthy predictor of suicidality for ninth grade students in an urban school system in the south that scored as possibly at risk for depression or suicide on the BSAD. While controlling for all other variables, traumatic stress represents the largest covariate in the model with 20.15%. This means that a student in this study who was experiencing symptoms of traumatic stress was 20 times as likely to experience suicidality as a student who was not experiencing symptoms of traumatic stress. A major depressive episode and PTSD were much less predictive as indicated by the Wald Test. A student in this study who was experiencing a major depressive episode was 9 times as likely to experience suicidality,
as a student who was not experiencing a major depressive episode. Finally, a student in this study who met the criteria for PTSD was almost 4 times as likely to experience suicidality as was a student who did not meet the PTSD criteria. The Wald Test suggests that traumatic stress is statistically significantly associated to suicidality independent of the other variables used in the model, Wald = 20.15, \( p < .001 \). A major depressive episode (Wald = 9.22, \( p < .05 \)) and PTSD (Wald = 3.94, \( p < .05 \)) were also statistically significant. These findings were supported by the odds ratio which also predicts probability. The odds ratio for traumatic stress is 3.37 : 1 suggesting that the chances of a student in this study experiencing suicidality was increase by a factor of 3.37 when the student was also experiencing symptoms of traumatic stress. A major depressive episode had an odds ratio of 5.29 : 1 suggesting that the chances of a student in this study experiencing suicidality increased by a factor of 5.29 when the student was also experiencing a major depressive episode. The results of the binary logistic regression, as indicated by the Wald Test and the odds ratio, suggest that traumatic stress is a better predictor of suicidality than a major depressive episode or PTSD for the urban ninth grade students in this study who scored as possibly at risk for depression or suicide on the BSAD.

Traumatic stress represented the largest contributor to suicidality in the model. This was followed by a major depressive episode and then PTSD. There is a remarkable difference between the covariates. Traumatic stress appears to contribute more than twice what major depression contributes and five times as much as PTSD contributes to predicting suicidality in this model. These results suggest that traumatic stress is a strong predictor of suicidality independent of a major depressive episode or PTSD in urban
ninth grade students who scored as possibly at risk for depression or suicide on the BSAD.

The results of this study which suggest that traumatic stress is a more accurate predictor of suicidality than a major depressive episode or PTSD are relatively unique. The literature typically focuses on traumatic events or experience and posttraumatic stress disorder as predictors of suicide rather than traumatic stress. Not everyone who experiences a traumatic event will develop symptoms of traumatic stress, therefore predicting by traumatic event alone is not accurate. The findings of the Nye and Bell (2007) study support the notion that traumatic stress or specific symptoms of PTS (posttraumatic stress) that do not meet the criteria for the DSM disorder are related to suicidality. Suggesting intervention prior to a person having met the disorder criteria may be indicated and that PTSD may not be as accurate of a predictor of suicidality as symptoms of traumatic stress that do not necessarily meet the full DSM diagnostic criteria.

A key concept for this study is the idea that traumatic stress, not just the traumatic experience is a significant predictor of suicidality. Most of the current literature is focused on major depression being the psychiatric condition most commonly associated to suicidality (Bell, 2007; Galaif et al., 2007). Traumatic experience has been associated to suicidality in several studies (Bell; Ganzel et. al., 2007; Gould et al., 1996). Ferrada-Noli et al. (1998) reported traumatic experience to be a more accurate predictor of suicidality than depression. However, most studies that include traumatic experience tend to focus on posttraumatic stress disorder (Kessler et al., 1999; Waldrop, et al., 2007) or depression (Bell, 2007), as the predictor conditions most frequently associated to
suicidality. Meanwhile the symptoms of traumatic stress have not received the same attention in the literature.

The demographic variables included in the study were race-ethnicity and gender. Gender did not appear to be a significant contributor to suicidality in the sample. Race on the other hand appears to be a significant contributor to suicidality in urban ninth grade students who scored as possibly at risk for depression or suicide on the BSAD. African American students who participated in this study were more at risk of suicidality than students associating themselves to other racial groups. A student who self identified as African American in this study was 4.50 times as likely to experience suicidality, as a student who self identified with another racial group.

The results of this study support the findings of the Centers for Disease Control which report the suicide rate among African Americans has increased by 114 % nationwide and 214% in the District of Columbia, Maryland, and Virginia (Sanchez, 1998). The findings further support the results of a study by Molock et al. (2007) that found that the rate of suicide attempts requiring medical treatment for African American and Hispanic adolescents surpassed the suicide rate of Caucasian adolescents for the first time. The results of this research study challenge the assumption that suicidality is not a problem for African Americans. According to Moskos, Achilles, and Gray (2004) many people continue to believe this falsehood.

Gender did not appear to be a significant contributor to suicidality in the sample. Gender was not significantly associated to suicidality, $p > .05$, in the urban ninth grade students who scored as possibly at risk for depression or suicide on the BSAD in this study. This result does not support the results of the majority existing research studies.
and may be specific to the population sampled in this study. Males are five times as likely to complete suicide as females, while females are more likely to experience suicidal ideation according to most national statistics (VDH, 2007). The results in this study may have been different had the model separated suicidal ideation from a suicide attempt. Gender was not a key concern of this study and therefore was not explored further.

Research Question Two

Research question number two states, “Is one type of traumatic experience, Type I, Type II, or combined types more closely correlated with suicidality among urban ninth grade students who scored as possibly at risk for depression or suicide on the BSAD?” The purpose of this question was to determine if one ‘type’ of traumatic experience is more strongly associated with suicidality. The types of traumatic experience are type I that are brief or single events, type II that are more cumulative or catastrophic in nature, and combined types are experiences of both type I and type II trauma. To answer research question two the Pearson Correlation Coefficient was performed.

The outcome of the Pearson Correlation Coefficient test indicated combined Type I and II is most strongly correlated with suicidality. The results show combined Type I and II traumatic experience is statistically significantly correlated to suicidality, \( p < .001 \). Type II traumatic experience alone is significantly associated to suicidality, \( p < .05 \). However, Type I traumatic experience alone was not significantly correlated to suicidality.

Combination Type I and II traumatic events would be both single events and an enduring or catastrophic experience. For example a student who has grown up in a home witnessing domestic violence, a type II traumatic event, may appear to be coping fairly
well, with no evidence of any symptoms. If that student is then physically assaulted and seriously injured a type I traumatic event, the combination of the two types of events may be more likely to cause that student to experience suicidality. Whereas either type alone would be less likely to cause the student to experience suicidality. A combination of types of trauma causing a student to become suicidal may be due to the student’s usual coping mechanisms becoming overwhelmed creating a crisis for the individual. As stated in chapter one, suicide is a crisis of problem solving. For the adolescent who may be impulsive, this crisis state and lack of problem solving ability may be more likely to lead to suicidality. The point at which a person may experience suicidality varies because each person responds uniquely to traumatic events.

Tarrier and Gregg (2004) reported finding a strong correlation between suicidality and traumatic experience. Despite the studies reporting correlations between traumatic experience and suicidality, studies exploring the relationship between the types of traumatic experience and suicidality were not found. There are numerous studies that have focused on specific types of traumatic events, as individual categories of events, such as childhood abuse (Afifi et al., 2008; Ferrada-Noli et al., 1998; Read et al., 2001) or combat (Nye & Bell, 2007) and suicidality, but none that specifically investigated type classifications. The results in this study demonstrated that the type of traumatic event a student has experienced may be an important aspect in predicting suicidality. Particularly if the student has experienced both types I and type II traumatic events.

Research Question Three

Research question number three states, “Are ninth grade students who present as possibly at risk for depression or suicide willing to participate in school based mental
health counseling services?" The specific purpose of this research question was to
determine whether or not students possibly at risk for depression or suicide are willing to
participate in school based services. Frequencies were recorded with the variable of
school counseling services and student willingness to participate if services were
available.

A majority of the students in the sample said they would participate in mental
health counseling provided though the school. A total of 74.7% of the students said they
would participate in mental health counseling if services were offered in the school
setting. Some students (16.8%) reported they would not participate in counseling services
in the school setting. The smallest percentage of the students (8.5%) reported they were
not sure if they would participate or they did not answer the question. This finding
supports the current literature on this topic.

Schools must address mental health concerns following large scale events and
every day events such as violence in the homes, schools, and community (Jacox et al.,
2006). Seventy-five percent of the students in this study who may have been at risk for
suicide indicated that they were willing to participate in school based mental health
counseling services. It has been well documented that in order for students to learn and
perform effectively, mental health problems must be addressed (Adelman et al., 1999).

Mellin and Sommers-Flanagan (2008) reported only a small percentage of those
students who need mental health treatment receive it. Flaherty and Weist (1999) found
that adolescents’ mental health problems are not being addressed and suggested that a
comprehensive counseling component must be developed for schools. Wong and
Escudero (2007) suggested that the best way to access the children who desperately need
assistance may be to provide licensed mental health professionals in the schools. The results of this study support both the need for counseling services and the willingness of students to participate in school based counseling programs.

Limitations of this Research Study

Certain limitations were inherent to this study because the data were archival. I used all the existing data available. I had no control over the setting or the instrumentation. The sample was a very specific group found within a very specific population. The sample was ninth grade students who scored as possibly at risk for depression or suicide on the BSAD in an urban school system in the south. This research study focused on a very specific group and therefore the results cannot be generalized to the entire population of high school students. The results may be generalized, however, to similar school systems and grades. Various age groups, other parts of the country, and different types of schools should be studied to determine whether the findings in this study would be the same in other groups of school students or individuals outside of schools.

Internal validity threats existed because the data were archival. Extraneous factors could not be controlled for by the researcher. The SOS Program was presented by different professionals and the assumption was that all the students received the same information in a similar manner. Equipment functioning was another factor over which I had no control and the assumption is that all the students were able to view the entire program. A variety of school staff interviewed students who scored as possibly at risk for suicide or depression as indicated by the BSAD. I did not have control over the manner, approach, or thoroughness of the interviewer. The assumption was that the interviewers
asked all the questions, used basic counseling skills to illicit information, and made appropriate referrals. The final assumption that may not have been warranted is that the students answered honestly.

Implications for School and Professional Counselors

School and professional counselors may find the results of this study to have serious implications. In a landmark 2007 decision, Connecticut became the first state to pass legislation allowing marriage and family therapists to work in schools (Kennedy, 2008). In this research study, 35% of students in the sample reported experiencing symptoms of depression and 71% reported symptoms of traumatic stress, suggesting that there is a need for mental health counselors in the school setting.

School officials must reflect on these findings as the outcomes relate to student success. Students are identifying symptoms of traumatic stress and depression that are not being addressed. These symptoms are most likely interfering with academic success. It is imperative for school counselors to recognize that any traumatic experience has the potential to cause serious distress (Lerner et al., 2006). Traumatic stress left untreated can cause numerous problems for a developing youth (National Child Traumatic Stress Network, 2006). Those problems may include lack of academic success, and problems related to untreated traumatic stress may lead to suicidality.

Research has shown that traumatic experience and the resulting traumatic stress have a profound impact on learning that manifests itself in several ways and may lead to numerous school problems (Jacox et al., 2006). Traumatic stress symptoms may be a significant contributor to a student’s inability to achieve academically. Of the students in the sample, an alarming 81% report having experienced a traumatic event and 71% report
experiencing symptoms of traumatic stress that meet at least one diagnostic criterion of PTSD. The results of a school based trauma focused grief group study with Bosnian war exposed adolescents evidenced a decrease in traumatic stress symptoms and an increase in compliance with classroom rules and school interest (Layne et al., 2001). An implication for future research would be duplicating the Layne et al. (2001) study with urban students. It has been well documented that in order for students to learn and perform effectively, mental health problems must be addressed (Adelman et al., 1999). This was not a focus of this study, yet it is an incredibly important area of further research for educational settings.

Schools offer the community valuable services in addition to providing an education for students. Schools often serve as shelters, distribution centers during emergencies, vaccination centers, voting facilities, and community meeting facilities. Studies have shown that children and adolescents in need of mental health services often go untreated. Students, families, and school staff may benefit from providing counseling services in the community through the schools. The results of this study demonstrate that students who are distressed are receptive to receiving counseling services through the school.

Implications for Counselor Educators

The results of this research study may have important implications for counselor educators. Counselor educators teach future counselors how to assess a client for suicidality. There is a remarkable amount of literature indicating mental health professionals do not ask about traumatic stress or experience when assessing for suicidality (Ferrada-Noli et al., 1998; Peruzzi & Bongar, 1999). Further misdiagnosis is a
problem (Courtois, 2004; Ferrada-Noli et al., 1998; Peruzzi & Bongar, 1999; Zuckerbrot et al., 2007). Once traumatic experience is identified, the counselor should ask questions about symptoms of traumatic stress. It is important to reiterate that depression is often a part of traumatic experience (Everly & Lating, 1995) and brief periods of sadness are part of the human experience (APA, 2000). We must teach counselors to explore all the symptom clusters for posttraumatic stress and not stop once symptoms of depression are identified.

As counselors whose “basic perspective for assisting individuals in resolving their emotional and personal problems is the wellness model of mental health” (Remley & Herlihy, 2010, p.22), we should embrace this concept. Traumatic stress is interfering with students’ ability to feel good and perform at their best. A core belief of counselors is that clients can be empowered to resolve their own problems (Remley & Herlihy). Traumatic stress can be resolved by properly trained counselors who understand trauma treatment. For optimal results, a certified traumatic stress specialist should be available to help school children.

Counselors must start diagnosing problems from a wellness perspective. This means identifying the cause of the problems, then addressing the symptoms. Currently most mental health professionals (clinical social workers, psychologist, psychiatric nurses, and some counselors) work from the medical model as this is generally the requirement of insurance companies in order to be reimbursed for services. The medical model requires that counselors identify an illness in the initial session. Presenting problems can range from substance abuse to anxiety disorders, while the cause may be traumatic stress resulting from an unresolved traumatic experience.
For example, a person presenting with an addiction will be treated for the addiction. The addiction is most likely an attempt to cope with symptoms of traumatic stress. Studies show that assessments often do not include questions about traumatic experience (Ferrada-Noli et al., 1998; Gentry, 2004; Peruzzi & Bongar, 1999), much less questions about the resulting traumatic stress. Researchers are finding a synergism between trauma and addiction, meaning the traumatic stress is treated with a substance. The substance use then fuels the symptoms of traumatic stress which lead to more substance abuse and so goes the cycle (Dayton, 2000). The cause (the traumatic experience) should be treated in conjunction with the addiction for successful recovery (Dayton, 2000). A causal diagnosis may lead to more effective treatment. The implications and responsibilities for counselor educators are far more important than for others in the mental health professions who do not subscribe to the wellness model.

Implications for Future Research

An advertisement for a well-known psychotropic medication states that 2 out of 3 people suffering from depression and being treated with an anti-depressant are still experiencing symptoms of depression. It is possible that 1 in 3 people diagnosed with depression actually experiences symptoms of clinical depression requiring an anti-depressant. The other 2 may be experiencing symptoms of another problem. In a study of approximately 8,000 cases, researchers found a significant percentage of grieving people diagnosed with depression and being treated with an anti-depressant, were not clinically depressed (Wakefield, Schmitz, First, & Horwitz, 2007). Misdiagnosis often occurs because the indicators of grief or loss are also classic symptoms of depression (Everly & Lating, 1995). Further, classic symptoms of depression are characteristic symptoms of
traumatic stress. Is it possible that the other 2 people are experiencing symptoms of traumatic stress causing the continued experiencing of symptom despite being on the anti-depressant?

Children and adolescents may be at increased risk of suicidality while taking anti-depressants although this phenomenon is associated to the depression or other psychiatric condition and not the medicine, as indicated by the majority of anti-depressant manufacturers (Celexa, 2009; Luvox CR, 2009; Prozac, 2009; Wellbutrin, 2009; Zoloft, 2009). “Antidepressants increased the risk compared to placebo of suicidal thinking and behavior (suicidality) in children, adolescents, and young adults in short-term studies of major depressive disorder (MDD) and other psychiatric disorders” (Luvox CR, 2009). One psychotropic medication advertisement mentions problems with “Treatment Resistant Depression, TRD” (Symbyax, 2009). The indication is that we must look at other causes of suicidality, especially in children and adolescents who seem to be vulnerable to psychotropic medication increasing the risk of suicidality. Future research on the predictors of suicidality appears essential to decreasing the rate of suicide among America’s youth.

Waldrop et al. (2007) reported that they were unaware of studies that investigated both PTSD and major depression as predictors of suicidality, supporting the need for further research in this area. The five predictor model in this study suggests that further research on the predictors of suicidality, specifically traumatic stress, across all populations is critically needed to improve the diagnosis and treatment of people experiencing suicidality. The Nye and Bell (2007) study support the implication for further research in the area of traumatic stress as a predictor of suicidality.
The significant overlap of symptoms among traumatic stress, PTSD, and a major depressive disorder is confounding (Everly & Lating, 1995). The overlap in symptoms of PTSD and traumatic stress is apparent, as traumatic stress can include all the diagnostic criteria for PTSD without the disruption in functioning. However, the overlap of symptoms for a major depressive episode and traumatic stress is much less obvious. This is an area of vital future research. Difficulty concentrating, sleep disturbance, loss of interest in usual activities, and suicidality are symptoms of both traumatic stress and depression. Insomnia is a symptom commonly associated with depression, but is often caused by the arousal problems of traumatic stress.

Further complicating the problem is that loss constitutes a part of every traumatic experience: loss of innocence, loss of sense of safety, loss of people, and loss of property. Depression is a normal part of loss (APA, 2000). Therefore, depression would appear to be a part of the traumatic experience. Depression is often a symptom of traumatic stress. It may be that we do not need new or different medications or to create new disorders, but we need to consider that signs of depression may be something larger than simply depression. Could it be that the depression is part of the traumatic stress? This is somewhat like continually putting air in a slow leaking tire. You may have corrected the problem temporarily but did not solve the problem. If you repaired the slow leak the tire would be much less likely to become flat again.

Because of the overlap in symptoms, factoring out those symptoms and exploring what remains may prove to be an interesting research project. The relationship between suicidality and loss may be an implication for future research. Further, analyzing the symptoms reported by the students may prove beneficial in correlating specific symptom
clusters (avoidance, arousal, re-experiencing) with suicidality such as in the Nye and Bell (2007) study. Finally, the relationship between symptom clusters and academic achievement may prove to be very useful research for educators. This research study is a spark to encourage research in this area and to make a clear distinction between the traumatic event or experience and the symptoms of traumatic stress.

Conclusions

Suicide is a deliberate act of annihilation against one’s self due to a crisis of problem solving. Far too many youth are dying by their own hands resulting in suicide being the third leading cause of death for 10-19 year olds. Suicide is a national health problem and a traumatic experience for survivors. The current literature suggests mental health and medical professionals are not identifying the problem of suicidality, misdiagnosing the problem, and not making appropriate referrals when problems are identified (Mellin & Sommers-Flanagan, 2008; Zuckerbrot et al., 2007).

Once a problem is identified and a referral is made, services are often not sought by families (Mellin & Sommers-Flanagan, 2008; Zuckerbrot et al., 2007). Because this is frequently the case, another means of reaching the student in distress must be made available. Schools offer the best access to students who may be experiencing a crisis of problem solving that may lead to suicide (Adelman et al., 1999). Obviously schools were not established to be providers of mental health services. However, the current suicide trends and exposure to traumatic events may require schools to evaluate the need to provide such services. The results of this study support having mental health counselors working in the schools to provide suicide prevention and counseling services to students who are experiencing traumatic events at an alarming rate, 81% of the sample.
Traumatic stress appears to be a powerful predictor of suicidality in urban ninth grade students possibly at risk for depression or suicide, over and above a major depressive episode or PTSD. The findings call into question the premise of depression being the clinical problem most frequently associated to suicidality. Ultimately the results of this study suggest further research on traumatic stress as a predictor of suicidality is vital. The outcome of this study suggested further research on traumatic stress as a predictor of suicidality appears essential to reducing the number of teens lost each year to the tragedy of suicide.
CHAPTER SIX
MANUSCRIPT

TRAUMATIC STRESS AS A
PREDICTOR OF SUICIDALITY

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ABSTRACT

Despite significant efforts the suicide rate among teens continues to rise. Archival data was analyzed to determine whether traumatic stress, a major depressive episode, or PTSD better predict whether students in an urban school district will experience suicidality. The outcome of the analysis suggests that traumatic stress was a better predictor of suicidality than was a major depressive episode or PTSD in the sample that was studied.

Key Words: suicidality, trauma, depression, schools, adolescents
INTRODUCTION

The most recent reports from the Centers for Disease Control (CDC) show that suicide is the third leading cause of death for 10-19 year olds. In 2005 the CDC reported more teens died from suicide than from cancer, heart disease, AIDS, birth defects, stroke, pneumonia, influenza, and chronic lung disease combined. It is painfully obvious that professionals in the United States have not yet found a way to reduce the rate of youth suicide. Numerous predictors have been associated with suicidality. Regardless of the impressive amount of research in the area of suicide among adolescents (Bell, 2007), teen suicide continues to be a national health problem (Centers for Disease Control, 2005).

Suicide is particularly problematic for adolescents due to the impulsivity inherent in adolescent development. Since 1980, the national suicide rate of African American youth between the ages of 10 and 19 has increased by 114 percent. The suicide rate among African American youth in Maryland, Virginia, and the District of Columbia, has increased by 214 percent. The Centers for Disease Control reported that experts are not sure what is causing these drastic changes (Durant et al., 2007, Sanchez, 1998). In 2003 the rate of suicide attempts requiring medical treatment for African American and Hispanic adolescents surpassed the suicide rate of Caucasian adolescents for the first time (Molock et al., 2007). Molock et al. found that African American adolescents who participated in the study were largely unaware of the gravity of the problem among African Americans.

In a study that examined risk factors for suicide, a national sample of adolescents was interviewed (Kessler et al., 1995). A number of factors were correlated with suicidal ideation and attempts. Results of this study revealed that 23.3% of adolescents reported
suicidal ideation and 3.1% reported having made a suicide attempt. Suicidal ideation and attempts were both positively correlated with depression and posttraumatic stress disorder (PTSD). Suicidal ideation was positively correlated with exposure to violence and attempts were correlated to victimization. Borowsky et al. (2001) reported similar findings for predictive factors of suicide attempts.

Shaffer (1974) conceptualized two types of suicidal adolescents: those with psychiatric problems and those with conduct type problems. Those with conduct problems may not evidence signs of depression and hopelessness typically associated with suicidality. Low frustration tolerance, impulsivity, and anti-social acts may be seen in an adolescent with conduct problems who is at risk of suicide (DiCanio, 2000). An adolescent will not necessarily exhibit symptoms of depression when experiencing suicidality (DiCanio), as may be the case with urban teens.

An essential step toward preventing teen suicide is being able to identify adolescents who are at risk for suicidality. Identification involves assessment (Ferrada-Noli et al., 1998) and accurate diagnosis (Foster, Kuperminc, & Price, 2004; Sheeran & Zimmerman, 2002). Adolescents may have difficulty articulating trauma-related symptoms which further complicates diagnosis (Abram et al., 2008). Schools are in an optimal position to reach youth (Adelman et al.; Jacox et al. 2006; Wong & Escudero, 2007) who may not receive assistance otherwise.

The best practices in teen suicide prevention encourage the use of psycho-educational programs that provide information about teen suicide and offer a screening tool to identify students who may be at risk (Molock et al., 2007; Satcher, 2000). One school based program designed to address the issue of adolescent suicide is the SOS
Signs of Suicide Prevention Program (Jacobs & Pigeon, 2006). The SOS Signs of Suicide Prevention Program combines the two most prominent suicide prevention strategies.

Since 1999 significant attention has been given to the topic of adolescent suicide, yet the suicide rate among adolescents has not changed, with the exception of an increase in the rate of suicide among 10-14 year olds. The purpose of this study was to determine if traumatic stress resulting from exposure to traumatic experience is a better predictor of suicidality than two mental health problems commonly thought to predict suicide: major depression and posttraumatic stress disorder. Traumatic stress or posttraumatic stress (PTS) is defined as any number of symptoms from the DSM-IV-TR (APA, 2000) diagnostic criteria B, C, or D, without experiencing a disruption in usual functioning.

METHOD

Participants in this study were students attending public schools in an urban school district in the South. The population was students enrolled in ninth grade Health and Physical Education who attended class the day of the program. Depression and suicide are part of the ninth grade curriculum. Student participation in the SOS Signs of Suicide Prevention Program was voluntary. Subjects for this study were those students who scored as possibly at risk for depression or suicide as indicated by the students’ self reported score on the Brief Screen for Adolescent Depression (BSAD).

The Brief Screen for Adolescent Depression (BSAD) is the screening tool provided with the SOS Signs of Suicide Prevention Program for high schools. The BSAD is a seven-question screening tool for depression that was developed specifically for the SOS Program (Jacobs & Pigeon, 2006). The tool is a self report instrument completed by students after participating in the SOS presentation (Jacobs & Pigeon). Students who
score in the significant range on the BSAD, those responding yes to three or more of the seven questions or a yes response to question number 4 or 5, which is indicative of suicidality (suicidal ideation or attempt), are screened further. The BSAD is not a diagnostic tool. It is a means of identifying students who may be experiencing problems that may place them at risk for depression or suicide.

Zuckerbrot et al. (2007) suggested that for optimal diagnosis in addition to a screening tool, a clinical interview should be conducted. A clinical interview was completed with each individual student who scored in the significant range on the BSAD. Students were assessed individually with a structured interview developed by the mental health professionals employed by the school system. The clinical interview identified whether students reported having experienced a traumatic event, symptoms of Posttraumatic Stress Disorder (PTSD), a major depressive episode, or traumatic stress.

The interview was structured in a manner so interactions began in the cognitive domain and then moved into the affective domain, exploring traumatic experience. The interview ended by returning to the cognitive domain through identification of coping skills, supports, and resources. The interview was designed to follow the crisis intervention technique referred to as the Diamond Technique in the Individual Critical Incident Stress Management (Everly, 2006) course used by the International Critical Incident Stress Foundation.

The parents of students were contacted when students presented as having a mental health concern or other problem that might interfere with their health or wellbeing. The state agency handling child abuse and the police were contacted when cases required reporting. Referrals were made to local hospitals, community mental
health agencies, outpatient treatment providers, and school based services, such as mental health counselors, resource officers, or school counselors. Efforts were made to assist students in identifying and utilizing resources. To ensure accurate assessment and linkage to resources, follow up sessions were conducted with students.

This study analyzed data that had been collected during the 2008-2009 school year. Data from approximately 400 interviews were used in the study. The entire sample of students identified as possibly at risk for depression or suicide was used in this research study.

The demographic information used in this study included students’ age, gender, and race-ethnicity. Data from the student self report survey, the BSAD, and clinical interviews were used. The majority of students in the sample were female (64.6%) \( n = 250 \), with males representing slightly over one third (35.4%) of the sample \( n = 137 \). The age range of students was from 13-18, with the mean age being 14 years and 9 months.

The school system used in this study was an urban district in the south. African American students made up the majority of the sample with 50.9% of the students identifying as African American. The second largest group was students who identified themselves as Caucasian (23%). The remaining students identified themselves as Other (7%), Multiracial (5.2%), Biracial (3.6%), Hispanic/Latino (4.1%), Asian (3.9%), Pacific Islander (1.6%), and American Indian (0.8%). These percentages are representative of the racial composition of students in the school system.

The data were analyzed using binary logistic regression to determine which predictor variables increased the odds of the criterion variable occurring. The intention of this study was to determine whether traumatic stress, PTSD, or a major depressive
episode was a more accurate predictor of suicidality, the criterion variable. Suicidality was determined by a positive response to question number 4 or 5 on the BSAD or a confirmed positive response to the suicidal ideation or attempt questions in the clinical interview. Students who scored in the possibly at risk range on the BSAD were asked whether they would be willing to participate in school based counseling services if such counseling services were available to them.

The key objective of the binary logistic regression procedure was to predict a case’s membership in the criterion variable group of suicidality by calculating the odds or probability that the predictor variables would increase those odds. The variables included in this study were chosen based on the theoretical and empirical evidence found in the literature. The model developed to examine the problem was a five predictor model with dichotomous predictor variables. The predictor variables were symptoms of traumatic stress representing meeting at least one criterion for a PTSD diagnosis, major depression representing symptoms of a major depressive episode, race, PTSD representing whether or not the F criterion of the DSM-IV-TR PTSD diagnosis was met, and gender.

RESULTS

The SOS Program was presented to approximately 2,000 students across the school district. Information gathered on students who identified as possibly at risk for depression or suicide as indicated by a significant score on the BSAD was analyzed in this study. Clinical interviews were used to further assess the students’ risk and provided the data for this study. A total of 401 students were identified as possibly at risk for depression or suicide and 387 of those students were individually screened. Data were missing for 14 cases and those cases were manually deleted prior to performing any of
the statistical analyses. Approximately 20% of the total number of students who participated in the SOS Program \((n = 1,983)\) were identified as possibly at risk for depression or suicide.

Of the 387 students in the sample, 51.9% reported experiencing suicidality and 81.1% reported having experienced some type of traumatic event. A total of 40.6% reported suicidal ideation alone and 16.3% reported having made an attempt. Of the students whose BSAD scores indicated they were possibly at risk for depression or suicide, 34.9% reported experiencing symptoms of depression and 9.6% met the criteria for a major depressive episode. Students reported experiencing some symptoms of traumatic stress in 76.5% of the cases, 71.1% met at least one of the diagnostic criteria, B, C, or D, for PTSD, and 27.4% met the full diagnostic criteria for PTSD as described by the DSM-IV-TR, including the F criterion.

Results of the binary logistic regression analysis indicated that the five predictor model provided a statistically significant improvement over the constant only model. Statistical procedures conducted include Nagelkerke pseudo \(R^2\) as an indication of overall model fit, the odds ratio to measure effect, and the Wald Test to measure relative strength of the predictor variables.

The constant only model suggested that 51.9% of the sample would experience suicidality by chance. These results are what may occur by chance while controlling for all other variables. The results of the constant only model provided a baseline for comparison with the five predictor model. By utilizing the five predictor model, there was an 11.18% improvement in the ability to predict suicidality over chance, \(\chi^2 (5, N = 16) = 63.08, p < .001\).
To determine how well the model fit the data, the Nagelkerke pseudo $R^2$ was used as a measure of how well the five predictor model predicted over the constant only model. The five predictor model accounted for 21% of the total variance between the models as indicated by the Nagelkerke pseudo $R^2$. The results suggest that the predictor variables were able to discriminate between scores representing experiencing suicidality and scores which did not indicate experiencing suicidality. The Hosmer and Lemeshow Chi-square is another test of predictive accuracy of the five predictor model. The non-significant chi-square result indicated a good model fit, $\chi^2 = 8.84, p = .356$. The overall predictive accuracy of the model was 63.08%, an improvement over the constant only model baseline of 51.9% or what may occur by chance.

The probability of experiencing suicidality was also predicted through the odds ratio. The odds ratio is the amount that the criterion variable increases or decreases when influenced by the predictor variables. *Symptoms of traumatic stress* and *major depression* both had a strong influence on suicidality, as indicated by the adjusted odds ratio (Table 1). The odds of experiencing suicidality compared to not experiencing suicidality, on the basis of a major depressive episode, were increased by a factor of 5.29 : 1 (CI = 1.81 – 15.76). The odds of experiencing suicidality compared to not experiencing suicidality, on the basis of experiencing traumatic stress, were increased by a factor of 3.37 : 1 (CI = 1.98 – 5.73). The odds ratio is a different method of presenting the same information as the unstandardized logit coefficients.

The Wald Test is a relative measure used to test the statistical significance of the unique role of each coefficient in the model and allows for the comparison of covariates. A concern with the Wald Test statistic is that it may not be appropriate for smaller sample
sizes. Logistic regression requires larger sample sizes for the results to be interpreted accurately. Meyer et al. (2006) suggested using at least 30 times as many cases as parameters being estimated. The sample size of this study was 387 using 5 variables. As a result, the sample size was appropriate for use of the Wald Test statistic in this study.

The results of the Wald Test (Table 1) suggest that traumatic stress was statistically significantly associated to suicidality independent of the other variables used in the model, $Wald = 20.15, p < .001$. A student in this study who experienced symptoms of traumatic stress was 20.15 times as likely to experience suicidality as a student who did not experience symptoms of traumatic stress. A major depressive episode was statistically significantly associated to suicidality ($Wald = 9.22, p < .05$). A student who experienced a major depressive episode in this study was 9.22 times as likely to experience suicidality as was a student who was not experiencing a major depressive episode. Being African American ($Wald = 4.50, p < .05$) and meeting the criteria for PTSD ($Wald = 3.94, p < .05$) were also statistically significantly associated to suicidality independent of the other variables used in the model but these variables were not as strong predictors of suicidality. Gender was not statistically significantly associated to suicidality, $Wald = .09, p = 0.75$.

To address the question of whether students were willing to participate in school based mental health counseling services, frequencies were used. There were 387 students identified as possibly at risk for depression or suicide. From this group, 74.7% of the students said they would participate in mental health counseling if services were offer in the school. This left 8.5% of the sample stating they were not sure if they would
participate or they did not answer the question, and 16.8% report they would \textit{not} participate in counseling services in the school setting.

**DISCUSSION**

The outcome of the analysis in this study suggests that traumatic stress is a remarkable predictor of suicidality for ninth grade students in an urban school system in the south that scored as possibly \textit{at risk for depression or suicide} on the BSAD. Traumatic stress represented the largest contributor to suicidality in the model with 20%. This means that a student who is experiencing symptoms of traumatic stress in this study was 20 times as likely to experience suicidality as a student who was not experiencing symptoms of traumatic stress. The Wald Test found that traumatic stress was statistically significantly associated to suicidality independent of the other variables used in the model, \( p < .001 \). These findings were supported by the odds ratio which also predicts probability. The results of the binary logistic regression, as indicated by the Wald Test and the odds ratio, demonstrated that traumatic stress was a much better predictor of suicidality than a major depressive episode or PTSD for urban ninth grade students in this study.

The notion that "depression is the most significant biological and psychological risk factor for teen suicide," (Galaif et al., 2007, p. 28) has been the focus of clinical attention for decades. The results of this study suggest that traumatic stress may be a more accurate predictor of suicidality than a major depressive episode or PTSD. The literature typically focuses on traumatic \textit{events or experience} and posttraumatic stress disorder as predictors of suicide rather than traumatic \textit{stress}. The findings of the Ferrada-Noli (1998) study suggested that traumatic stress is a more accurate predictor of
suicidality than depression. The findings of the Nye and Bell (2007) study supported the
notion that traumatic stress or specific symptoms of PTS (posttraumatic stress) that do
not meet the criteria for the DSM disorder are related to suicidality. The results of the
Ferrada-Noli study and the Nye and Bell study are supported by the findings of this
research study.

A key concept for this study is the idea that traumatic stress, not just the
traumatic experience, is a significant predictor of suicidality. Two people may experience
the same event and react differently. Most of the current literature is focused on major
depression being the psychiatric condition most commonly associated with suicidality
(Bell, 2007; Galaif et al., 2007). Traumatic experience has also been associated with
suicidality in several studies (Bell, 2007; Ganzel et. al., 2007; Gould et al., 1996).
Ferrada-Noli et al. (1998) reported traumatic experience to be a more accurate predictor
of suicidality than depression. However, most studies that include traumatic experience
tend to focus on posttraumatic stress disorder (Kessler et al., 1999; Waldrop, et al., 2007)
or depression (Bell, 2007), as the predictor conditions most frequently associated to
suicidality. Meanwhile the symptoms of traumatic stress have not received the same
attention in the literature.

The demographic variables included in the study were race-ethnicity and gender.
Gender did not appear to be a significant contributor to suicidality in the sample. Gender
was not a key concern of this study and therefore was not explored. Race-ethnicity on the
other hand appeared to be a significant contributor to suicidality in urban ninth grade
students in this study who scored as possibly at risk for depression or suicide on the
BSAD. African American students who participated in this study were more at risk of
suicidality than students associating themselves to other racial groups. A student who self identified as African American in this study was 4.50 times as likely to experience suicidality, as a student who self identified with another racial group.

The results in this study support the findings of the Centers for Disease Control which reported the suicide rate of African American’s has increased by 114 % nationwide and 214% in the District of Columbia, Maryland, and Virginia (Sanchez, 1998). The results further support Molock et al. (2007) who reported that the rate of suicide attempts requiring medical treatment for African American and Hispanic adolescents surpassed the suicide rate of Caucasian adolescents for the first time in 2003.

One of the most interesting results was that three-fourths of the students in the sample said they would participate in mental health counseling provided though the school. Approximately 75% of the students said they would participate in mental health counseling if services were offer in the school setting. This finding supports the current literature on this topic that calls for school based mental health services.

Schools are being required to address mental health concerns following disasters and every day events such as domestic, school, and community violence (Jacox et al., 2006). The results of the analysis indicated that 75% of the students in this study reported that they were willing to participate in school based mental health counseling services. Although the mental health needs of students traditionally have not been the responsibility of the education system, it has been well documented that in order for students to learn and perform effectively, mental health problems must be addressed (Adelman et al., 1999). Consider the impact distress has on a student’s test scores.

Limitations
Certain limitations were inherent to this study because the data were archival. We used all the existing data available. We had no control over the setting or the instrumentation. The sample was a very specific group of students found within a very specific population. The sample was ninth grade students who scored as possibly *at risk for depression or suicide* on the BSAD in an urban school system in the south. Results obviously cannot be generalized to the entire population of high school students. The results may be generalized, however, to similar school systems and grades. Various age groups, other parts of the country, and different types of schools should be studied to determine whether the findings in this study would be the same in other groups of school students.

Internal validity threats existed because the data were archival. Extraneous factors could not be controlled. The SOS Program was presented by different people and in different classrooms the assumption was that all the students received the same information in a similar manner. A variety of school staff interviewed students who scored as possibly *at risk for suicide or depression* as indicated by the BSAD. We had no control over the manner, approach, or thoroughness of the interviewer. The assumption was that the interviewers asked all the questions, used basic counseling skills to illicit information, and made appropriate referrals. The final assumption that may not have been warranted was that the students answered honestly.

Conclusions

Suicide is a deliberate act of annihilation against one’s self due to a crisis of problem solving. Far too many youth are dying by their own hands resulting in suicide being the third leading cause of death for 10-19 year olds. Suicide is a national health
problem and a traumatic experience for survivors. The current literature suggests mental health and medical professionals are not identifying the problem of suicidality, misdiagnosing the problem, and not making appropriate referrals when problems are identified (Mellin & Sommers-Flanagan, 2008; Zuckerbrot et al., 2007). Treatment in the form of counseling is often not sought even when a referral is made (Mellin & Sommers-Flanagan; Zuckerbrot et al.). Yet the number of adolescents being treated for depression with psychotropic medication is on the rise. Despite the number of adolescents being treated for depression, the suicide rate for older adolescents has remained the same and it has actually increased for younger adolescents.

Children and adolescents may be at an increased risk of suicidality while taking anti-depressants, as indicated by the majority of anti-depressant advertisers and manufacturers (Celexa, 2009; Luvox CR, 2009; Prozac, 2009; Wellbutrin, 2009; Zoloft, 2009). Although this phenomenon is associated to the depression or other psychiatric condition and not the medicine, it is frightening nonetheless. “Antidepressants increased the risk compared to placebo of suicidal thinking and behavior (suicidality) in children, adolescents, and young adults in short-term studies of major depressive disorder (MDD) and other psychiatric disorders” (Luvox CR, 2009). The results of this study indicate that mental health professionals should consider causes of suicidality other than depression, especially for children and adolescents who seem to be vulnerable to psychotropic medication increasing the risk of suicidality. Future research on the predictors of suicidality appears essential to decreasing the rate of suicide among America’s youth.

Implications
An advertisement for a well-known psychotropic medication states that 2 out of 3 people suffering from depression and being treated with an anti-depressant are still experiencing symptoms of depression. It is possible that 1 in 3 people diagnosed with depression actually experiences symptoms of clinical depression requiring an anti-depressant. The other 2 may be experiencing symptoms of another problem, possibly symptoms of traumatic stress which are more expansive and include an overlap with symptoms of depression. One psychotropic medication advertisement mentions problems with “Treatment Resistant Depression, TRD” (Symbyax, 2009). We must explore causes of suicidality other than depression, rather than creating new disorders. The significant overlap of symptoms among traumatic stress, PTSD, and major depressive disorders is confounding (Everly & Lating, 1995). The overlap in symptoms of PTSD and traumatic stress is apparent, as traumatic stress can be all the diagnostic criteria for PTSD without the disruption in functioning. However, the overlap of symptoms for a major depressive episode and traumatic stress is much less obvious. This is an area of vital future research. Difficulty concentrating, sleep disturbance, loss of interest in usual activities, and suicidality are symptoms of both traumatic stress and depression. Insomnia is a symptom commonly associated with depression but is often caused by the arousal problems of traumatic stress.

Further complicating the problem is that loss constitutes a part of every traumatic experience: loss of innocence, loss of sense of safety, loss of people, and loss of property. Depression is a normal part of loss (APA, 2000). Therefore, depression would appear to be a part of the traumatic experience. Depression is often a symptom of traumatic stress. It may be that we do not need new or different medications or to create new disorders, but
we need to consider that signs of depression may be something larger than simply depression. Could it be that the depression is a part of the traumatic stress?

Because of the overlap in symptoms, factoring out those symptoms and exploring what remains may prove to be an interesting research project. The relationship between suicidality and loss may be an appropriate direction for future research studies. Further, analyzing the symptoms reported by the students may prove beneficial in correlating specific symptom clusters (avoidance, arousal, re-experiencing) with suicidality such as in the Nye and Bell (2007) study. Finally, the relationship between symptom clusters and academic achievement may prove to be very useful research for educators.

Waldrop et al. (2007) reported that they were unaware of studies that investigated both PTSD and major depression as predictors of suicidality, supporting the need for further research in this area. The five predictor model in this study suggests that further research on the predictors of suicidality, specifically traumatic stress, across all populations is critically needed to improve the diagnosis and treatment of people experiencing suicidality. The Nye and Bell (2007) study supports the implication for further research in the area of traumatic stress as a predictor of suicidality. The findings of this study call into question the premise of depression being the clinical problem most frequently associated to suicidality.
Table 5

Logistic Regression Results for Determining Whether Traumatic Stress is a More Accurate Predictor of Suicidality than a Major Depressive Episode or PTSD

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Depressive</td>
<td>1.676</td>
<td>.552</td>
<td>9.217</td>
<td>1</td>
<td>.002</td>
<td>5.342</td>
<td>1.811</td>
<td>15.760</td>
</tr>
<tr>
<td>Traumatic Stress</td>
<td>1.216</td>
<td>.271</td>
<td>20.154</td>
<td>1</td>
<td>.000</td>
<td>3.374</td>
<td>1.984</td>
<td>5.738</td>
</tr>
<tr>
<td>PTSD</td>
<td>.550</td>
<td>.277</td>
<td>3.941</td>
<td>1</td>
<td>.047</td>
<td>1.733</td>
<td>1.007</td>
<td>2.983</td>
</tr>
<tr>
<td>African American</td>
<td>-.479</td>
<td>.226</td>
<td>4.498</td>
<td>1</td>
<td>.034</td>
<td>.619</td>
<td>.398</td>
<td>.964</td>
</tr>
<tr>
<td>Gender</td>
<td>.073</td>
<td>.233</td>
<td>.099</td>
<td>1</td>
<td>.752</td>
<td>1.076</td>
<td>.682</td>
<td>1.699</td>
</tr>
<tr>
<td>Constant</td>
<td>-.866</td>
<td>.266</td>
<td>10.577</td>
<td>1</td>
<td>.001</td>
<td>.421</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valid Number of Cases</td>
<td>387</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
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Substance Abuse and Mental Health Services Administration (SAMHSA): Mental Health Topics: Disaster/Trauma. [www.mentalhealth.samhsa.gov/topics/explore/suicide/](http://www.mentalhealth.samhsa.gov/topics/explore/suicide/)


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APPENDICES
APPENDIX A

HUMAN SUBJECTS COMMITTEE APPROVAL
E-mail Message

From: Gomez, Ed
Sent: Tuesday, June 30, 2009 10:13 AM
To: Remley, Theodore P.
Subject: Exempt Application

Dr. Remley:

Your proposal submission titled, "Traumatic Stress as a Predictor of Suicidality" has been deemed EXEMPT by the Human Subjects Review Committee of the Darden College of Education. You may begin your research. Please send a signed hardcopy of your application submission to the address below. Thank you.

Edwin Gómez, Ph.D.
Associate Professor
Chair, Human Subjects Review Committee, DCOE
Recreation & Tourism Studies, ESPER
Old Dominion University
2010 Student Recreation Center
Norfolk, VA 23529-0196
757-683-6309 (ph)
757-683-4270 (fx)
APPENDIX B

SCORING SCALES: DEPRESSION SCALE, SUICIDALITY SCALE, AND

TRAUMATIC STRESS SCALE
# DEPRESSION SCORE SCALE

<table>
<thead>
<tr>
<th>DEPRESSION SCORE</th>
<th>9</th>
<th>8</th>
<th>8</th>
<th>7</th>
<th>7</th>
<th>6</th>
<th>6</th>
<th>5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>&gt;60%</td>
<td>&gt;60%</td>
<td>&gt;60%</td>
<td>&gt;60%</td>
<td>&gt;60%</td>
<td>31-60%</td>
<td>31-60%</td>
<td>31-60%</td>
<td>31-60%</td>
</tr>
<tr>
<td>Duration</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td></td>
</tr>
<tr>
<td>chg in interest</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>MUST HAVE</td>
<td>5+</td>
<td>5 to 6</td>
<td>3 to 4</td>
<td>3 to 4</td>
<td>0 to 2</td>
<td>6</td>
<td>4 to 5</td>
<td>4 to 5</td>
<td>2 to 3</td>
</tr>
</tbody>
</table>

- eat disturb
- sleep disturb
- diff thinking
- diff concentrating
- diff making decisions
- Suicidality
- less energy

**CANNOT BE DUE TO**

- Sub Use, Gen Med or Bereavement

**CONTINUED BELOW**

<table>
<thead>
<tr>
<th>DEPRESSION SCORE</th>
<th>4</th>
<th>4</th>
<th>3</th>
<th>3</th>
<th>2</th>
<th>2</th>
<th>1</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem</td>
<td>31-60%</td>
<td>31-60%</td>
<td>&lt;31%</td>
<td>&lt;31%</td>
<td>&lt;31%</td>
<td>&lt;31%</td>
<td>&lt;31%</td>
<td>&lt;31%</td>
<td>ANY #</td>
</tr>
<tr>
<td>Frequency</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
<td>&gt;2 wks</td>
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<tr>
<td>Duration</td>
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<td>NO</td>
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<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>Y / NO</td>
</tr>
<tr>
<td>MUST HAVE</td>
<td>2 to 3</td>
<td>0 to 1</td>
<td>4 to 5</td>
<td>2 to 3</td>
<td>2 to 3</td>
<td>1 to 2</td>
<td>0 to 1</td>
<td>NONE</td>
<td>ANY #</td>
</tr>
</tbody>
</table>

- eat disturb
- sleep disturb
- diff thinking
- diff concentrating
- diff making decisions
- Suicidality
- less energy
<table>
<thead>
<tr>
<th>Suicidality Score</th>
<th># of Indicators Below</th>
<th>Ideation with Plan</th>
<th>History Attempt- NOT Gestures</th>
<th>Hospitalization for Suicidality</th>
<th>All # of Indicators Below score of 7-10 &quot;today&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>YES</td>
<td>YES</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>YES</td>
<td>YES</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>YES</td>
<td>YES</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>YES</td>
<td>YES</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
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<th>Avoidance</th>
<th>Arousal</th>
<th>Disruption</th>
<th>Difficulty Falling/Sleeping</th>
<th>Difficulty Irritability/Angry Outburst</th>
<th>Difficulty Concentrating</th>
<th>Difficulty Exaggerated Startle Response</th>
<th>Hyper Vigilance</th>
<th>PTSD Score</th>
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Did they score a 9 on TS Score: NO
FIGURE 1  TRAUMATIC STRESS CONTINUUM

No Symptoms – Level of Disturbance = 0

Continuum of Traumatic Stress

B, C, & D Symptoms + Criteria F
(disruption to life)
Level of Disturbance = 10

Any combination and number of symptoms from Criterion B, C, or D

Criterion C or Avoidance of Stimuli Associated to the Event
Efforts to avoid thoughts, feelings, or conversations associated to the event
Efforts to avoid activities, places, or people that arouse recollections of the event
Inability to recall an important aspect to the event
Markedly diminished interest or participation in significant activities
Feeling of detachment or estrangement from others
Restrictive range of affect
Sense of foreshortened future

Criterion D or Persistent Symptoms of Increased Arousal
Difficulty falling or staying asleep
Irritability or outbursts of anger
Difficulty concentrating
Hypervigilance
Exaggerated startle response

Criterion B or Reexperiencing the Event
Recurrent distressing dreams
Recurrent and intrusive distressing recollections (images, thoughts, perceptions)
Acting or feeling as if the event were reoccurring (hallucinations, flashbacks)
Intense psychological distress at exposure to internal or external cues that resemble an aspect of the event
Psychological reactivity on exposure to internal or external cues that resemble an aspect of the event

The Nye and Bell (2007) findings suggest that avoidance symptoms were less disturbing and re-experiencing symptoms to be the most disturbing.
VITAE

Sherry M. Todd earned a Master of Science Degree from Eastern Virginia Medical School’s Graduate Art Therapy Program and received the Paul Fink, MD, Outstanding Art Therapist Award. Ms. Todd won the National Counseling Honor Society, Chi Sigma Iota’s Outstanding Supervisor / Practitioner Award in 2008 and the Chi Sigma Iota Omega Delta Chapter’s Outstanding Supervisor / Practitioner Award in 2008. She also was the recipient of the Tidewater Emergency Services Critical Incident Stress Management Team’s Making a Difference Award in 2009.

Ms. Todd is a Licensed Professional Counselor and Board Certified Registered Art Therapist. She is currently employed as a Mental Health Practitioner with an urban school system. She is a Certified Trauma Specialist, Certified Traumatologist, Certified Compassion Fatigue Educator and Therapist, as well as a Board Certified Expert in Traumatic Stress and in School Crisis Response.

As an experienced educator, Ms. Todd has taught on all levels. She is an instructor for eight International Critical Incident Stress Foundation courses and the FEMA Multi-Hazard Emergency Planning for Schools course. She has presented at national and international conferences and many other venues. Ms. Todd is listed as a Premier Speaker with both the National Center for Crisis Management and the American Academy of Experts in Traumatic Stress.

Ms. Todd provides supervision to professionals seeking state licensure and graduate interns from mental health practitioner programs from five universities. She has served on thesis and dissertation committees, and has served as thesis chair.