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SELF-REPORTED DEPRESSION AND ANXIETY IN YOUTH WITH AND WITHOUT PTSD AS A FUNCTION OF STRESSOR TYPE

by

JODY ANN RESKO

A dissertation submitted to the Graduate Faculty in Educational Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

2004

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This manuscript has been read and accepted for the Graduate Faculty in Educational Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

1/13/2004
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Philip A. Saigh, Ph.D., Chair

1/13/2004
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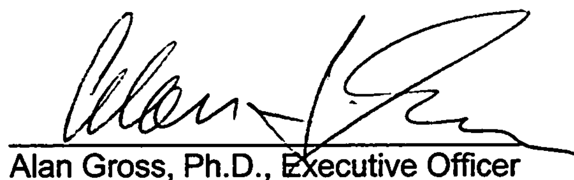
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Abstract

SELF-REPORTED DEPRESSION AND ANXIETY IN YOUTH
WITH AND WITHOUT PTSD AS A FUNCTION OF STRESSOR TYPE

by

Jody Ann Resko

Adviser: Professor Philip Saigh

This study compared the self-reported anxiety and depression of intentionally and unintentionally traumatized youth and their non-clinical peers. Youth who reportedly experienced a traumatic event were asked to participate in the study. Non-traumatized participants were recruited from clinics at Bellevue Hospital that provide routine medical care (n=41). These individuals had not experienced a trauma, nor did they meet the criteria for another psychiatric disorder. In all instances, child assent and the written consent of one of the parents or legal guardians were obtained prior to participation.

Traumatized individuals received two independent administrations of the Children's PTSD Inventory and two independent clinical interviews. Youth with comorbidity were systematically excluded on the basis of the DICA-R ADHD, CD, MDD, substance abuse, and schizophrenia modules. This led to the identification of 29 youth who clearly met the criteria for PTSD and did not evidence significant comorbid diagnoses. Two attorneys categorized the PTSD as intentional or unintentional based on legally-derived operational definitions. This process led to the identification of 20 intentionally and 9 unintentionally traumatized youth with PTSD.

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Pearson product moment correlations revealed a significant relationship between stressor severity and RCMAS scores. On the other hand, a non-significant relationship was observed when stressor severity and CDI scores were correlated. A MANCOVA was computed for RCMAS scores with stressor severity as a covariate, and a MANOVA was computed for the CDI scores. Results from both analyses indicated significant differences between the comparison groups. A series of one-way ANOVAs and Bonferroni post-hoc analyses were conducted to determine where the significant differences were indicated. These analyses determined that the RCMAS and CDI scores of the intentional group were significantly greater than the scores of the control group. Furthermore, the scores of the unintentional group were significantly greater than the control group scores on three subscales of the RCMAS (i.e., Physiological Anxiety, Worry/Oversensitivity and Total Anxiety). No significant differences were observed between the RCMAS and CDI scores of the intentional and unintentional participants.

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Acknowledgements

I am very pleased to have the opportunity to thank those who have helped me along the way. Without the support and guidance of the following individuals, I would not have succeeded.

I am especially grateful for the advice, knowledge, and support of Dr. Philip Saigh. His patience and guidance were invaluable throughout the entire Graduate School experience. Under his direction, I learned a great deal about research and professionalism. I am sincerely grateful for having the opportunity to work with him.

I also want to thank Dr. Georgianna Tryon and Dr. Alan Gross for serving on my committee, and Dr. Marian Fish and Dr. Joseph LiPuma who served as my outside readers. Their assistance throughout this entire process is greatly appreciated.

I want to express additional thanks to all of my friends and colleagues who were always there to listen and offer words of encouragement. Most of all, I would like to thank the children and families who participated for their cooperation. Without them, this research would not have been possible.

Above all, I wish to express my sincerest thanks to my husband Andy and my daughter Alexis, my biggest supporters. Their unending patience, encouragement, and understanding kept me going. I love you both.

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Chapter 1

History of Posttraumatic Stress Disorder

Recent violent acts, natural disasters, and devastating accidents have turned our attention to the potentially long-lasting effects these events may have on our emotional well-being. The psychological effects resulting from such horrific experiences would today be classified as Posttraumatic Stress Disorder (PTSD; American Psychiatric Association, 1994). However, centuries before PTSD found its way into the psychiatric nomenclature, individuals who experienced similar, life-threatening events, documented their stress-related reactions.

One of the earliest accounts comes from the 1667 diary of Samuel Pepys, written six months after the Great Fire of London. Pepys wrote, "it is strange to think how this very day I cannot sleep a night without great terrors of the fire; and this very night could not sleep to almost two in the morning through great terrors of the fire" (quoted in Daly, 1983, p. 66).

During the Industrial Revolution railroad travel increased in popularity. Traumatic events involving transportation accidents were chronicled at this time. From 1881 to 1885, numerous cases of "railway spine", "hysteria", and "nervous shock" (Page, 1885) were cited. One well-known account of the psychological aftermath of a railway accident was recorded by Charles Dickens in 1865. While Dickens recorded some immediate effects, what is of more interest are the delayed consequences he recorded:

> "I am not quite right within, but believe it to be an effect of the railway shaking. There is no doubt of the fact that, after the Staplehurst experience, it tells more and more instead of, as one might expect, less and less...Driving in Rochester yesterday I felt more shaken than I have since the accident.

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I cannot bear railway traveling yet" (quoted in Trimble, 1981).

With the onset of World Wars I and II, an increased number of individuals were exposed to military trauma. During World War !, French medical officers at base hospitals in France identified numerous cases of "shell shock" and "soldier's heart" (Davidson, 1996). These individuals were described as suffering from mental shock in addition to, or instead of, obvious physical injuries. By 1919, Ernest Southard had documented over 500 cases of soldiers who reported experiencing various war-related emotional consequences (Southard, 1943).

Prior to World War II, researchers were also documenting the psychological functioning of children exposed to extreme stress. Bender and Blau (1937) were among the first to examine the effects of trauma on 16 children who reportedly had sexual relations with adults. These children, who were seen at the Children's Ward of the Psychiatric Division of Bellevue Hospital in New York City, presented with feelings of fear, irritability, nightmares, avoidance, trauma-related reenactments, and hypervigilence. More over, effects of the trauma extended to academic impairments for some of the children:

> "Their interest in school diminished, they paid little attention to their homework, and some became chronic truants. In some cases this effected a school retardation so marked that the child was considered defective.....Hyperactivity and general restlessness in other activities was also commonly noted."

Whereas the majority of war-related studies involved adults, several researchers sought to examine the effects of wartime exposure on the psychological functioning of children. In 1941, Bodman surveyed 8,000 children who were exposed to British air raids. These children, who ranged in age from 5 to 14 years, reported various psychological (i.e., nightmares, war-related fears, physiological

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reactivity, avoidance, aggression) or psychosomatic (i.e., headaches, enuresis, encopresis, indigestion) symptoms. Because the initial survey occurred during a period when air raids were on-going, a follow-up survey was conducted two months after the air raids ceased. Fifty-four children (ages 2 to 12 years) who had been evacuated from the Children's Hospital were administered a survey. At follow-up, 61% of these children presented with symptoms that were attributed to the air raids, and seven months after the raids, 11% still evidenced symptoms (Bodman, 1941).

In a similar vein, Mercer and Despert (1943) examined the effects of war on children in France. The findings indicated that these children were experiencing war-related symptoms consisting of increased heart rate, enuresis, nightmares, trauma-related recollections, memory impairments, and academic impairments.

Following the war, Carey-Trefzer (1949) examined the effects of various war-related stressors (e.g., air raids, evacuation, changes in family life, loss of schooling, and housing difficulties) on 1,203 British school children. Of the stress-exposed children, 212 (17.6%) exhibited "disturbances caused or aggravated by war experiences" (Carey-Trefzer, 1949, p. 556). Specifically, these children exhibited irritability, impairments in concentration, impairments in memory, sleep disturbance, and avoidance behaviors. In addition, 30.6% showed school difficulties, illustrating the degree to which emotional disturbance affected the capacity to learn.

Research on exposure to other life-threatening experiences yielded similar findings. One of the earliest studies of children's disaster responses sponsored by the Committee on Disaster Studies reported on the emotional adjustment of 185 children who survived a tornado in Mississippi (Bloch, Silber & Perry, 1956). Several children were killed and others were injured. Two months afterward, the children in this sample experienced night terrors, enuresis, fear, avoidance, tornado-related reenactments, irritability and hypersensitivity to loud noises (Bloch et al., 1956).

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Severe reactions were reported for children who were in the area that received the greatest storm impact, were seriously injured, or experienced death or severe injury to a family member.

Lacey (1972) reported on his examination of 56 children after the Aberfan, Wales disaster. In 1966, a coal mining tip collapsed, sliding down a mountain onto a school, killing 116 children. Due to the delayed emergence of symptoms, referrals were made over the course of four years. The most common symptoms included sleep difficulties, "nervousness", lack of social relations, "instability", and unwillingness to go out and play (Lacey, 1972).

Reports by Terr (1979, 1983) strongly influenced the conceptualization of PTSD in children. Terr (1979) described the reactions of children kidnapped from their Chowchilla, California school bus in 1976. Within 13 months, all of the child victims and at least one parent of each child had been interviewed. The children in this sample displayed trauma-related fears and nightmares, repetitive play, and physical symptoms. Moreover, a decline in school performance was evidenced by a small subgroup. Two to five years after the kidnapping, the long-term reactions of the victims were assessed. Many of the original symptoms persisted, including fears, post-traumatic play, and a sense of a foreshortened future (Terr, 1983).

By the 1970's, studies on stress reactions had expanded to include the psychological effects of rape. In 1974, Burgess and Holmstrom published a ground-breaking study documenting the psychological effects of sexual assault. The authors studied 109 adult women, 34 female children, and 3 male children from the greater Boston area. The symptoms exhibited by this sample were remarkably similar to those evidenced by war veterans and natural disaster victims. The most common symptoms were restlessness, somatic complaints, fear, and anger. This group also evidenced additional symptoms of depression, psychotic behaviors,

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psychosomatic disorders, suicidal behaviors, and various acting out behaviors (e.g., alcohol and drug use, sexual activities).

Subsequent studies have supported Burgess and Holmstrom's original findings. Notman and Nadelson (1976) found fear and anxiety to be the predominant symptoms following rape, while others (e.g., Katz & Mazur, 1979) described victim reactions in terms of more depressive symptoms (e.g., sleep and eating disturbance, guilt, shame, worthlessness, irritability, fatigue, decreased libido, and suicidal ideation). The above mentioned studies provide overwhelming evidence for trauma-specific symptomatology (i.e., trauma-related nightmares, re-enactments, avoidance). More importantly, these studies also suggest the presence of more general symptoms, including fear, anxiety, and depression.

Classifying Stress Reactions

The process of classifying psychological disorders in general, and stress reactions in particular, is not new. The first attempt at classifying psychological disorders was by Emil Kraeplin in 1896. Kraepiln's systematic classification system was comprised of medical conditions, and was based on observable symptoms. One such condition, which Kraeplin called Schrecneuroses (i.e., fright neuroses) was characterized by "multiple nervous and psychic phenomena" that were apparent following "accidents and injuries, particularly fires, railway derailments or collisions" (translated by Jablensky, 1985, p. 737).

War-related psychiatric morbidity dramatically increased following World War I and World War II. In response, the American Psychiatric Association (APA) included "gross stress reaction" in the first edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-I; APA, 1952). A diagnosis of "gross stress reaction" was given to individuals who were exposed to "severe physical demands or extreme stress, such as combat or civilian catastrophe" and that "in many instances this

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diagnosis applies to previously more or less 'normal' persons who experience intolerable stress" (APA, 1952, p. 40). While the DSM-I acknowledged the need for such a classification, it failed to provide operational criteria for making a diagnosis. Indeed, the earliest conceptualizations of PTSD were not based on empirical findings. Rather, support was derived from other areas of research that looked at responses to adverse conditions. Largely, the fields of biological studies of stress and life events research provided this support (Yehuda & McFarlane, 1995). Biological studies of PTSD showed that any adversity could provoke a biological stress response. Researchers hypothesized that similar neurobiological alterations would be observed in PTSD cases.

Life events literature provided indirect support by demonstrating the relationship between adverse life events and the development of physical and psychiatric symptoms. Researchers who studied the reactions to combat of soldiers in World War II (e.g., Grinker & Spiegel, 1945; Kardiner, 1969) revealed that symptoms could persist for months or longer, thus recognizing the need to differentiate between "delayed" and "chronic" types of gross stress reaction (Scott, 1990).

The DSM-II (APA, 1968) made no reference to a psychological disorder produced by combat. However, the category of "transient situational disturbance" was used to describe acute symptomatic distress following adversity. This diagnosis was indicated "for more or less transient disorders of any severity (including those of psychotic proportions) that occur in individuals without any apparent underlying mental disorders and that represent an acute reaction to overwhelming environmental stress" (APA, 1968, p. 48). If the disorder persisted following the removal of the stressor, a diagnosis of adjustment reaction of childhood,

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adolescence, or adult life was used. Similar to DSM-I, DSM-II lacked operational criteria necessary to make a diagnosis.

According to Scott (1990), the APA established the Committee on Reactive Disorders shortly after publication of DSM-II. This committee collaborated with the Vietnam Veterans Working Group, which was made up of individuals devoted to compiling evidence for combat-related disorders to be included in DSM-III. This group reviewed the literature on victims of other types of adversity and reviewed data consisting primarily of case histories of Vietnam veterans. By completion the group had collected data on more than 700 participants and they called for an entry labeled "catastrophic stress disorder" with a subcategory of post-combat stress reaction.

In 1978, the Working Group presented its findings to the Committee on Reactive Disorders (Scott, 1990). They emphasized the similarities between numerous victims within the war zone, as well as others traumatized in "man-made" and naturally occurring disasters. The Committee finally recommended the label *post-traumatic stress disorder*. Their description de-emphasized the distinction between humanly produced and naturally occurring disasters, but otherwise appeared almost exactly as the Working Group had presented it.

According to DSM-III criteria, PTSD was described as the "development of characteristic symptoms following a psychiatrically traumatic event that is generally beyond the realm of normal human experience" (APA, 1980, p. 236). In addition, it was established that the "stressor producing this syndrome would evoke significant symptoms of distress in most people and is generally outside the range of such common experiences as simple bereavement, chronic illness, business losses or marital conflict" (APA, 1980, p. 236). Characteristic symptoms were reexperiencing symptoms of the trauma, numbing/avoidance symptoms, and other symptoms which

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included sleep disturbance, guilt about surviving, memory or concentration impairment.

Despite the utility of the classification put forth in the third edition, the manual underwent extensive revisions. In 1987, APA published the DSM-III-R. This manual retained the PTSD classification, and defined it as "the development of characteristic symptoms following a psychologically distressing event that is outside the range of usual human experience" (APA, 1987, p. 247). Important changes were made to specific symptom clusters, including enumerating more clearly the symptoms evidenced in individuals with PTSD. In addition, symptoms were grouped into better formulated, more homogeneous categories (Husband & Platt, 1987). This resulted in the following symptom clusters: reexperiencing, numbing/avoidance, and psychophysiological reactivity. The DSM-III-R made an additional observation: "the disorder is apparently more severe and longer lasting when the stressor is of human design" (APA, 1987, p. 248). In addition, specific reference to the development of PTSD in children was made. However, the PTSD classification in DSM-III and DSM-III-R was not based on empirically derived data (i.e., data based field trials were not conducted). Thus, shortly after the publication of DSM-III-R, efforts were undertaken to prepare for the publication of the fourth manual (DSM-IV).

To resolve the dilemma of inadequate empirical data, development focused on clinical and community-based field trials, extensive literature reviews, and consideration of case-control research. The field trials served to address several goals. One goal was to examine the relationship between divergent stressors and PTSD symptoms. A second goal was to determine if low magnitude stressors (e.g., bereavement) could induce PTSD. Another goal sought to determine the likelihood that stressful events (as outlined in DSM-III-R) would lead to symptoms of varying onset and duration. Finally, characteristics associated with the stressor (e.g., nature

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and severity of the traumatic event) were examined to identify variables that might be associated with PTSD, since it is likely that some types of events are more traumatic than others and produce different rates of PTSD (Yehuda & McFarlane, 1995).

Based on findings from the field trials, and an extensive review of the literature, the diagnostic criteria for PTSD were established (see Table 1). Important additions to the DSM-IV classification include specific reference to the expression of PTSD among affected youth and recognition that functional impairment (e.g., academic problems) serves as a diagnostic indicator of the disorder (Saigh, Green & Korol, 1996).

Summary

Individuals exposed to extreme stressors evidence physical and psychological reactions (e.g., headaches, enuresis, nightmares, avoidance behaviors, and scholastic impairments). In the past, there was little agreement on the terminology used to describe such symptomatology. In 1980, the APA included a diagnosis of PTSD in the DSM-III. However, this volume failed to acknowledge symptoms experienced by children and adolescents. The expression of PTSD in youth was first recognized in DSM-III-R, and again in DSM-IV. While the diagnostic criteria in DSM-IV were based on empirically-derived data, the clinical and community-based field trials did not include children below age 15 years. Thus, despite the wealth of research on PTSD in adults, there remains much to learn about PTSD in youth.

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Table 1

DSM-IV Diagnostic Criteria for Posttraumatic Stress Disorder

A. The person has been exposed to a traumatic event in which both of the following were present:

(1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others

(2) the person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behavior.

B. The traumatic event is persistently reexperienced in one (or more) of the following ways:

(1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.

(2) recurrent and distressing dreams of the event. Note: In children, there may be frightening dreams without recognizable content.

(3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). Note: In young children, trauma-specific reenactment may occur.

(4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

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(5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma

(2) efforts to avoid activities, places, or people that arouse recollections of the trauma

(3) inability to recall an important aspect of the trauma

(4) markedly diminished interest or participation in significant activities

(5) feeling of detachment or estrangement from others

(6) restricted range of affect (e.g., unable to have loving feelings)

(7) sense of foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

(1) difficulty falling or staying asleep

(2) irritability or outbursts of anger

(3) difficulty concentrating

(4) hypervigilance

(5) exaggerated startle response

E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

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Specify if:

Acute: if duration of symptoms is less than 3 months

Chronic: if duration of symptoms is 3 months or more

Specify if:

With Delayed Onset: if onset of symptoms is at least 6 months after the stressor

Note: Criteria from the American Psychiatric Association (1994) *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, D.C.: American Psychiatric Association.

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Chapter 2

Epidemiology of Child-Adolescent Posttraumatic Stress Disorder

Epidemiology can help to improve mental health services for children and adolescents by increasing understanding of the causes, development, and course of psychiatric disorders (Costello, Burns, Angold, & Leaf, 1993). Epidemiological estimates are also used by policy makers to make decisions regarding the allocation of resources for prevention and treatment (Saigh, 1992). With regard to traumatic events in particular, epidemiology provides essential information about the scope of traumatic responses and the characteristics of different traumas that appear to be particularly devastating (McFarlane & deGirolamo, 1996). Given the importance of this type of information, this chapter will focus on the epidemiology of PTSD with respect to children and adolescents. First, the prevalence of stress-exposure among youth will be explored; then research on specific types of stressors (e.g., war, disaster, criminal victimization, and childhood illness) will be reviewed.

Prevalence of Stress Exposure

Between 1967 and 1991, disasters around the world killed 7 million people and affected 3 billion (International Federation of Red Cross and Red Crescent Societies, 1993). Norris (1992) found that during the previous year, 2.4% of Southern U.S. households were subjected to disaster or damage, with a lifetime exposure to disaster of 13%. Since World War II, there have been an estimated 127 wars and 21.8 million confirmed war-related deaths (Zwi, 1991). Moreover, the number of refugees has increased from 30 million in 1990 to over 43 million in 1993 (Toole & Waldham, 1993).

Research indicates that children and adolescents in particular are exposed to extreme stressors at an alarming rate. Moreover, some research estimates suggest

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a higher rate of victimization in children than in adults (Finkelhor & Dziuba-Leatherman, 1994). The 1990 National Crime Survey found that the rates of assault, rape, and robbery against those aged 12-19 years were two to three times higher than for the adult population as whole (Bureau of Justice Statistics, 1991). Furthermore, a survey of New York City high school students in 1993 found that 36% of the students reported being threatened by physical harm during the preceding school year (Schwab-Stone, Ayers, Kasprow, Voyce, Barone, Shriver, & Weissberg, 1995).

With regard to direct victimization, Bell and Jenkins (1993) surveyed 1,011 students from four high schools and two middle schools. Youth in this sample reported being shot at (10.9%), threatened with a knife (22.7%) or a gun (17%), stabbed (4.3%), shot (3.2%), and sexually assaulted (2.5%). In a survey of urban school children ages 6-12 years, Freeman, Mokros, and Poznanski (1993) found that 57 of 223 children (25%) who attended the same inner-city school described violent events occurring to themselves, a relative, or a friend. Of the 57, 7 (12%) reported events occurring to themselves, including accidents and violent acts of intentional harm. In addition, 4 (7%) reported witnessing violent events occurring to a friend or stranger. In a similar vein, a survey of 6th, 8th, and 10th grade students in an urban public school showed that 41.3% of the youth reported having seen at least one shooting or stabbing in the previous year (Schwab-Stone et al., 1995).

Given the high rates of exposure to violent events and threatening behaviors, it is important to recognize that the individuals who experience these stressors may be at risk for developing PTSD. In one of the only investigations to study the prevalence of PTSD among a community-based sample of youth, Giaconia, Reinherz, Silverman, Pakiz, Frost and Cohen (1995) interviewed 386 adolescents who were participants in a longitudinal study from 1977 to 1990 (from 5 to 18 years

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of age). Using the NIMH Diagnostic Interview Schedule (Robins, Helzer, Cottler, & Goldring, 1989), it was determined that 165 youth had experienced at least one trauma by age 18. PTSD developed in 14.5% of these stress-exposed youth, which comprised 6.3% of the total sample.

War Studies

In 1988, Saigh studied war-related PTSD among 12 female students during the Lebanese conflict. Participants were evaluated 63 days prior to being exposed to artillery bombardment, and again 37 and 316 days later. None of the participants met DSM-III criteria before the bombardment. However, nine (75%) were diagnosed with acute PTSD 37 days after the events, and one subject (8.3% of the sample) still evidenced symptoms 316 days after the attack.

Analogously, Saigh, Mroueh, and Bremner (1997) studied stress exposed Lebanese adolescents using the Children's PTSD Inventory (Saigh, 1997). Ninety-five non-referred students who were enrolled in six private Lebanese schools were interviewed. At the time of the evaluations, highly stressful incidents were occurring throughout Lebanon (Saigh et al., 1996). Of the 95 students initially assessed, 14 (14.7%) students met criteria for PTSD. Three (25%) of these individuals developed PTSD after direct exposure to life-threatening, war-related events (e.g., a 17 year old female reported that she was badly cut by falling glass during a bombardment). Six (50%) developed the disorder following observations of situations that involved a threat to the life or well-being of a close friend or relative (e.g., a 17 year old male reported seeing people being killed). The remaining three (25%) developed PTSD through exposure to multiple forms of extreme stress (e.g., a 16 year old male reported that he drove through a barrage in order to bring an injured neighbor to the hospital).

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Refugees of war have also been extensively studied (Kinzie, Sack, Angell, Manson, & Rath, 1986; Kinzie, Sack, Angell, Clarke, & Ben, 1989; Realmuto, Masten, Carole, Hubbard, Groteluschen, & Chhun, 1992; Almqvist & Broberg, 1999), with a high incidence of PTSD consistently documented. Kinzie et al. (1986) studied 40 young Cambodian refugees aged 14-20 years who lived in concentration camp-like conditions from 1975 to 1979. Specifically, these children endured forced labor and starvation, and watched many deaths, in some cases of their own family members. Kinzie et al. (1986) found that 20 (50%) met the DSM-III criteria for a PTSD diagnosis. Moreover, a follow-up investigation of 27 youth revealed that 13 (48%) had PTSD 3 years after the being subjected to these conditions (Kinzie et al., 1989).

Somewhat lower rates of PTSD were found by Realmuto et al. (1992). The authors assessed traumatic life events, PTSD and other psychiatric symptoms, and current functioning in 47 Cambodian adolescents. Trauma exposure was measured using a questionnaire developed to assess traumatic life events likely to have been experienced by the youth. PTSD was determined via self-report using an adaptation of Pynoos, Frederick, Nader, Arroyo, Steinberg, Eth, Nunez, and Fairbanks' (1987) Reaction Index. Fifty-seven percent of the male participants and 40% of the female participants reported atrocities such as the torture of an acquaintance. Starvation and seeing dead bodies were frequently reported (91% of males and 89% of females). Based on self-reports, 37% of the youth met DSM-III-R criteria for PTSD.

Almqvist and Broberg (1999) investigated the prevalence of PTSD in Iranian refugee children in Sweden at 12 months and again 3 years after relocation. Between 1987 and 1988, all the Iranian refugee families with children between ages four and eight were asked to participate in the study. Overall, 39 children participated in both the initial investigation and the follow-up. The children in this

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sample had been exposed to shelling and bombardment, had witnessed assaults on and the arrest of their parents in raids on their homes, and some had parents who had been imprisoned for some time. Initially, 20% of the children met criteria for PTSD according to DSM-IV. At follow-up this number remained essentially the same, with 18% meeting full criteria.

Table 2.1 presents a summary of the war-related child-adolescent PTSD studies. It is important to note that prevalence estimates derived from these investigations range from 8.3% to 75%. Furthermore, prevalence rates appear to vary according to time elapsed since exposure.

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Table 2.1 Prevalence for War-Related PTSD

Study	Measure	Subjects: Gender	Subjects: Age	Elapsed Time	PTSD Prevalence
Saigh, 1988	DSM-III Author-devised Interview	12 females	mean age= 18.2 years	37 & 316 days	75% at 37 days 8.3% at 316 days
Saigh et al., 1997	DSM-III Children□s PTSD Inventory	48 males; 47 females	mean age= 17.5 years	mean=4.2 years	46.7% stress exposed 14.7% overall sample
Kinzie et al., 1986	DSM-III DIS	25 males; 15 females	mean age= 17 years	mean=2.5 years	50%
Kinzie et al., 1989	DSM-III-R DIS	16 males; 11 females	mean age= 20 years	mean = 5.5 years	48%
Realmuto et al., 1992	DSM-III-R Reaction Index	37 males; 10 females	mean age= 17.5 years	not reported	37%
Almqvist & Broberg, 1999	not reported	not reported	not reported	12 months & 3 ½ years	20% at 12 months 18% at 3 ½ years

Criminal Victimization Studies

Pynoos et al. (1987) obtained systematic self-reports of PTSD following a fatal sniper attack on an elementary school. One child and a passerby were killed, 13 other children were injured, and many others were forced down by the gunfire. One hundred fifty-nine children (14.5% of the student body) were sampled approximately one month after the event. Each child was interviewed about his or her response to the event using the PTSD Reaction Index, developed by the authors. Overall, 38.4% of the children had moderate or severe PTSD symptoms after the event, 22% reported mild symptoms, and nearly 39.6% had no PTSD symptoms. These findings are similar to the 35.3% point prevalence estimate obtained in an adult sample after a gunman opened fire in a Texas cafeteria (North, Smith, & Spitznagel, 1994).

Prevalence estimates of PTSD among individuals who are sexually abused have yielded consistent findings. McLeer, Deblinger, Atkins, Foa, and Ralphe (1988) studied 31 sexually abused children using structured interviews and standardized instruments. The structured interview was developed by the investigators for evaluating child sexual abuse. In addition, each child was administered the Self-Esteem Inventory (SEI; Coopersmith, 1986), the State-Trait Anxiety Inventory for Children (STAIC; Speilberger, 1973), the Children's Depression Inventory (CDI; Kovacs, 1981), and the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983). The authors found that 48.4% of the children met DSM-III-R criteria for PTSD. Moreover, many children who did not meet PTSD criteria exhibited significant symptoms in PTSD subcategories. Specifically, 80.6% exhibited one or more symptoms of re-experiencing behaviors, 48.4% demonstrated three or more avoidant behaviors, and 64.5% demonstrated two or more symptoms of autonomic hyperarousal (McLeer et al., 1988).

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In a similar vein, Dubner and Motta (1999) studied the prevalence of PTSD among foster care children. Fifty sexually abused, 50 physically abused, and 50 non-abused children were examined. Participants completed the Child Post-traumatic Stress Reaction Index, the Child PTSD Interview, and the Modified Stroop Procedure, which included sexual abuse and nonsexual abuse stimuli. Overall, their results indicated that sexually and physically abused children demonstrated PTSD at a high level. On the basis of the combined diagnostic measures, 64% of the sexually abused group, 42% of the physically abused group, and 18% of the non-abused group were diagnosed with PTSD. Furthermore, a greater proportion of girls than boys received a PTSD diagnosis.

Whereas the above studies indicate that the direct experience of assault or other act of violence often results in PTSD, witnessing such events may be just as traumatic for some individuals. Pynoos and Nader (1988) examined the traumatic responses of 10 children (ages 5-17) who witnessed the sexual assaults of their mothers. Using the Post-traumatic Stress Reaction Index, the authors assessed the children's experience and identified resulting symptomatology. Parents were administered a child post-trauma index as well as a behavioral checklist. Based on scores from the Reaction Index, all 10 children met DSM-III criteria for PTSD, with 9 of the 10 children exhibiting severe PTSD symptomatology. Results also indicated that for children above age 10, scores decreased for males and increased for females.

Brent, Perper, Moritz, Friend, Schweers, Allman, McQuiston, Boylan, Roth, and Balach (1993) evaluated the psychological impact of witnessing a suicide on high school students. Twenty-eight high school students who witnessed a firearms suicide and the serious injury of another student while riding a school bus were assessed two months after the event. Their responses were compared with 28

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demographically similar adolescents who had not been exposed to the traumatic death of an adolescent friend or sibling within two years. Past and current psychiatric disorder were assessed using the Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children-Epidemiological Version (K-SADS-E; Orvaschel, Puig-Antich, Chambers, Tabrizi, & Johnson, 1982). Stressful life events within the previous 12 months were recorded by interview. Within the exposed group, PTSD symptomatology was assessed using the Post-traumatic Stress Disorder Reaction Index modified for adolescents (PTSDRI; Pynoos et al., 1987). The exposed group showed higher rates of PTSD compared with controls (14% versus 0%). In addition, the exposed group showed higher rates of any psychiatric disorder (43% versus 14%), any anxiety disorder (29% versus 7%), and major depression (18% versus 4%).

Table 2.2 presents the prevalence estimates for the crime-related child-adolescent PTSD studies referenced in this section. The data reveal that in these samples, PTSD prevalence rates ranged from 14% to 100%.

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Table 2.2 Prevalence for Crime-Related PTSD

Study	Measure	Subjects: Gender	Subjects: Age	Elapsed Time	PTSD Prevalence
Direct Victimization					
Pynoos et al., 1987	DSM-III Reaction Index	80 males; 79 females	5-13 years	1 month	60.4%
McLeer et el., 1988	DSM-III-R Author-devised Interview	6 males; 25 females	mean age= 8.4 years	not reported	48.4%
Dubner & Motta, 1999	Child PTSD Reaction Index & Child PTSD Interview	not reported	not reported	not reported	64% of sexual abuse 42% of physical abuse 18% of non-abused
Witnessing					
Pynoos & Nader, 1988	DSM-III Reaction Index	not reported	5-17 years	not reported	100%
Brent et al., 1993	DSM-III-R Reaction Index	not repored	not reported	2 months	14%

Disaster Studies

As would be expected, depending on the particular disaster, rates of PTSD vary. However, consistent associations have been made between the level of exposure and PTSD symptomatology. McFarlane (1987) studied the prevalence of PTSD in a population of school children exposed to an Australian bushfire disaster. In February, 1983 120,000 hectares of land were burned, 200,000 livestock were killed, 14 people died, 40 homes were destroyed, and 359 farming properties suffered full or partial devastation.

Eight hundred eight children were studied 2, 8, and 26 months after the fire. Thirty-two percent of the families had sustained property damage, 25% of fathers, 13% of mothers, and 8% of the children had intense exposure to the fire or came close to death, and 25% of the children had been separated from their parents for up to three days after the fire (McFarlane, 1987).

Using the DSM-III adaptations of Rutter's Parent Questionnaire (Rutter, Tizard, & Whitmore, 1970) and Teacher Questionnaire (Rutter & Graham, 1967), PTSD point prevalence estimates were obtained at 8 and 26 months after the fire. Based on parental ratings, 52.8% and 57.2% were noted during the first and second assessment. Teacher ratings made during the same intervals yielded estimates of 29.5% and 26.3%.

A number of researchers have examined the emotional consequences that may occur after an earthquake or hurricane. Bradburn (1991) studied 22 children six to eight months after the 1989 San Francisco earthquake. Administration of the DSM-III-R Reaction Index revealed that 63% met criteria for PTSD. In a similar vein, Geonjian, et al.(1995) administered the DSM-III-R Reaction Index to 218 youth one and one-half years after the 1988 Armenian earthquake. The children resided in

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three cities that were located at varying distances from the earthquake. Of the combined sample, 65.1% met criteria for PTSD.

Three months after Hurricane Hugo, Shannon, Lonigan, Finch and Taylor (1994) administered the DSM-III-R Reaction Index to 5,687 school children who resided in areas of South Carolina that suffered extensive damage. The interviews revealed that 5.4% of this sample exhibited PTSD. In a similar study, Garrison, Weinrich, Hardin, Weinrich, and Wang (1993) conducted a school-based study at three South Carolina high schools. Overall, 1,264 participants were administered a PTSD questionnaire based on DSM-III-R criteria. Data analysis determined that 5% of the participants met PTSD criteria.

Shaw et al. (1995) administered the DSM-III-R Reaction Index to 144 children eight weeks after Hurricane Andrew devastated southern Florida. The children resided in two areas and were exposed to stressors of differing severity. Eighty-seven percent of children exposed to severe hurricane-related stressors and 80% of those exposed to less severe stressors developed PTSD. From a longitudinal perspective, LaGreca, Silverman, Vernberg and Prinstein (1996) administered the DSM-III-R Reaction Index to 442 children at 3, 7, and 10 months after Hurricane Andrew. At the three assessment periods, respectively, 29.8%, 18.1%, and 12.5% of the sample met criteria for PSTD.

Table 2.3 presents a summary of prevalence estimates with regard to disaster-related PTSD in children and adolescents. Based on these studies, rates varied from 5% to 87%. In addition, the time elapsed between stress exposure and data collection varied from 8 weeks to 26 months.

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Table 2.3 Prevalence of Disaster-Related PTSD

Study	Measure	Subjects		Elapsed Time	PTSD Prevalence
		Gender	Age		
Fire					
McFarlane, 1987	DSM-III Rutter Parent & Teacher Questionnaire	427 males; 381 females	mean age= 8.2 years	8 & 26 months	52.8% at 8 months (Parent) 57.2% at 26 months (Parent) 29.5% at 8 months (Teacher) 26.3% at 26 months (Teacher)
Earthquake					
Bradburn, 1991	DSM-III-R Reaction Index	12 males; 10 females	10-12 years	6-8 months	63%
Goenjian et al., 1995	DSM-III-R Reaction Index	82 males; 136 females	mean= 13 years	1.5 years	65.1%
Hurricane					
Shannon et al., 1994	DSM-III-R Reaction Index	2787 males; 2900 females	9-19 years	3 months	5.4%
Garrison et al., 1993	DSM-III-R Author-devised Interview	600 males; 664 females	11-17 years	1 year	5.0%
Shaw et al., 1995	DSM-III-R Reaction Index	71 males; 73 females	mean= 8.2 years	8 weeks	87% severe stressors 80% less severe stressors
LaGreca et al., 1996	DSM-III-R Reaction Index	187 males; 255 females	Grades 3-5	3, 7, & 10 months	29.8% at 3 months 18.1% at 7 months 12.5% at 10 months

Differential Validity of the PTSD Classification

In order to develop a scientific understanding of any disorder, it is necessary to go beyond those characteristics that are used to define the disorder in the first place. Quay (1986) emphasized a need to establish the *differential* validity of a classification. In this regard, Quay pointed out that "two putatively separate disorders ought not to be related in the same way to the same variable" (Quay, 1986, p. 37).

A number of studies have examined the differential validity of the PTSD classification among stress-exposed adults (e.g., Vietnam veterans). Fairbank, Keane, and Malloy (1983) examined the validity of the classification among an adult sample of Vietnam veterans. The sample was comprised of three groups: PTSD patients who were enrolled in a stress management program, psychiatrically diagnosed patients (diagnoses other than PTSD), and non-clinical controls. All three groups received administrations of the Minnesota Multiphasic Personality Inventory (MMPI), State Trait Anxiety Inventory (STAI; Speilberger, Gorsuch, & Lushene, 1970), Beck Depression Inventory (BDI; Beck, Ward, Mandelson, Mock, & Erbaugh, 1961), and Zung Depression Inventory (ZDI; Zung, 1965). Fairbank at el. (1983) found that the PTSD group had significantly higher scores on all of the MMPI scales than the comparison groups. On the STAI, BDI, and ZDI, the scores of the PTSD group were also significantly greater than those of the comparison groups.

Support for the differential validity of the PTSD classification also comes from physiological studies. Blanchard, Kolb, Pallmeyer, and Gerardi (1982) compared blood pressure, skin temperature, forehead muscle activity, and skin resistance in two groups who listened to recordings of combat sounds. One group involved veterans with PTSD and the other group was comprised of non-veteran controls. Blanchard and his colleagues found that the PTSD group's physiological ratings consistently differed from the control group.

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While these studies indicate that adults with PTSD report higher levels of depression, fear and anxiety, as well as higher rates of physiological reactivity, fewer studies have been conducted with traumatized children and adolescents. In a clinical study of children, Saigh (1988) administered the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) and the Children's Depression Inventory (CDI; Kovacs, 1981) to a sample of Lebanese adolescents who had been exposed to war-related stressors. The sample was comprised of three groups of individuals: chronic PTSD, simple (test) phobia, and non-clinical controls. Data analyses revealed that the adolescents with PTSD had significantly higher RCMAS and CDI scores than both the phobic and non-clinical control groups. In a similar study involving Lebanese youth ages 6 to 9 years old, Saigh (1989a) found that children with PTSD evidenced higher RCMAS and CDI scores than the phobic and non-clinical control cases.

Ornitz and Pynoos (1989) recorded startle responses among two groups of children: PTSD cases (n=7) and nonclinical controls (n=6). Data analyses showed that the PTSD cases experienced a significant lack of modulation of startle response as compared to the controls. Using the RCMAS and the Sexual Abuse Fear Evaluation (SAFE; Wolfe & Wolfe, 1986), Wolfe, Sas and Wekerle (1994) compared scores among Canadian youth who were victims of sexual abuse. The results of the study indicated that the children who developed PTSD following the sexual abuse had significantly higher RCMAS and SAFE scores than those children who did not develop PTSD.

With regard to children who survived a natural disaster, Lonigan, Shannon, Taylor, Finch and Sallee (1994) administered the RCMAS to children following Hurricane Hugo. A group of children who had developed PTSD were compared with a school-based population. This population of children was comprised of stress-

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exposed children without PTSD as well as non-stress exposed children. Lonigan at el. (1994) found that 91% of the PTSD group had RCMAS scores that were significantly higher than the median RCMAS score of the school-based population.

Summary

The epidemiological research indicates that PTSD can develop as a result of a myriad of stressors. To date, these studies have involved participants who were exposed to only one type of traumatic event (war, natural disaster, criminal victimization, etc.). Among all the stressor types, prevalence estimates ranged from 5% to 100%. This suggests that the prevalence of PTSD varies among different types of stressors.

Some researchers have examined the differential validity of the diagnosis as it applies to children and adolescents. Overall, these studies have consistently found that youth with PTSD self-report significantly higher levels of anxiety and depression as compared to clinical and non-clinical controls (Saigh, 1988, 1989a; Ornitz & Pynoos, 1989; Wolfe et al., 1994; Lonigan et al., 1994). However, it should be noted that these studies only involved participants who had been exposed to one type of traumatic event.

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Chapter 3

Methodology

Statement of the Problem

The epidemiological literature (Saigh, 1988; Kinzie et al., 1986; Realmuto et al., 1992; Almqvist & Broberg, 1999; Pynoos et al., 1987; McLeer et al., 1988; Dubner & Motta, 1999; McFarlane, 1987; Bradburn 1991; Shannon et al., 1994; Shaw et al., 1995) indicates that there is a higher prevalence of PTSD among individuals who were intentionally traumatized (e.g., war-related events or sexual assault) as compared to individuals who were exposed to non-intentional traumatic experiences (e.g., hurricanes or floods). Furthermore, in a study of urban youth that compared different types of stressors, Saigh, Yasik, Oberfield, Halamandaris, and McHugh (2002) found that 67% of the individuals who developed PTSD had experienced an intentional stressor as compared to 33% who had experienced an unintentional stressor. It is also of interest to observe that the DSM-IV indicates that "the disorder may be especially severe or long lasting when the stressor is of human design" (p. 424).

While the epidemiological literature and the DSM-IV suggest that the prevalence of PTSD may vary as a function of the type of traumatic exposure, information regarding the psychological functioning of intentionally and unintentionally traumatized youth as measured by continuous (i.e., non-diagnostic) measures of psychopathology has not been explored.

Purpose of the Study

This study sought to compare self-reported anxiety and depression ratings of youth who developed PTSD following intentional or unintentional traumatic incidents. It also sought to compare the anxiety and depression scores of the PTSD groups to the scores of a non-clinical comparison group.

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Rationale for Hypotheses 1-10

Given the reported variations in PTSD prevalence, and as youth with PTSD have higher estimates of anxiety and depression (Saigh, 1988, 1989a), it was anticipated that the PTSD positives who were intentionally traumatized would evidence higher anxiety and depression scores than the PTSD positives who were traumatized by unintentional means. More specifically, the following hypotheses were examined:

Hypotheses 1-10

HO1: PTSD positive youth who were exposed to an intentional stressor have significantly higher Total Anxiety scores on the RCMAS than PTSD positive youth who were exposed to unintentional stressors.

HO2: PTSD positive youth who were exposed to an intentional stressor have significantly higher Physiological Anxiety scores on the RCMAS than PTSD positive youth who were exposed to unintentional stressors.

HO3: PTSD positive youth who were exposed to an intentional stressor have significantly higher Worry/Oversensitivity scores on the RCMAS than PTSD positive youth who were exposed to unintentional stressors.

HO4: PTSD positive youth who were exposed to an intentional stressor have significantly higher Social Concerns/Concentration scores on the RCMAS than PTSD positive youth who were exposed to unintentional stressors.

HO5: PTSD positive youth who were exposed to an intentional stressor have significantly higher Total CDI scores than PTSD positive youth who were exposed to unintentional stressors.

HO6: PTSD positive youth who were exposed to an intentional stressor have significantly higher Negative Mood scores on the CDI than PTSD positive youth who were exposed to unintentional stressors.

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HO7: PTSD positive youth who were exposed to an intentional stressor have significantly higher Interpersonal Problems scores on the CDI than PTSD positive youth who were exposed to unintentional stressors.

HO8: PTSD positive youth who were exposed to an intentional stressor have significantly higher Ineffectiveness scores on the CDI than PTSD positive youth who were exposed to unintentional stressors.

HO9: PTSD positive youth who were exposed to an intentional stressor have significantly higher Anhedonia scores on the CDI than PTSD positive youth who were exposed to unintentional stressors.

HO10: PTSD positive youth who were exposed to an intentional stressor have significantly higher Negative Self-Esteem scores on the CDI than PTSD positive youth who were exposed to unintentional stressors.

Rationale for Hypotheses 11-30

As the literature indicates that children and adolescents with PTSD had higher levels of self-reported anxiety and depression than non-clinical controls (Saigh, 1988; Saigh, 1989a; Dubner & Motta, 1999; Wolfe et al., 1994), the following hypotheses were indicated:

Hypotheses 11-30

HO11: PTSD positive youth who were exposed to an intentional stressor have significantly higher Total Anxiety scores on the RCMAS than youth in the non-clinical control group.

HO12: PTSD positive youth who were exposed to an intentional stressor have significantly higher Physiological Anxiety scores on the RCMAS than youth in the non-clinical control group.

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HO13: PTSD positive youth who were exposed to an intentional stressor have significantly higher Worry/Oversensitivity scores on the RCMAS than youth in the non-clinical control group.

HO14: PTSD positive youth who were exposed to an intentional stressor have significantly higher Social Concerns/Concentration scores on the RCMAS than youth in the non-clinical control group.

HO15: PTSD positive youth who were exposed to an intentional stressor have significantly higher Total CDI scores than youth in the non-clinical control group.

HO16: PTSD positive youth who were exposed to an intentional stressor have significantly higher Negative Mood scores on the CDI than youth in the non-clinical control group.

HO17: PTSD positive youth who were exposed to an intentional stressor have significantly higher Interpersonal Problems scores on the CDI than youth in the non-clinical control group.

HO18: PTSD positive youth who were exposed to an intentional stressor have significantly higher Ineffectiveness scores on the CDI than youth in the non-clinical control group.

HO19: PTSD positive youth who were exposed to an intentional stressor have significantly higher Anhedonia scores on the CDI than youth in the non-clinical control group.

HO20: PTSD positive youth who were exposed to an intentional stressor have significantly higher Negative Self-Esteem scores on the CDI than youth in the non-clinical control group.

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HO21: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Total Anxiety scores on the RCMAS than youth in the non-clinical control group.

HO22: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Physiological Anxiety scores on the RCMAS than youth in the non-clinical control group.

HO23: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Worry/Oversensitivity scores on the RCMAS than youth in the non-clinical control group.

HO24: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Social Concerns/Concentration scores on the RCMAS than youth in the non-clinical control group.

HO25: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Total CDI scores than youth in the non-clinical control group.

HO26: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Negative Mood scores on the CDI than youth in the non-clinical control group.

HO27: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Interpersonal Problems scores on the CDI than youth in the non-clinical control group.

HO28: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Ineffectiveness scores on the CDI than youth in the non-clinical control group.

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HO29: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Anhedonia scores on the CDI than youth in the non-clinical control group.

HO30: PTSD positive youth who were exposed to an unintentional stressor have significantly higher Negative Self-Esteem scores on the CDI than youth in the non-clinical control group.

Method

This section includes a description of the participant selection, sample, procedures, dependent variables, proposed data analysis procedures, and research design.

Sample Selection

Youth (ages 8-17 years) from the Bellevue Adolescent Clinic, the Pediatric Consultation-Liaison Psychiatry Clinic, and the Pediatric Crime Victim's Program were referred for assessment. Youth who reportedly experienced or were confronted with an event or events that involved actual or threatened death or serious injury or a threat to their personal physical integrity comprised the sampling pool.

After informed consent of the participants and their parents/guardians was obtained, the parent or guardian was asked to complete the Hollingshead (1975) demographic questionnaire. Participants received a single clinical interview by one of two psychiatrists and a psychologist. First, the clinical interviewers independently rated the severity of the stressor according to the Severity of Psychosocial Stressors Scale for Children and Adolescents (APA, 1994). Then the clinical interviewers independently decided if the subject met criteria for PTSD. Following the independently derived diagnoses, the psychiatrists and psychologist compared diagnoses. In the event of a disagreement, a case conference was conducted and a

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consensual diagnosis was made. Cases wherein agreement was evident were referred to two examiners (i.e., psychology doctoral students) for an administration of the Children's PTSD Inventory (CPTSDI; Saigh, 1997). The examiners administered the CPTSDI according to an alternating testing schedule to avoid an order effect. An examiner also administered the Diagnostic Interview for Children and Adolescents (DICA-R; Reich, Leacock, & Shanfeld, 1994) ADHD, conduct disorder, substance dependence, and schizophrenia modules to the referred youth.

To determine whether an event was intentional or unintentional operational definitions of intent were established. The definitions were based in part on the DSM-IV criteria for a traumatic event with the addition of an adaptation of the legal definition of intent. Black's Law Dictionary (1990) defines intent as "the desire to bring about a result that will invade the interests of another and the person believes that the consequences are substantially certain to result from the act" (p. 810). Furthermore, the Law Dictionary specifies that the act was purposeful and not accidental or involuntary. An *intentional* trauma was defined as one in which the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others and this event was a result of an action that was expressly designed to cause harm to the individual. An *unintentional* trauma was defined as one in which the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others and this event was a result of an accident (or involuntary act) which was unexpected and not expressly designed to cause harm to the individual.

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To determine inclusion in the intentional or unintentional group two independent attorneys reviewed the participant's statement obtained during the administration of the Children's PTSD Inventory. The raters categorized each experience as either intentional or unintentional based on the above definitions. A Kappa coefficient was calculated to determine interrater agreement and a coefficient of .92 was observed. In the event of a disagreement, a case conference was conducted in order to reach a consensual agreement.

To recruit nontraumatized participants, families at the Bellevue Family Care Clinic and the Adolescent Medical Unit were approached. These clinics provide routine medical services to children and adolescents with an age range of less than 1 year to 18 years. Parents or guardians of these pediatric patients were informed about the purpose of the study. Parents or guardians who expressed an interest in participating received scheduled appointments. In all instances, child assent and the written consent of one of the parents or legal guardians were obtained prior to participation.

Participants with a history of abuse or neglect were not examined since these cases frequently experience ongoing distress as a result of court proceedings and/or foster care placements. As such, youth who were abused by a parent or guardian were excluded and youth who were sexually or physically assaulted by anyone other than a parent or guardian were included. All participants with Full Scale IQs in the deficient range (69 or less) on the Wechsler Intelligence Scale for Children (3rd ed.; WISC-III; Wechsler, 1991) as well as youth who were not able to speak or understand English were excluded from the study. Youth with ADHD, CD, MDD, substance dependence, or psychotic symptoms as indicated through diagnoses that

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were derived through the administrations of the Diagnostic Interview Schedule for Children and Adolescents – Revised (DICA-R; Reich, Leacock & Shanfeld, 1994) were also excluded.

Participants

Intentionally Traumatized PTSD Positives. To be included in this group participants had to meet criteria for intentional traumatization as described above. Examples of intentional traumas included sexual assault, physical assault, and shooting victims (see Table 3). These individuals also received: two independent PTSD positive clinical diagnoses, two independent Children's PTSD Inventory PTSD positive diagnoses, two negative clinical diagnoses for major depression, a DICA-R generated negative diagnosis for major depression, and negative diagnoses for ADHD, conduct disorder, schizophrenia, and substance dependence. Intentionally traumatized PTSD positives must also have a negative diagnosis for mental retardation and negative histories involving abuse or neglect, gross head trauma, psychopharmacological medication, and serious non-intentional injury. A total of 49 youth who were the victims of an intentional trauma were included in the sampling pool. Nine individuals who met the criteria for a comorbid psychiatric disorder, and 19 individuals who received a negative PTSD diagnosis were excluded. This resulted in a final sample of 21 participants in this group. Of these 21 participants, 16 (76%) had experienced multiple traumas. Table 4 provides descriptive information regarding the Hollingshead SES scores, ethnicity, gender, and age data for the intentionally traumatized PTSD group.

Unintentionally Traumatized PTSD Positives. To be included in this group participants had to meet criteria for unintentional traumatization as described above.

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Examples of unintentional traumas included motor vehicle accidents, smoke inhalation, and a hand injury (see Table 3). These individuals also received: two independent PTSD positive clinical diagnoses, two independent Children's PTSD Inventory PTSD positive diagnoses, two negative clinical diagnoses for major depression, a DICA-R generated negative diagnosis for major depression, and negative diagnoses for ADHD, conduct disorder, schizophrenia, and substance dependence. Accidental injury PTSD positives must also have a negative diagnosis for mental retardation and negative histories involving abuse or neglect, gross head trauma, psychopharmacological medication, and serious intentional injury. A total of 54 participants who experienced an unintentional trauma were included in the sampling pool. Two individuals who met the criteria for a comorbid psychiatric disorder, and 43 individuals who received a negative PTSD diagnosis were excluded. This resulted in a final sample of nine participants in this group. Of these 9 participants 2 (22%) experienced multiple traumas. Table 4 provides descriptive information regarding the Hollingshead SES scores, ethnicity, gender, and age data for the unintentionally traumatized PTSD group.

Non-Traumatized Control Group. To be included in this group participants had to report no exposure to an extreme stressor, and received: no clinical diagnoses for PTSD, no Children's PTSD Inventory diagnoses for PTSD, no clinical diagnoses for major depression, no DICA-R generated diagnoses for major depression, ADHD, conduct disorder, schizophrenia, and substance dependence. Individuals in the control group must also have no diagnoses of mental retardation and no histories involving abuse or neglect, gross head trauma, psychopharmacological medication, and serious intentional or unintentional injury. A

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total of 46 participants were included in the initial sampling pool. Five participants who reported a traumatic event upon interview were excluded. This resulted in a final sample of 41 participants. Table 4 provides descriptive information regarding the Hollingshead SES scores, ethnicity, gender, and age data for the control group.

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Table 3

Types of Trauma Reported by PTSD Groups

Intentional Traumas	n
Physical Assault	9
Sexual Assault	6
Shooting	5
Other	1
Unintentional Traumas	
Motor Vehicle Accident	4
Smoke Inhalation	2
Hand Injury	1
Dog Attack	1
Other	1

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Table 4

Demographic Information by Comparison Group

	Total Participants (n=71)	Intentional (n=21)	Unintentional (n=9)	Control (n=41)
Hollingshead				
Class I	5	1	0	4
Class II	11	3	0	8
Class III	18	1	2	15
Class IV	23	10	3	10
Class V	14	6	4	4
Ethnicity				
African-American	9	2	1	6
Caucasian	7	1	1	5
Hispanic	53	17	7	29
Asian	1	1	0	0
Other	1	0	0	1
Gender				
Male	34	13	4	17
Female	37	8	5	24
Age				
Mean	13.33	15.25	12.32	12.43
SD	2.72	1.78	3.87	2.52

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Diagnostic Measures

Children's PTSD Inventory. The Children's PTSD Inventory (Saigh, 1997) was developed on the basis of the DSM-IV criteria for PTSD. The Children's PTSD Inventory consists of five subtests that are scored on a dichotomous basis as indicated by the DSM-IV diagnostic criteria. Following a brief introduction that provides examples of traumatic events that youth may encounter, the first subtest presents 15 questions involving potential exposure to extreme stress. The second subtest consists of 11 questions that indicate the presence or absence of reexperiencing symptoms (e.g., "Are you having a lot of upsetting thoughts about what happened?"). The third subtest lists 16 questions involving avoidance and numbing symptoms (e.g., "Are you trying not to think about what happened?"). The fourth subtest presents seven questions suggesting increased arousal (e.g., "Since this happened have you been getting very angry?") and the fifth subtest lists five questions involving significant distress (e.g., "Have you been having more problems with your teachers since this happened?").

Reliability studies of the Children's PTSD Inventory have found moderate to high estimates of internal consistency at the subtest level. Mean alphas for subtests range from .42 (Situational Reactivity) to .88 (Avoidance and Numbing). A high estimate of internal consistency was evident at the diagnostic level, with an observed coefficient alpha of .95 for the overall index. Inter-rater reliability estimates also were calculated at the subtest and diagnostic levels. Overall, the Children's PTSD Inventory yielded high estimates of inter-rater reliability (kappa > .75), with the exception of the Situational Reactivity subtest (kappa = .66), which indicated fair to good agreement.

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Evidence for the concurrent, convergent, and discriminant validity of the Children's PTSD Inventory has also been determined. Yasik, Saigh, Oberfield, Green, Halamandaris, and McHugh (2001) examined concurrent validity using clinician derived diagnoses, DICA-R PTSD module diagnoses, and SCID PTSD module diagnoses as standards. Overall, moderate to high levels of sensitivity (.87-1.00), *specificity* (.92-.99), *positive predictive power* (.65-.96), *negative predictive* power (.95-1.00) and diagnostic efficiency (.93-.95) were obtained across the three criterion measures.

Yasik et al. (2001) *examined* convergent and discriminant validity by correlating the number of total symptoms endorsed on the Children's PTSD Inventory with the total and subscale standard scores of the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985), Children's Depression Inventory (CDI; Kovacs, 1981), and Junior Eysenck Personality Inventory (JEPI; Eysenck, 1963). In addition, the Total, Internalizing, and Externalizing scales from the parent-completed Child Behavior Checklist (CBCL; Achenbach, 1991) were correlated with the number of symptoms on the Children's PTSD Inventory. With regard to convergent validity, significant correlations were obtained between the Children's PTSD Inventory and the total scores of the CBCL, RCMAS, and CDI. All subscales of the RCMAS and CDI were also significantly correlated with the Children's PTSD Inventory (with the exception of the RCMAS Lie subscale). In addition, the JEPI Neuroticism and the CBCL Internalizing scales were significantly correlated with the Children's PTSD Inventory. In terms of discriminant validity, the JEPI Extraversion and the CBCL Externalizing scales were not significantly correlated with the Children's PTSD Inventory.

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Diagnostic Interview for Children and Adolescents - Revised. The Diagnostic Interview for Children and Adolescents (DICA-R; Reich, Leacock, & Shanfeld, 1994) is a structured clinical interview that presents a series of modules indicative of the DSM-IV diagnostic criteria for disorders that are evident in childhood or adolescence. For the purpose of this study, the DICA-R ADHD, conduct disorder, substance dependence, schizophrenia, and mood disorders modules will be used to identify comorbid conditions. Inter-rater reliability estimates were calculated at the diagnostic level. In a sample of 40 children (30 outpatients and 10 community youth) the kappa coefficients were .32 for ADHD, .46 for ODD, .55 for Major Depression, .55 for Overanxious Disorder, .60 for Separation Anxiety, and .65 for Simple Phobia. In a sample of 35 adolescents, the kappa coefficients were .59 for ADHD, .60 for ODD, .92 for CD, and .80 for Major Depression.

Yasik, Saigh, Oberfield, Rubenstein, Halamandaris, Nester, Resko, Koplewicz, Inamdar, and McHugh (1998) administered the PTSD module to 37 stress-exposed and 12 non-stress-exposed inner city youth to examine the validity of the module. Using clinically derived expert ratings as the criteria, Yasik et al. (1998) reported that the DICA-R correctly identified 9 of 15 cases (sensitivity=.60) that had been clinically diagnosed as PTSD positives. In addition, it was reported that the module correctly identified 33 of 34 cases that were diagnosed as PTSD negatives (specificity=.97). Overall, the DICA-R PTSD module correctly identified the diagnostic status of 85.7% of the cases.

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Dependent Variables

Revised Children's Manifest Anxiety Scale. The Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) is a self-report inventory that consists of 39 anxiety-related items (e.g., "I worry a lot of the time"). Items are scored according to a true-false basis. Each true response is scored as a 1 and each false response is scored as a 0. RCMAS total scores may range from 0 to 39. The RCMAS is comprised of three anxiety subscales and a Lie Scale. The first subscale consists of items indicating Physiological Anxiety (e.g., "Often I feel sick to my stomach"). The second subscale consists of items denoting Worry/Oversensitivity (e.g., "I worry a lot of the time"). The third subscale consists of items related to Social Concern/Concentration (e.g., "I feel alone when there are people with me"). Internal consistency reliability estimates were calculated for the Total Anxiety score using the test development sample of 329 children. This resulted in an alpha of .83, indicating high reliability. In a cross-validation sample of 167 children, a comparable reliability estimate of .85 was obtained. Test-retest reliability estimates were calculated for Total Anxiety scores only. These ranged from .68 at a 9 month interval, to .98 at a 3 week interval.

Reynolds (1980) examined the convergent and discriminant validity by comparing the RCMAS with other measures of state and trait anxiety. The State-Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973) was chosen as a criterion measure. A significant correlation occurred between the RCMAS and the STAIC Trait scale ($r = .85$, $p < .001$). In contrast, the RCMAS did not correlate significantly with the STAIC State scale ($r = .24$, $p > .05$). In a highly similar study,

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Reynolds (1985) found correlations between the RCMAS Total Anxiety scale and the STAIC Trait scale to be significant (r = .78), while the RCMAS Total Anxiety scale correlated only marginally with the STAIC State scale (r = .08).

Children's Depression Inventory. The Children's Depression Inventory (CDI; Kovacs, 1981) consists of 27 depression-related items (e.g., "All bad things are my fault", "Many bad things are my fault", and "Bad things are usually not my fault"). A three alternative forced choice scoring format is used whereby items are scored 0, 1, or 2 points. As such, CDI total scores may range from 0 to 54. The CDI consists of items that yield five subscale scores for Negative Mood (e.g., "I am sad all the time"), Interpersonal Problems (e.g., "I do not want to be with people at all"), Ineffectiveness (e.g., "I do everything wrong"), Anhedonia (e.g., "Nothing is fun at all"), and Negative Self-Esteem (e.g., "I hate myself"). The CDI has demonstrated good internal consistency (a=.86) among the 27 items. Alpha coefficients for the 5 factors range from .59 (Interpersonal Problems) to .68 (Negative Self-Esteem), which are acceptable for short factor subscales such as those used in the CDI. Test-retest reliability studies have found that the CDI demonstrates an acceptable level of stability. Reliability estimates ranged from .54 at a 6 month interval, to .83 at a 3 week interval.

Hodges (1990) examined 70 psychiatric inpatients who had various diagnoses including depression, conduct disorder, and anxiety disorder as measured by the Child Assessment Schedule (CAS; Hodges, McKnew, Cytryn, Stern, & Kline, 1982). Participants completed the CDI, STAIC, and RCMAS. The CDI scores of depressed children were significantly higher than scores of non-depressed children. In addition, a sensitivity of 54% and a specificity of 84% were obtained for the CDI.

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Chapter 4

Results

This chapter presents the data analysis procedures and results. In addition, descriptive information regarding the Total scores and subtest scores for the RCMAS and CDI for the three experimental groups will be given. The results of the MANOVA, MANCOVA, univariate F tests, and Bonferroni post hoc analyses will also be specified.

Statistical Analyses

Following the procedures indicated in the RCMAS Manual (Reynolds & Richmond, 1978) raw scores were converted to scaled scores according to each youth's age and gender. The Total Anxiety score has a mean of 50 and a standard deviation of 10, while the subscales each have a mean of 10 and a standard deviation of 3. On the CDI (Kovacs, 1981), raw scores were also converted to scaled scores according to each youth's age and gender. The Total score and each subscale has a mean of 50 and a standard deviation of 10. The mean scores and standard deviations for Total Anxiety and the three subtests of the RCMAS were calculated for each experimental group, and are described in Table 5. Mean scores for the CDI Total score and the five subtests of the CDI were also calculated for each experimental group. These scores are described in Table 6.

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Table 5

Means and Standard Deviations for RCMAS Scores by Group

RCMAS Score	PTSD Intentional (n= 20)		PTSD Unintentional (n= 9)		Non-Traumatized Controls (n= 41)	
	Mean	SD	Mean	SD	Mean	SD
Physiological Anxiety	12.30	3.13	11.22	2.99	7.93	2.90
Worry/ Oversensitivity	12.10	3.73	11.56	2.35	8.34	3.34
Social Concern/ Concentration	11.15	3.42	8.33	3.46	8.22	2.66
Total Anxiety	58.90	12.38	55.22	9.87	43.78	10.10

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Table 6

Means and Standard Deviations for CDI Scores by Group

CDI Score	PTSD Intentional (n= 19)		PTSD Unintentional (n= 9)		Non-Traumatized Controls (n= 41)	
	Mean	SD	Mean	SD	Mean	SD
Negative Mood	56.37	15.32	49.89	9.10	46.46	8.74
Interpersonal Problems	54.89	13.01	50.11	9.66	47.76	6.70
Ineffectiveness	55.68	13.20	50.78	10.91	44.56	7.68
Anhedonia	56.79	13.05	56.67	10.81	44.49	6.72
Negative Self-Esteem	51.89	10.80	45.67	9.66	44.93	7.18
Total Score	57.58	14.45	51.00	9.66	44.00	7.07

Pearson product moment correlations were calculated to determine if a relationship existed between Hollingshead scores, stressor severity and RCMAS and CDI scores. The results of these analyses are presented in Table 7.

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Table 7

Correlations Between Hollingshead Scores, Stressor Severity and Dependent Variables

Test	Hollingshead	Stressor Severity
Physiological Anxiety	.16	.45*
Worry/Oversensitivity	.17	.42*
Social Concern/ Concentration	-.00	.30
RCMAS Total	.21	.47**
Negative Mood	-.00	-.20
Interpersonal Problems	.37	-.26
Ineffectiveness	.21	.03
Anhedonia	.28	.04
Negative Self-Esteem	-.01	-.09
CDI Total	.21	-.09

RCMAS=Revised Children's Manifest Anxiety Scale, CDI= Children's Depression Inventory

* = $p < .05$, ** = $p < .01$

Given this information a MANOVA (to examine group differences among the CDI scores) and a MANCOVA (to examine group differences among the RCMAS scores) were conducted. As reflected in the analyses, stressor severity was significantly correlated with scores on the RCMAS. As such, stressor severity was

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entered into the analysis as a covariate to control for any effects on score variance that was due to this variable.

On the MANOVA, data indicated significant differences among the comparison groups across all CDI subtests, based on a Wilks Lambda test, F (12, 122) = 3.30, $p < .000$. Similarly, significant differences were apparent on the MANCOVA that compared group RCMAS scores using a Wilks Lambda test, F (8, 128) = 5.56, $p < .000$. To further examine group differences, a series of one-way ANOVAs were conducted. Table 8 represents the univariate F test results. As shown in this table, significant group differences were apparent on the RCMAS and CDI scores.

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Table 8

Univariate F Test Results for RCMAS and CDI Scales

	MS Error	F	p
Physiological Anxiety	142.13	16.02	.000**
Worry/Oversensitivity	110.35	9.82	.000**
Social Concern/ Concentration	60.53	6.74	.002**
RCMAS Total Anxiety	1701.38	14.67	.000**
Negative Mood	637.22	5.29	.007**
Interpersonal Problems	330.85	3.91	.025*
Ineffectiveness	831.60	8.51	.001**
Anhedonia	1250.88	14.23	.000**
Negative Self-Esteem	323.60	4.35	.017*
CDI Total Score	1225.51	12.44	.000**

* = $p < .05$, ** = $p < .01$

Subsequently, Bonferroni post hoc analyses were conducted that a) compared scores of the intentional and unintentional groups to the control group; and b) compared scores of the intentional and unintentional groups to each other. Results of the Bonferroni post hoc analyses (presented in Table 9) indicated that all RCMAS and CDI subtest scores for the intentional group were significantly higher than those of the control group. As such, Hypotheses 11-20 were supported. In

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support of Hypotheses 21, 22, and 23 the scores of the unintentional group were significantly higher than those of the control group.

In contrast, scores for the unintentional group on the RCMAS Social Concern/Concentration scale and all of the CDI scales were not significantly higher than control group scores. Thus, Hypotheses 24-30 were not supported. Likewise, scores on all measures for the intentional group were not significantly greater than scores for the unintentional group. Therefore, Hypotheses 1-10 were not supported.

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Table 9

Results of Dunn Bonferroni Post Hoc Analysis Procedures for Subscale Scores

	Comparison Groups		
	Intentional v. Unintentional	Unintentional v. Control	Intentional v. Control
RCMAS Total Anxiety	N.S.	U > C*	I > C**
Physiological Anxiety	N.S.	U > C**	I > C**
Worry/Oversensitivity	N.S.	U > C*	I > C**
Social Concern/ Concentration	N.S.	N.S.	I > C**
CDI Total Score	N.S.	N.S.	I > C**
Negative Mood	N.S.	N.S.	I > C**
Interpersonal Problems	N.S.	N.S.	I > C*
Ineffectiveness	N.S.	N.S.	I > C**
Anhedonia	N.S.	N.S.	I > C**
Negative Self-Esteem	N.S.	N.S.	I > C*

I=Intentional Group, U=Unintentional Group, C=Control Group

* = $p < .05$, ** = $p < .01$

In sum, the above findings indicate that while controlling for stressor severity and comorbidity, the intentional group scored significantly higher than the control group on all subscales of the RCMAS and CDI. Similarly, the unintentional group scored significantly higher than the control group on RCMAS Total Anxiety, and the Physiological Anxiety and Worry/Oversensitivity subscales. On the other hand,

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nonsignificant differences resulted for the Social Concerns subscale. No significant differences were found between the unintentional group and control group for the Total score or any of the subscales of the CDI. Finally, no significant differences were found between the intentional and unintentional groups for any RCMAS or CDI scale.

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Chapter 5

Discussion

In this chapter, a discussion of the observed results will be presented. In addition, the theoretical and clinical significance of the study, as well as the potential limitations will be addressed. Recommendations for future research in the area of child and adolescent PTSD will also be suggested.

Summary and Conclusions

This study compared the self-reported anxiety and depression of intentionally and unintentionally traumatized youth and their non-clinical peers. Youth who reported having experienced or were confronted with an event or events that involved actual or threatened death or serious injury or a threat to their personal physical integrity were referred to participate in the study by staff at Bellevue Hospital. Non-traumatized participants were selected from clinics at Bellevue Hospital that provide routine medical care. Forty-one participants were included in the control group. These individuals had not experienced a trauma, nor did they meet the criteria for another psychiatric disorder. In all instances, the participant's assent and the written consent of one of the parents or legal guardians were obtained prior to participation.

Traumatized individuals received two independent administrations of the Children's PTSD Inventory and two independent clinical interviews. Youth who presented with comorbidity were systematically excluded on the basis of the DICA-R ADHD, CD, MDD, substance abuse, and schizophrenia modules. This led to the identification of 29 youth who clearly met the criteria for PTSD and did not evidence significant comorbid diagnoses. Two attorneys categorized the traumatic events as

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intentional or unintentional based on the following definitions of intent. An intentional trauma was defined as one in which the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others and this event was a result of an action that was expressly designed to cause harm to the individual. An unintentional trauma was defined as one in which the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others and this event was a result of an accident (or involuntary act) which was unexpected and not expressly designed to cause harm to the individual. This process led to the identification of 20 intentionally and 9 unintentionally traumatized youth with PTSD.

Pearson product moment correlations revealed a significant relationship between stressor severity and RCMAS scores. On the other hand, a non-significant relationship was observed when stressor severity and CDI scores were correlated. A MANCOVA was computed for RCMAS scores with stressor severity as a covariate, and a MANOVA was computed for the CDI scores. Results from both analyses indicated significant differences between the comparison groups. Given the significant group differences, a series of one-way ANOVAs were conducted. Since these analyses also revealed significant group differences, Bonferroni post-hoc analyses were conducted to determine where the significant differences were indicated. These analyses determined that the RCMAS and CDI scores of the intentional group were significantly higher than the scores of the control group. Furthermore, the scores of the unintentional group were significantly higher than the control group scores on three subscales of the RCMAS (Physiological Anxiety,

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Worry/Oversensitivity and Total Anxiety). No significant differences were observed between the RCMAS and CDI scores of the intentional and unintentional participants.

Discussion

Whereas the latest edition of the DSM-IV indicates that "the disorder may be especially severe or long lasting when the stressor is of human design" (p. 424), research to test this assumption had not been previously reported. This study established operational definitions for intentional and unintentional stress and categorized trauma as a function of intentionality. This allowed for a direct comparison of the PTSD groups based on stressor type.

Although it was predicted that the RCMAS scores of intentionally traumatized youth with PTSD would significantly exceed the scores of the unintentionally traumatized youth with PTSD, the anxiety test scores of the traumatized groups did not significantly vary. As may be noted from Table 5, the intentional and unintentional group means were similar, with the exception of the appreciably higher RCMAS Social Concern subtest scores of the intentionally traumatized group. As such, despite the higher prevalence of PTSD that has been documented among intentionally traumatized youth in the literature and in this study (Almqvist & Broberg, 1999; Brent et al., 1993; Dubner & Motta, 1999; Kinzie et al., 1986; Kinzie et al., 1989; McLeer et al., 1988; Pynoos et al., 1987; Pynoos & Nader, 1988; Realmuto et al., 1992; Saigh, 1998; Saigh, Mroueh, and Bremner, 1997), higher prevalence was not reflected on the majority of RCMAS subtests or the Total score. The appreciably greater, but not significantly different, RCMAS Social Concern scores of the intentionally traumatized group relative to the unintentionally traumatized group

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suggests that these individuals may have developed more fears about social interactions than their unintentionally traumatized counterparts. Given that they were deliberately traumatized by others, their social interaction fears appear to be well-founded.

As predicted, the intentionally traumatized group evidenced significantly higher RCMAS scores relative to the control group. Although the unintentional group evidenced higher scores on three RCMAS subtests (Physiological Anxiety, Worry and Oversensitivity, and Total score) relative to the control group, the Social Concern subtest scores were not significantly different for these two groups. Given that the unintentional group was not deliberately harmed, it may be surmised that they had less reason to fear social interactions than the intentionally traumatized group.

Although it was predicted that the CDI scores of intentionally traumatized youth with PTSD would significantly exceed the scores of the unintentionally traumatized youth with PTSD, their depression test scores did not significantly vary as a function of intentionality. As such, despite the higher prevalence of PTSD that has been documented among youth that were intentionally traumatized in the literature and in this study, higher prevalence was not associated with significantly elevated CDI Interpersonal Problems, Ineffectiveness, Anhedonia or Total scores.

It is interesting to observe that the intentional and unintentional CDI group means were very similar, with the exception of higher CDI Negative Mood and Negative Self-Esteem scores of the intentionally traumatized group. The elevated Negative Mood and Negative Self-Esteem scores of the intentionally traumatized participants are consistent with Lerner's (1980) just world hypothesis. Lerner maintained that victim responses vary as a function of the discrepancy between their

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personal perceptions of the traumatic event and personal beliefs in justice. He posited that individuals frequently reason that they live in a world in which people should be treated in a fair and just way. Lerner further maintained that as victims attempt to cope with a traumatic event, they may formulate dysfunctional strategies to decrease the discrepancy between traumatic experiences and personal beliefs in justice. These strategies commonly include blaming themselves for having been in a situation that led to an assault or not performing an action that could have prevented the traumatic incident (Falsetti & Resick, 1995).

Although it was predicted that the CDI scores of the unintentionally traumatized group would significantly exceed the CDI scores of the control group, this hypothesis was not supported. Contrary to expectations, the CDI scores for the unintentionally traumatized PTSD group were not significantly different from the scores of the control group. Given that the unintentional group was not deliberately harmed, it may be reasoned that they are less likely to blame themselves for their experiences. Viewed in terms of Lerner's just-world model, unintentionally traumatized individuals are less likely to develop negative self-messages as a means of coping with their experience, as it would be extremely illogical for these individuals to hold themselves accountable for random accidents.

Clinical Significance

PTSD has been associated with a number of long-term negative outcomes, such as academic failure, exclusion from higher education, and economic impoverishment (Saigh, Mroueh, & Bremner, 1997). Thus, it may be said that this research provided a direct clinical benefit to the youth who participated. Participants received complete psychiatric and psychological evaluations. Furthermore,

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participants and their parents/guardians were verbally advised of the outcome of these evaluations. In addition, they received individualized psychological work-ups denoting the presence or absence of PTSD and other psychiatric conditions. The provision of these reports, coupled with referrals for mental health services, may reduce the likelihood for these individuals of the development of the serious consequences that are often associated with PTSD and with a number of frequently seen comorbid disorders such as major depression.

This study determined that 43% of the intentionally traumatized group and 16% of the unintentional group developed PTSD. Although scores on the various measures did not differ significantly between the two groups, the overall difference in frequency of incidence suggests that intentional traumatization may be a significant risk factor for PTSD. The difference between intentional and unintentional trauma with respect to the likelihood of the development of PTSD is potentially valuable for practitioners. Psychologists, school personnel, physicians, social workers, and others who are involved in the early identification and treatment of youth with PTSD may benefit from an awareness of this distinction.

Limitations

The sample size of this study was limited (especially the number of cases in the unintentional group) and the results should be viewed accordingly. It must also be noted that this sample is highly representative of an urban population. This fact had a significant impact of the demographic makeup of the sample. For instance, 80% of the students involved in the study were Latin American and only 6.7% were Caucasian. As such, the external validity of the study may be limited to youth with similar demographic backgrounds.

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The current study differed from previous studies in many respects. None of the studies that were described in the literature review controlled for the potentially confounding effects of comorbidity (Lonigan et al., 1994; Saigh, 1988, 1989a; McLeer et al., 1988). Although the sample pool in this study was carefully selected to exclude participants who met criteria for comorbid conditions. Consequently, this is one of the first studies to present evidence that pure cases of PTSD performed significantly higher than their non-clinical peers on measures of self-reported anxiety and depression. While this is an important contribution to the study and treatment of these cases, it also limits the generalizability of the findings, since many PTSD positives also suffer from comorbid conditions. However, it should be noted that the interview process did not include a screening module for other anxiety disorders. As such, the possible presence of another anxiety disorder may be considered a confounding factor.

Future Research

Given the results of this study, a number of recommendations for future research are indicated. First, the small number of unintentionally traumatized youth with PTSD represents a limitation and a need for future research. Studies that use the same or similar methodology while employing larger samples (particularly unintentionally traumatized youth who develop PTSD) may generate the statistical power to detect significant differences between group variations.

A follow-up investigation with a larger sample would also be useful in testing the specific notion that intentionally traumatized victims may evidence significantly elevated Negative Mood and Negative Self-Esteem scores. It would be of interest to systematically question future research participants about their personal beliefs in

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justice, as this may provide an empirical basis to test the just world hypothesis (Lerner, 1980). Certainly, a follow-up investigation that explores the relationship between PTSD and personal beliefs regarding fairness might contribute to out understanding of the development or absence of PTSD in traumatized individuals.

Finally, given that the sample was made up of urban youth, most of whom were of Latin American descent, future research might attempt to replicate this study with divergent populations (suburban youth, multiple ethnicities, etc.).

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