

An Analysis of the State-Trait Anger Expression Inventory Ratings of Traumatized Children and
Adolescents Relative to Non-traumatized Controls

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ABSTRACT

An Analysis of the State-Trait Anger Expression Inventory Ratings of Traumatized Children and Adolescents Relative to Non-traumatized Controls

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This study compared the anger ratings of traumatized youth with and without PTSD relative to the anger ratings of a non-traumatized control group. Participants consisted of youth aged 7-18 years who were previously evaluated for a study at Bellevue Hospital Center in New York City. In order to potentially increase the external validity of the study, youth with comorbid major depressive disorder and substance dependence were included in the sample. Diagnostic measures identified 31 youth with PTSD, 59 traumatized youth without PTSD, and 39 non-traumatized controls. Participants completed the *State-Trait Anger Expression Inventory*, a self-report inventory that measures anger experience, anger expression, and anger control. Data analyses indicated significant group differences on the State Anger, Trait Anger, Angry Temperament, and Angry Reaction scales and subscales. Specifically, the PTSD group and traumatized PTSD negative group had significantly higher State Anger scores than the control group. State Anger scores for the PTSD and traumatized PTSD negative groups did not significantly differ. Regarding Trait Anger, the PTSD group had significantly higher scores than both the traumatized PTSD negative and control groups. Trait Anger scores for the traumatized PTSD negative group and the controls did not significantly differ. Angry Temperament scores of the PTSD group were significantly higher than scores of the traumatized PTSD negative and control groups. Angry Temperament scores of the traumatized PTSD negative and control groups did not differ. Angry Reaction scores of the PTSD group significantly exceeded scores of

the control group only. Angry Reaction scores for the PTSD and traumatized PTSD negative groups did not differ, and the traumatized PTSD negative and control group scores also did not differ. Statistical analyses failed to identify significant group differences for the remaining scales (Anger Expression, Anger In, Anger Out, and Anger Control). Overall findings of this study indicate that the relationship between PTSD and anger varied depending on the anger domain that was examined, as significantly higher anger scores were not consistently related to diagnostic status. A discussion of the results including theoretical and clinical significance is presented. Finally, limitations of the study and possible directions for future research are addressed.

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Chapter 1

History of Posttraumatic Stress Disorder

For nearly 4,000 years, the emotional effects of exposure to extreme stressors have been recorded in historic accounts, clinical records, and in western literature (Figley, 1993). While the body of scholarly and clinical literature concerning posttraumatic stress reactions sharply increased in the nineteenth century, the inclusion of posttraumatic stress disorder (PTSD) in the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1980) accelerated the empirical, systematic research of victims of warfare, natural and human-made disaster, and civilian violence (Eth & Pynoos, 1985).

From an early historical perspective, Lucretius' *De Rerum Natura*, written in 50 BC indicated that,

“The minds of mortals . . . often in sleep will do and dare the same . . . Kings take the towns by storm, succumb to capture, battle on the field, raise a wild cry as if their throats were cut even then and there. And many wrestle on and groan with pains, and fill all regions round with mighty cries and wild, as if then gnawed by fangs of panthor of lion fierce” (as cited in Crocq & Crocq, 2000, p. 48).

In a similar vein, accounts of post-trauma psychological symptoms can be found in the *Gíslí Súrsson Saga*, an Icelandic account of warfare written between 1270-1320 A.D. This account describes a war hero who “dreams so frequently of battle scenes that he dreads obscurity and cannot stay alone at night” (as cited in Figley, 1993, p. xvii). Accounts of soldiers waking from nightmares of war are common in literature, as depicted by Shakespeare through Mercutio’s account of Queen Mab in *Romeo and Juliet*:

“Sometime she driveth o’er a soldier’s neck, And then dreams he of cutting foreign throats, Of breaches, ambuscadoes, Spanish blades, Of healths five fathom deep; and then anon Drums in his ear, at which he starts and wakes, And being thus frightened, swears a prayer or two, And sleeps again” (as cited in Crocq & Crocq, 2000, p.48).

Samuel Pepys, a survivor of the 1666 Great Fire of London, kept a very accurate diary wherein he clearly described his emotional distress following the fire. Pepys reportedly suffered from nightmares and intrusive imagery, as he represented, “It is strange to think how to 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” (as cited in Daly, 1983, p. 66).

The cluster of symptoms observed in survivors of railway and workplace accidents was termed “traumatic neurosis” by Hermann Oppenheim in 1882 (Crocq & Crocq, 2000). Within the context of the mid-to-late 1880’s, Sigmund Freud and Pierre Janet identified the symptoms of “traumatic hysteria,” including dissociation and suppressed memory (Crocq & Crocq, 2000). Charles Dickens also described the delayed psychological effects of a railway accident that he experienced in 1865. According to Dickens:

“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. I cannot bear railway traveling yet” (as cited in Trimble, 1981, p. 28).

Throughout the 19th century and at the beginning of the 20th century, clinicians began to focus on collecting observational data in order to specify the effects of traumatic stress.

Kraepelin's account of a professional acrobat who fell 20 feet from a trapeze and hit his head indicated that "since his fall the patient suffers from apprehensive fears of a peculiar nature" (Kraepelin, 1904, p. 249). Furthermore, distinguishing the physical manifestations of the fall from the psychological, Kraepelin wrote:

"The convulsions, the semiconsciousness, the increase of skin and muscle reflexes, as well as the sensitiveness to cold, all point to a hysterical source, while the morbid fears belong more to some other picture of disease closely related to hysteria, and occasionally mingling with it. In this case we are accordingly quite justified in speaking of traumatic hysteria, in the sense that here, perhaps, not the hysteria, but only the special hysterical, clinical features have been produced through the accident" (1904, p. 250).

Over the course of the First and Second World Wars, the immense number of soldiers, airmen, and sailors presenting with psychological morbidity led to the recognition of a complex stress-response syndrome (Marmar & Horowitz, 1988). Clinical observations of soldiers serving in the First World War resulted in the notion of *shell shock* or *war neuroses*, a cluster of symptoms resembling PTSD (Figley, 1993). A 1917 case study of a soldier hospitalized in Maghull Red Cross Hospital in England indicated that "having been blown up in France and having developed an anxiety condition following it," the soldier experienced the symptoms of a war neurosis, including: (1) depression and worry; (2) insomnia and unpleasant dreams; (3) impulse to kill the nurse who had attended him in a recent mastoid operation and fear that he would do so; (4) exaggerated fear of death (Bowman, 1920, p. 317). Also describing the symptoms and causes of shell shock, a German psychiatrist, Robert Gaupp, wrote in 1917:

“The big artillery battles of December 1914 . . . filled our hospitals with a large number of unscathed soldiers and officers presenting with mental disturbances. From then on, that number grew at a constantly increasing rate....The main causes are the fright and anxiety brought about by the explosion of enemy shells and mines, and seeing maimed or dead comrades . . . The resulting symptoms are states of sudden muteness, deafness . . . general tremor, inability to stand or walk, episodes of loss of consciousness, and convulsions” (as cited in Crocq & Crocq, 2000, p. 49).

According to Langmeier and Matejcek, the 1930’s and 1940’s marked the “alarm period” of studying the effects of traumatic stress on children (Benedek, 1985). The period was typified by concern about children’s suffering as a result of imprisonment, malnutrition, concentration camp experiences, loss of parents, and desertion due to war. During this time, just prior to the Second World War, the psychological effects of trauma on children were first documented by Bender and Blau (1937) at Bellevue Hospital. The investigators studied 16 children who experienced extreme stress as a result of reported sexual abuse by adults. The children were reported to have experienced “fear, irritability, nightmares, avoidance, trauma-related reenactments, and hypervigilance (Bender & Blau, 1937, p. 505).” In addition, the authors reported that some children experienced academic impairment following the trauma:

“Their interest in school diminished, they paid little attention to their homework, and some became chronic truants. In some cases this affected a school retardation so marked that the child was considered defective...Hyperactivity and general restlessness in other activities was also commonly noted” (Bender & Blau, 1937, p. 505).

The immense population of soldiers presenting with posttraumatic stress reactions in the Second World War spurred “phenomenological reevaluation of the combat-related stress symptomatology” (Marmar & Horowitz, 1988, p. 83). In their work *Men Under Stress*, Grinker and Spiegel (1963) summarized the most commonly persistent symptoms observed in soldiers post-combat. These symptoms included:

Restlessness; Irritability or aggression; Fatigue on arising, lethargy; Difficulty falling asleep; Anxiety, subjective; Frequent fatigue; Startle reactions; Feeling of tension (e.g. vomiting, diarrhea); Depression; Personality change and memory loss; Tremor; Difficulty concentrating, confusion; Alcoholism; Preoccupation with combat; Decreased appetite; Nightmares; Psychosomatic symptoms; Irrational fears (phobias); Suspiciousness (Grinker & Spiegel, 1963, p. 210).

Following the Second World War, investigators described the psychological sequelae of prisoners of war. Crocq, Macher, Barros-Beck, Rosenberg, and Duval (1993) described the symptoms of a Second World War soldier who was held captive for 26 months in Alsace-Lorraine. According to the soldier, he and a friend were beaten upon their first encounter with the captors, and feared for their lives. He witnessed the execution of his friend, causing him extreme and long term distress:

He reexperiences the execution of his friend very vividly as he retells it. He is still awakened by nightmares in which he sees again and again the same “movie” of his life. His spouse adds that he sometimes screams at night...He often ruminates about this event in hour-long daydreams accompanied by a degree of depersonalization. This state can be triggered by the meeting of old friends (as cited in Crocq et al., 1993, p. 259).

The pattern of symptoms observed in concentration camp survivors was identified as *survivor syndrome* (Grauer, 1969; Niederland, 1968). Major symptoms observed in survivor syndrome included: anxiety; disturbances of cognition and memory; chronic depressive states; tendency to isolation, withdrawal, and brooding seclusion; psychotic and psychosis-like action; alternations of personal identity; psychosomatic conditions; and the appearance of a 'living corpse' (Niederland, 1968). Furthermore, "anxious, bland depression and an all-pervasive guilt" also were identified as manifestations of the condition (Niederland, 1968, p. 313).

Interest in the effects of trauma on children continued into the 1950's, a period that was marked by more critical analysis of preceding studies and conclusions (Benedek, 1985). During this time, variability between children in biological predispositions and temperament was identified as partially accountable for differences in posttraumatic reactions. Block, Siber, and Perry (1956) studied the emotional effects of a tornado in Vicksburg, Mississippi on 113 children. Fifty-six children were reported to have manifested "emotional disturbances" following the tornado, including "overt anxiety, anxiety equivalents, symptom formation, or intensification of previous pathological character traits" (Benedek, 1985, p. 6). The most severe cases also demonstrated regressive behaviors, such as enuresis, "clinging to parents," and phobias, while the least severe cases were described as "irritable, sensitive, and phobic" (Benedek, 1985, p. 6).

Diagnostic Classification of Stress Reactions

Recognized as the first psychologist to research and treat posttraumatic stress reactions, Pierre Janet began his work in the early 1880's studying the processes by which traumatic experience can lead to psychopathology, and identified many symptoms of posttraumatic stress that closely resemble PTSD today (van der Kolk & van der Hart, 1989). These included

dissociative symptoms, memory impairment, “attachment to the trauma,” and “numbing and depletion” (van der Kolk & van der Hart, 1989, p. 1533). In addition to immediate reactions to extreme stress, Janet also identified the latent consequences: “Rarely do the principal disturbances of the emotion appear exactly at the moment of the provoking event” (as cited in van der Kolk & van der Hart, 1989, p. 1536). Janet identified that the nature of a stressor impacts the degree of resulting psychological morbidity: “Traumas produce their disintegrating effects in proportion to their intensity, duration and repetition” (as cited in van der Kolk & van der Hart, 1989, p. 1536).

In 1896, Emil Kraepelin, the German nosologist, was the first researcher to successfully classify psychiatric disorders. Among the conditions included in Kraepelin’s system was *Schreckneuroses*, or *fright neurosis*. In his 1904 lecture, *Insanity following injuries to the head*, Emil Kraepelin described fright neurosis as “recognised as being of psychical origin,” as Martin Charcot, a physician at La Salpêtrière Hospital in Paris had demonstrated (Kraepelin, 1904, p. 242). According to Kraepelin, the disorder was characterized by “multiple nervous and psychic phenomenon” occurring “after accidents and injuries, particularly fires, railway derailments, or collisions” (as cited in Jablensky, 1985, p. 737).

The prevalent psychopathology observed in war veterans following the Second World War marked a shift in psychiatrists’ understanding of the causes and treatment of mental illness (Grob, 1991). It was recognized that environmental stress contributed to psychological maladjustment and that directive intervention could improve outcomes (Grob, 1991). Given the increase of attention turned to war-related psychopathology at this time, the American Psychiatric Association’s (APA) Committee on Nomenclature and Statistics included *gross stress reaction* as a psychiatric diagnosis in the first edition of the Diagnostic and Statistical

Manual of Mental Disorders (DSM-I; APA, 1952) (Saigh & Bremner, 1999). The DSM-I indicated that gross stress reaction evidenced after “severe physical demands or extreme stress, such as in combat or civilian catastrophe (fire, earthquake, explosion, etc.)” (APA, 1952, p. 40). Furthermore, the manual specified that “in many instances this diagnosis applies to previously more or less ‘normal’ persons who experience intolerable stress” (APA, 1952, p. 40). While the cause of gross stress reaction was identified as an extreme stressor, the DSM-I did not delineate operational criterion to formulate a reliable gross stress reaction diagnosis (Saigh & Bremner, 1999).

Gross stress reaction was replaced by a new classification, *transient situational disturbance*, in the second edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-II; APA; 1968). According to the DSM-II, transient situational disturbance consisted of “transient disorders of any severity (including those of psychotic proportions) that occur in individuals without any underlying mental disorders and that represent an acute reaction to overwhelming environmental stress” (APA, 1968, p. 48). The manual further indicated that if the disorder remained after removal of a stressor, a diagnosis of adjustment reaction of childhood, adolescence, or adult life was used. The validity of the transient situational disturbance classification was investigated in a study of 2078 17-48 year-old hospitalized naval personnel (Looney & Gunderson, 1978). Results indicated that clearer operational criterion for diagnosis was necessary to establish the validity of the classification.

In 1974 Burgess and Holmstrom published a seminal paper describing their analysis of 92 female rape victims. *Rape trauma syndrome* was defined by a cluster of characteristic symptoms observed in the study’s participants. Two variations, compounded reaction and silent reaction, were defined. Further, acute and long-term phases were identified as part of the

syndrome, such that the acute phase involved physical trauma and the long-term phase included nightmares and the development of phobias relative to stimuli associated with the trauma (Burgess & Holmstrom, 1974).

Given the limited reliability, lack of operational definitions, and inadequate coverage of diagnostic classifications in DSM-I and DSM-II, the APA appointed a task force to formulate the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III, APA, 1980) (Saigh & Bremner, 1999). The classifications found in the DSM-I and DSM-II were largely based on psychodynamic theory and drew on psychoanalytic etiological explanations for psychopathology (Mayes & Horowitz, 2005). On the other hand, the DSM-III adopted the diagnostic model used in the medical field, emphasizing “categories of illness rather than blurry boundaries between normal and abnormal behavior, dichotomies rather than dimensions, and overt symptoms rather than underlying etiological mechanisms” (as cited in Mayes & Horowitz, 2005, p. 250). The development of the DSM-III incorporated empirical data, although many decisions were based on the opinions of committee members due to the lack of sufficient research in many areas (Widiger, Frances, Pincus, Davis, & First, 1991).

Posttraumatic stress disorder (PTSD) was introduced as a diagnostic category in the DSM-III. According to the DSM-III, PTSD was described as the “development of characteristic symptoms following a psychologically traumatic event that is generally outside the range of usual human experience” (APA, 1980, p. 236). The DSM-III further indicated 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 grouped into three clusters. Reexperiencing symptoms, including intrusive recollections, recurrent

nightmares, flashbacks, and intense distress when reminded of the trauma constituted the first cluster. The second cluster reflected avoidance symptoms, including efforts to avoid trauma-related thoughts or feelings, avoidance of activities and situations that provoke memories of the trauma, feelings of detachment from others, psychogenic amnesia, diminished interest in activities, restricted range of affect, and sense of foreshortened future. Symptoms of increased arousal were grouped into a third cluster, including sleep difficulties, irritability and outbursts of anger, concentration problems, hypervigilance, exaggerated startle response, and physiological responses when reminded of the traumatic event (APA, 1980).

Within the context of DSM-III-based PTSD studies, Falcon, Ryan, Chamberlain, and Curtis (1985) conducted a treatment study of 17 combat veterans meeting DSM-III criteria for PTSD. Prior to receiving a course of tricyclic antidepressants, 82% of the subjects were rated as markedly or severely ill and 18% as moderately ill. Following treatment, 82% of participants were rated as much improved while 18% were identified as minimally improved, indicating that tricyclic antidepressants may be effective in the treatment of PTSD (Falcon et al., 1985). Helzer, Robins, and McEvoy (1987) investigated the epidemiology of PTSD in a sample of 2493 adults participating in a nationwide general population survey of psychiatric disorders. The lifetime prevalence of PTSD was 1%, based on DSM-III criteria. Twenty percent of those identified with a history of PTSD were Vietnam veterans who had sustained injuries in combat. The investigators found that PTSD was associated with other DSM-III disorders.

Regarding children, Pynoos et al. (1987) assessed 159 subjects aged 5-13 years for PTSD symptoms following a sniper attack on their school playground. A self-report questionnaire, the Reaction Index (RI; Fredrick, Pynoos, & Nader), was used to assess the children based on the number of DSM-III PTSD symptoms reported. Findings indicated that RI scores increased with

proximity to the violent event. Pynoos et al. (1987) also noted that symptoms observed in children included “reduced interests in enjoyable activities, estrangement from parents and friends, and constricted affect about the event” (pp. 1057-1063). Also with reference to youth, Saigh (1989b) examined a sample of children aged 9-13 years with PTSD or simple phobia and a nonclinical control group. The Revised Children’s Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1997), Children’s Depression Inventory (CDI; Kovacs, 1981) and Conner’s Teacher Rating Scale (CTRS; Conners, 1969) were administered. Results indicated that the PTSD group evidenced significantly higher levels of anxiety, depression, and behavioral problems relative to the simple phobia and control groups. The phobia group demonstrated significantly more anxiety and depression relative to the controls, while behavioral problems did not significantly differ. Saigh (1989b) represented that these findings supported the validity of the DSM-III PTSD classification relative to children.

Although the DSM-III was widely embraced by mental health practitioners, revisions were initiated in 1983 (Saigh, 1992). Published in 1987, the DSM-III-R attempted to address a number of issues identified in the DSM-III, including unclear wording, inconsistencies, and mistakes (Williams, 1986). While the diagnostic symptoms of PTSD set forth in the DSM-III were maintained in the DSM-III-R, they were reorganized into three polymorphic symptom clusters. Criterion A remained as reported in the DSM-III. Accordingly, the DSM-III-R stated that PTSD may be evident following a “psychologically distressing event that is outside the range of human experience” (APA, 1987, p. 247). Criterion B changed such that at least one of four reexperiencing symptoms was required (recurrent and intrusive, distressing recollections and dreams of the stressful event, recurrent distressing about the trauma, sudden acting or feeling that the traumatic event was reoccurring, or intense psychological distress upon exposure to

trauma reminiscent stimuli). Criterion C necessitated at least three of seven avoidance or numbing symptoms (avoidance of activities or places that induce traumatic recollections, efforts to avoid thoughts or feelings about the trauma, inability to recall significant details about the trauma, feeling detached or estrangement from others, constricted affect, and a sense of foreshortened future). Regarding criterion D, “feelings of guilt” was omitted and at least two of six increased arousal symptoms were required (difficulty falling or staying asleep, irritability or anger outbursts, concentration impairment, hypervigilance, exaggerated startle response, and physiological reactivity on exposure to events that reflect an aspect of the traumatic event). In addition to the aforementioned modifications, the DSM-III-R made specific reference to the development of PTSD in children:

Occasionally, a child may be mute or refuse to discuss the trauma, but this should not be confused with inability to remember what occurred. In younger children, distressing dreams of the event may, within several weeks, change into generalized nightmares of monsters, of rescuing others, or of threats to self or others. Young children do not have the same sense that they are reliving the past; reliving the trauma occurs in action, though repetitive play. Children may exhibit various physical symptoms, such as stomachaches and headaches, in addition to the specific symptoms of increased arousal noted above (APA, 1987, p. 249).

Within the context of the DSM-III-R, McLeer, Deblinger, Atkins, Foa, et al. (1988) studied 31 sexually abused children (age 3-16 years) to determine the frequency of PTSD based on DSM-III-R diagnostic criteria. Findings indicated that 48.4% of the subjects met criteria. The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) successfully differentiated groups, such that PTSD cases evinced significantly more externalizing and

internalizing symptoms, whereas the Children's Depression Inventory (CDI; Kovacs, 1981), the Self Esteem Inventories (Coopersmith, 1986), and the State-Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973) did not differentiate groups. In a separate study of sexually abused children, Deblinger, McLeer, and Henry (1990) evaluated a cognitive behavioral treatment program for 19 girls who met DSM-III-R criteria for PTSD. Subjects were interviewed and their parents completed the CBCL, CDI, and the STAIC prior to and following treatment. Scales administered post-treatment indicated significant improvement in symptoms.

Pitman et al. (1990) investigated the validity of the DSM-III-R PTSD classification by examining psychophysiological reactivity. These authors examined seven Vietnam veterans with PTSD and seven veterans with an anxiety disorder other than PTSD. Participants listened to scripts of their combat experience while measures of heart rate, skin conductance, and frontal electromyogram recordings were taken. Results indicated that participants with PTSD evinced higher physiologic responses relative to non-PTSD participants. Pitman et al. (1990) concluded that these findings lent support to the validity of the DSM-III-R PTSD classification.

In an effort to synchronize revisions of the Diagnostic and Statistical Manual with updates to the International Classification of Diseases (ICD-10; World Health Organization, 1992), a task force convened in 1988 to formulate the DSM-IV (APA, 1994) (Saigh & Bremner, 1999). The approach by which the DSM-IV was developed varied from previous versions. In this case, the significance of empirical data was more heavily emphasized while the experience and clinical judgment of task force members was minimized (Widiger et al., 1991). The task force gathered empirical data through three stages: literature reviews, data reanalysis, and field trials. A standard method for conducting literature reviews was implemented in order to ensure objectivity, comprehensiveness, and methodological rigor. Some questions were resolved

through review of the literature alone, while others required additional input from data reanalysis and field trials (Widiger et al., 1991).

With specific reference to PTSD, the DSM-IV task force conducted a multi-site field trial between 1991 and 1992 (Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997). Data were gathered in order to “empirically examine associations between divergent stressors and PTSD symptoms” (Saigh, Green, & Korol, 1996). Specifically, the task force sought to investigate alternatives to DSM-III-R PTSD criterion A1, the validity of diagnostic criteria across stressors, the adequacy of the existing three-cluster symptom structure, and potential modification to the minimum symptoms required for a PTSD diagnosis (Kilpatrick & Resnick, 1992; Roth et al., 1997). Although information on the expression of PTSD was subsequently included in the DSM-IV, it should be noted that the DSM-IV PTSD field trial did not include youth under the age of 15 years (Kilpatrick et al., 1998).

The process followed by the DSM-IV work groups was intended to ensure that members worked from a mutually acceptable fund of data. This facilitated consensus among a diverse group of researchers and clinicians (Frances, Mack, Ross, & First, 2000). Additionally, each stage of review was systematically documented and published in the DSM-IV Sourcebook (APA, 1994), as the work group intended the development of the DSM-IV to be “impressively transparent” (Shaffer, 1996).

The DSM-IV presented significant changes to PTSD criterion A from the DSM-III-R. First, criterion A changed such that a stressor no longer was required to have been “outside the range of normal human experience” (APA, 1987, p. 247). Instead, the DSM-IV indicated that to meet this criterion, a person had to have “experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the

physical integrity to oneself or others” and that the response to the stressor must have induced “intense fear, helplessness, or horror” (APA, 1994, p. 428). In addition, criterion F was added to the DSM-IV, requiring that “The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning” (APA, 1994, p.428).

Some re-organization of diagnostic criteria also is apparent in the DSM-IV, such that “Physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event” was moved from Criterion D in DSM-III-R to Criterion B in DSM-IV. In addition to meeting both components of Criterion A, Criterion B indicates that one or more of five reexperiencing symptoms must be present, Criterion C requires three or more avoidance / numbing symptoms are endorsed, and Criterion D necessitates two or more symptoms of increased arousal are present. Criterion E specifies that symptoms must be present for more than 1 month, and, as noted, Criterion F indicates that significant distress or impairment in areas of functioning must be present in order to meet criteria for a PTSD diagnosis. Table 1.1 contains the full DSM-IV diagnostic criteria for PTSD.

Table 1.1

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
 5. Physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

Table 1.1 (cont.)

- 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.

Table 1.1 (cont.)

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

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Enhanced information regarding associated features and disorders is apparent in the DSM-IV. Regarding associated features and mental disorders, the DSM-IV describes that PTSD may be associated with feelings of guilt with respect to survival, and that symptoms of PTSD may cause difficulty in interpersonal relationships leading to conflict, divorce, or job loss. Associated symptoms most commonly observed when PTSD results from an interpersonal stressor are described, and include impaired affect modulation, somatic complaints, and social withdrawal (APA, 1994, p. 465). Further, mental disorders commonly comorbid with PTSD are identified as major depressive disorder, substance-related disorders, panic disorder, agoraphobia, obsessive-compulsive disorder, generalized anxiety disorder, social phobia, specific phobia, and bipolar disorder (APA, 1994, p. 465). Owens and Chard (2003) administered the Clinician Administered PTSD Scale (CAPS-SX; Blake et al., 1996), the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1996), and the Structured Clinical Interview for DSM-IV-Non-patient version (First, Spitzer, Gibbon, & Williams, 1996) to 89 female adults who reported sexual abuse as children. In this treatment-seeking sample, 89% met DSM-IV criteria for current PTSD. Incidence of current and lifetime depression was 43% and 81%, respectively. Current

depression and avoidant personality disorder were significant predictors for PTSD (Owens & Chard, 2003). Also with regard to associated features, the DSM-IV notes that increased physiological arousal may be found in individuals with PTSD, as well as increased somatic complaints and possibly general medical conditions.

With regard to specific culture and age features of PTSD, the DSM-IV specifies that increased rates of PTSD may be found in recent emigrants from locations of “considerable social unrest and civil conflict” (APA, 1994, p. 465). With specific reference to children, the DSM-IV elaborated on the DSM-III-R, adding the recommendation that children’s symptoms are “carefully evaluated with reports from parents, teachers, and other observers” (APA, 1994, p. 466). Further, the DSM-IV specified that “In children, the sense of a foreshortened future may be evidenced by the belief that life will be too short to include becoming an adult. There may be ‘omen formation’ –that is, belief in an ability to foresee future untoward events” (APA, 1994, p. 466). In a study of adolescents aged 12-16 years, Sahin, Batigun, and Yilmaz (2007) examined the predictors and symptoms of PTSD following an earthquake in Turkey. Results indicated that adolescents closer to the epicenter of the earthquake evinced higher scores on measures of impact, posttraumatic stress, and negative school performance. Females evidenced greater morbidity than males. Finally, negative school performance was the single best predictor of posttraumatic stress symptoms of adolescents. This finding is consistent with the DSM-IV recommendation that teacher reports are included in evaluating children’s posttrauma symptoms, as “Observing students’ behavior in these settings can be very crucial to select those who could be in need of immediate psychological support” (Sahin et al., 2007, p. 343).

According to the DSM-IV, prevalence rates for PTSD are approximated at 8% of the adult population in the United States. The prevalence of PTSD in children is not specified. The

highest rates of PTSD are found among victims of rape, military combat and captivity, and “ethnically or politically motivated internment and genocide” (APA, 1994, p. 466). With regard to course, the DSM-IV indicates that PTSD can occur at any age, with an onset of symptoms usually occurring within the first 3 months following trauma, though this can vary widely. The manual states that expression of reexperiencing, avoidance, and hyperarousal symptoms can vary throughout the course of the disorder. The DSM-IV further indicates that duration of symptoms varies and full recovery occurs within three months for approximately half of cases, with others experiencing symptoms for 12 months or more following trauma (APA, 1994). Perkonig et al. (2005) investigated the course of PTSD in a community sample of 125 adolescents and young adults in Germany. Participants were evaluated for PTSD symptomatology and comorbid disorders at baseline and again 34-50 months later. Results at follow-up indicated that 52% of PTSD cases remitted. Participants with a chronic course of PTSD were more likely to have experienced additional traumatic event(s) during the follow-up period and to have higher incidence of avoidance symptoms at baseline. Finally, chronic PTSD was significantly associated with comorbid somatoform disorder and other anxiety disorders (Perkonig et al., 2005).

The DSM-IV indicates that the most salient factors affecting the probability of developing PTSD are identified as “severity, duration, and proximity of an individual’s exposure to the traumatic event” (APA, 1994, p. 466). Finally, the DSM-IV indicates that variables including social support, family history, childhood experiences, personality variables, and preexisting mental disorders could impact the development of PTSD (APA, 1994). The DSM-IV specifies that individuals with a familial history of PTSD or history of depression in first-degree relatives are at an increased risk for developing PTSD (APA, 1994).

Since the DSM-IV was published in 1994, a number of studies have been conducted with a wide range of traumatized populations. For example, Saigh, Yasik, Oberfield, Halamandaris, and Bremner (2006) compared the Wechsler Intelligence Scale for Children–III (WISC–III; Wechsler 1991) scores of traumatized youth with PTSD to the scores of trauma-exposed and non-exposed comparison groups without PTSD. All groups were free of additional major childhood psychiatric disorders. The PTSD group scored significantly lower than the comparison groups on verbal subtests, but not on performance subtests. The scores of the trauma-exposed PTSD negatives and non-traumatized controls were not significantly different. Accordingly, Saigh et al. (2006) concluded that PTSD and not a history of trauma exposure in the absence of PTSD was associated with lower verbal IQ.

Also with respect to youth, Saigh, Yasik, Oberfield, and Halamandaris (2007) administered the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) to youth aged 6 to 18 with PTSD, traumatized youth without PTSD, and non-traumatized controls. Results indicated that youth with PTSD had significantly higher scores on the STAXI State, Trait, and Angry Temperament scales. On the other hand, nonsignificant differences were evident when the scores of the traumatized PTSD negatives and controls were compared.

In a similar vein, Bremner et al. (1993) compared the memory function of Vietnam veterans with combat-related PTSD to matched controls without PTSD. The Structured Clinical Interview for DSM-III-R (SCID; Spitzer, Williams, & Gibbon, 1987) was utilized to determine the presence of PTSD. Participants in the comparison group did not have a history of combat exposure. In order to assess memory function and cognitive ability, a battery of neuropsychological tests was administered which included four subtests of the Wechsler Adult Intelligence Scale – Revised (WAIS-R; Wechsler, 1981), two subtests of the Wechsler Memory

Scale – Russell Revision (Russell, 1975), and the verbal and visual components of the Selective Reminding Test (Hannay & Levin, 1985). Results indicated intelligence scores did not significantly differ between groups. The PTSD group scored significantly lower on the Wechsler Memory Scale logical memory (verbal) measures for immediate and delayed memory. Further, the PTSD group evinced significantly lower scores on the Selective Reminding Test total recall, continuous long-term retrieval, long-term retrieval, and long-term storage measures on the visual scale, and on the total recall, long-term storage, long-term retrieval, and delayed recall measures on the verbal scale. Findings suggested that patients with PTSD may evidence short-term memory deficits.

With reference to September 11, 2001, Galea et al. (2002) examined the prevalence and correlates of acute PTSD among 978 adults who resided in Manhattan at the time of the attack. Participants were contacted 35-94 days following the attacks through random digit telephone sampling procedures and were administered the PTSD module from the National Women's Study (Kilpatrick et al., 1998). Results indicated that 7.5% of the sample reported symptoms consistent with a diagnosis of PTSD relative to the terrorist attacks. In a similar vein, Schlenger et al. (2002) utilized random digit dialing to identify 2273 adults in New York City or Washington, D.C. 30-60 days following the September 11th attacks. Through administration of the Posttraumatic Stress Disorder Checklist (Weathers, Litz, Herman, Huska & Keane, 1993), Schlenger et al. (2002) reported that the prevalence of probable PTSD in New York City was 11.2%. Also within the context of the September 11th terrorist attacks, Hoven et al. (2005) conducted group administrations of the Diagnostic Interview Schedule for Children Predictive Scales (Lucas et al., 2001) in order to investigate the prevalence and correlates of PTSD and five other psychological disorders among 8246 randomly selected New York City public school

students in grades 4 through 12. Hoven et al. (2005) reported that 10.6% of the sample met criteria for probable PTSD 6 months following the attack.

Summary

Throughout time individuals have been exposed to traumatic experiences, ranging from natural disasters to human-made, intentional acts of violence. Psychological effects of extreme stress, including nightmares, increased startle response, avoidance behavior, and cognitive/developmental impairments have been documented. The classification of a stress-response syndrome has long been pursued by mental health and medical professionals. While the DSM-III included PTSD as a diagnostic classification in 1980, the description of the disorder did not make reference to children or adolescents. Subsequent revisions to the DSM have included information on the expression of PTSD among youth. However, the DSM-IV PTSD field trial did not include youth under 15 years of age. While a number of studies have examined the functioning of traumatized youth since the DSM-IV was published, it is apparent that there is a need for additional data-based investigations involving the expression of PTSD in youth.

Chapter 2

Epidemiology of Child-Adolescent Posttraumatic Stress Disorder

Epidemiology, as defined by Last (2001), is “The study of the occurrence and distribution of health-related states or events in specified populations, including the study of the determinants influencing such states, and the application of this knowledge to control health problems” (p. 81). An interest in the epidemiology of trauma has grown dramatically over the past two decades. As a result, the literature concerning the causes, distribution, and course of trauma-related pathology continues to grow, which serves to “improve the health of populations” (Bonita, Beaglehole, & Kjellstrom, 2006, p. 4).

The purpose of this chapter is to review select research that has contributed to the current understanding of the epidemiology of trauma-induced psychiatric illness, with special attention to children and adolescents. References were identified through the following online journal databases: PsycInfo, Ovid MEDLINE, PILOTS, and PubMed. Search terms included the following, used singularly or in varied combinations: Posttraumatic Stress Disorder, PTSD, youth, children, adolescents, epidemiology, prevalence, trauma, exposure, incidence, criminal victimization, disaster, natural disaster, war, violence, crime, childhood, nonviolent, accident(al), community survey or study, juvenile, assault, sexual assault, and victim. Studies of children were strongly preferred. In addition to manual searches, articles were retrieved from a previously written chapter by Saigh, Yasik, Sack, and Koplewicz (1999) regarding the epidemiology of child-adolescent PTSD.

Prevalence of Trauma Exposure

Children and adolescents frequently are exposed to traumatic stressors in America (Saigh, Yasik, Sack, & Koplewicz, 1999). With regard to survey research, Finkelhor, Ormrod, Turner, and Hamby (2005) administered the Juvenile Victimization Questionnaire (JVQ; Hamby &

Finkelhor, 2004) to a nationally representative sample of 2030 children aged 2-17 years. The JVQ encompasses a wide range of victimizations experienced by youth, including violent and non-violent acts. Of the children and adolescents surveyed, 71% indicated that between December 2001 and February 2003 they had experienced some form of direct or indirect violence, crime, or victimization. More than half of the sample surveyed experienced a physical assault and more than 1 in 8 youth were victims of some form of child maltreatment (e.g., sexual assault by a known adult, neglect, psychological or emotional abuse). More than 1 in 4 youth experienced property victimization (e.g., robbery, vandalism, or theft), 1 in 12 reported experiencing a sexual victimization, and more than 1 in 3 of those surveyed reported witnessing or experiencing some form of indirect victimization (e.g., witnessing domestic violence, witnessing murder, exposure to shooting, bombs, or riots). Further, according to Finkelhor et al. (2005), youth in the sample experienced a mean number of three victimizations, and those reporting one victimization had a 69% chance of experiencing another during a single year. Thus, the study indicates the “pervasive exposure of young people to violence, crime, maltreatment, and other forms of victimization as a routine part of ordinary childhood in the United States” (Finkelhor et al., 2005, p. 18).

Also with respect to survey research, Boney-McCoy and Finkelhor (1995) conducted telephone interviews with 2000 participants aged 10-16 years and their caretakers in order to assess the prevalence of trauma exposure among youth. The sample was contacted via random digit dialing and, according to the authors, was a nationally representative area probability sample of youth in the United States (Boney McCoy & Finkelhor, 1995). Youth were administered a screening questionnaire which asked them to identify lifetime exposure(s) to victimization. Categories of victimization that were included in data analysis were: (a)

aggravated assault (physical assault involving either the use of a weapon or injury of the victim) by a nonfamily member, (b) simple assault (without a weapon and without injury) by a nonfamily member, (c) physical assault by a parent, (d) physical assault by a family member other than a parent, (e) attempted or completed kidnapping, (f) sexual assault (broken into three categories for girls according to degree of seriousness – attempted sexual assault, non-contact sexual assault, contact sexual assault), and (g) violent assault to the genitals without sexual advance (boys only).

Boney-McCoy and Finkelhor (1995) reported that 40.5% of the sample had experienced at least one victimization during their lifetime. For the overall sample, aggravated assault by a non-family member was the most frequently reported victimization (12.3%), followed by simple assault (11.5%) and any sexual assault (10.5%). Sexual assault was the most prevalent form of victimization for females surveyed (15.3%) whereas aggravated assault by a non-family perpetrator was the most common form of victimization reported by males (18.4%). Participants who experienced victimization reported more PTSD-related symptomatology relative to those youth who did not experience victimization. In addition, victimized youth reported more sadness in the past week and more trouble with teachers in the past year than non-victimized youth (Boney-McCoy & Finkelhor, 1995). Based on their results, these authors extrapolated that over 6.1 million youth aged 10-16 years in the United States have experienced one or more forms of the traumas considered in their study. These findings suggest that symptoms of PTSD, increased sadness, and school problems are prevalent within this population (Boney-McCoy & Finkelhor, 1995).

In a similar vein, Singer, Anglin, Song, and Lunghofer (1995) surveyed 3,735 youth with regard to rates of trauma exposure and associated symptoms. An anonymous self-report

questionnaire was administered to youth aged 14-19 years in six public high schools in Ohio and Colorado. Items assessed subjects for traumatic events that were directly experienced or witnessed. Several scales created by the authors were compiled into the questionnaire which assessed recent exposure to physical violence (within the past year), past exposure to physical violence (prior to the last year), recent sexual abuse/assault, and past sexual abuse/assault. Trauma symptoms were measured using the Trauma Symptom Checklist for Children (TSC-C; Briere, 1996).

Results of data analysis indicated high levels of exposure to violence, either as victims or witnesses (Singer et al., 1995). Differences in rates of victimization or witnessing of violent events were found between school sites; thus, prevalence rates were reported as ranges. Among male participants, 33-44% reported being slapped/hit/punched at school, 3-22% indicated they were beaten or mugged, 3-33% had been shot at or shot, and 6-16% reported being attacked or stabbed with a knife. Furthermore, 9-21% of male participants reported witnessing someone else who was sexually abused/assaulted, 32-82% witnessed someone else beaten or mugged at school, 11-72% witnessed someone else beaten or mugged in the neighborhood, 14-46% saw someone else attacked or stabbed with a knife, and 5-62% saw someone shot at or shot. With regard to female participants, 34-56% indicated they had been slapped/punched/hit at home, 0-9% had been attacked or stabbed with a knife, 0.5%-12% reported they had been shot at or shot, and 12-17% indicated they had been sexually abused/assaulted. With regard to female participants witnessing violent events, 24-82% saw someone else beaten or mugged at school, 7-44% witnessed an attack or stabbing with a knife, and 5-49% witnessed someone else shot at or shot. Thus, overall prevalence of victimization, both direct and indirect, was high, particularly among males in the sample. With regard to witnessing traumatic events, results of the Singer et

al. (1995) study are consistent with findings of Hurst (2005), which indicated between 70-90% of surveyed Los Angeles 6th graders (n=28,000) had experienced or witnessed violence in their community.

As part of The Great Smoky Mountains Study (Costello et al., 1996), Costello, Erkanli, Fairbank, and Angold (2002) examined exposure to traumatic events for a general population sample of 1420 youth in western North Carolina. The Life Events Interview section of the Child and Adolescent Psychiatric Assessment (CAPA; Angold et al., 1995) was individually administered in order to assess exposure to both high magnitude and low magnitude events. High magnitude events were defined as the DSM-IV PTSD definition of trauma exposure (i.e., criterion A 1), and low magnitude events were those deemed potentially harmful based on the child psychopathology literature (Costello et al., 2002).

Results indicated that 25.1% of the sample reported at least one lifetime high magnitude event (Costello et al., 2002). Death of a loved one (4.8%), sexual abuse (2.6%), serious illness (2.2%), and serious accident (2.2%) were the most frequently reported high magnitude events. In addition, 4.9% of the sample indicated they witnessed and 4.7% reported they learned about a high magnitude event in their lifetime. In the three months prior to the interview, 6.2% of the sample had experienced one or more high magnitude event. Other results indicated that 28.9% of the sample had experienced a low magnitude event in the three months prior to administration of the CAPA. Most prevalent low magnitude events included: moved house (6.2%), reduced standard of living (3.9%), and changed school (3.8%).

The prevalence rates of exposure to accidental trauma among youth also are high. The National Highway Traffic Safety Administration (NHTSA, 2006) reported that approximately 2,699,000 people of all ages sustained injuries in motor vehicle accidents in 2005. The NHTSA

data further indicate that youth aged 0-20 years accounted for 26% (n=703,000) of people injured in motor vehicle accidents in 2005. Similarly, data provided by the Centers for Disease Control and Prevention, National Center for Health Statistics (2008) indicated that 7,782,000 injuries requiring a hospital emergency room visit were sustained by youth aged 0-15 in 2006.

Schwab-Stone et al. (1995) examined exposure to shootings and stabbings in a sample of 2248 students in 8th, 10th, and 12th grades in an urban public school system. The sample was administered The Social and Health Assessment (Weissberg, Voyce, Kaspro, et al. 1991), which assesses positive school and community involvement as well as high-risk behaviors of middle and high-school aged students. Based on responses to relevant items, 41.3% of students reported having seen at least one shooting or stabbing in the past year. Results indicated that minority youth and those from economically disadvantaged homes experienced significantly more exposure to shootings and stabbings. Furthermore, exposure to violence was significantly associated with diminished perception of risk, lowered expectations for the future, dysphoric mood, antisocial behaviors, alcohol use, and decreased academic achievement (Schwab-Stone et al., 1995).

Examined collectively, these studies indicate that trauma exposure among youth is a frequent occurrence. Survey research has demonstrated that juveniles are vulnerable to both criminal victimization and non-violent traumatic events. Table 2.1 represents a summary of the reviewed studies.

Table 2.1

Prevalence of Trauma Exposure

Study	Measure	N	Age	Elapsed Time	PTSD Prevalence
Finkelhor et al. (2005)	Juvenile Victimization Questionnaire	2,030	2-17 years	2-years	71%
Boney-McCoy (1995)	Telephone Interview	2,000	10-16 years	Lifetime	40.50%
Singer et al. (1995)	Self Report Questionnaire	3,735	14-19 years	Lifetime	70-90%
Costello et al. (2002)	Life Events Interview (CAPA)	1,420	9, 11, 13 years	Lifetime	High Magnitude 25.1%; Low Magnitude 28.9%
National Highway Traffic Safety Administration (2006)	Unknown	2,699,000	0-20 years	1-year	26%
Schwab-Stone et al. (1995)	The Social and Health Assessment	2,248	8 th , 10 th , 12 th grade	1-year	41.30%

Community based PTSD prevalence investigations.

The DSM-IV states that community-based studies indicate a lifetime prevalence of PTSD of approximately 8% for adults in the United States (APA, 2000). However, it should be noted that the DSM-IV field trial did not include children younger than 15 years of age. According to a review of the literature conducted by Saigh, Yasik, Sack, and Koplewicz (1999), PTSD point prevalence estimates for youth ranged from 11.1% to 70.8% for criminal victimizations, 8.3% to 70% for exposure to war-related stressors, and 0.0% to 95% for exposure to disasters/accidents. Clearly, estimates of PTSD in youth have varied across epidemiological studies (Yule, 2001). Factors including diagnostic criteria used to identify cases, population characteristics, and type of trauma may have contributed to these differences (Cook-Cottone, 2004).

With respect to community research, Copeland, Keeler, Angold, and Costello (2007) conducted a longitudinal study of trauma exposure among youth in western North Carolina. These authors randomly sampled 1470 youth aged 9, 11, or 13 years. Participants received administrations of the Child and Adolescent Psychiatric Assessment (CAPA; Angold & Costello, 2000) annually until the age 16 to determine exposure rates and PTSD status according to DSM-IV diagnostic criteria. Results indicated that two-thirds of the youth reported exposure to one or more traumatic events by the time they were 16 years old. Trauma exposure was significantly more common in adolescence than childhood. Lifetime prevalence of PTSD, as diagnosed by the CAPA, was 0.4%. Results also indicated that youth with trauma exposure were significantly more likely to have had a previous diagnosis of psychopathology, particularly anxiety and mood disorders.

Utilizing data from the National Survey of Adolescents (Kilpatrick & Saunders, 1995), Kilpatrick et al. (2003) examined prevalence, comorbidity, and risk-factors for PTSD, major

depressive episode (MDE), and substance abuse/dependence (SA/D). The sample consisted of 4023 youth aged 12-17 and was deemed representative based on U.S. Bureau of the Census data. A structured interview was administered via telephone to gather risk-factor data and modified versions of the National Women's Study PTSD and MDE modules (NWS; Kilpatrick, Resnick, Saunders, & Best, 1989) were given to assess PTSD and MDE based on DSM-IV diagnostic criteria. Presence of PTSD and MDE symptoms was assessed for the previous 6 months. Finally, SA/D was assessed for a number of substances using questions based on DSM-IV criteria. Results indicated that 15.5% of boys and 19.3% of girls surveyed met criteria for at least one of the three diagnoses (PTSD, MDE, or SA/D). Regarding PTSD, 4.9% of the overall sample met diagnostic criteria; 6.3% were girls and 3.7% were boys (Kilpatrick et al., 2003).

Elkit (2002) surveyed a national representative probability sample of 390 13-15 year-olds living in Denmark. Participants were recruited from 8th grade classrooms in twenty-two schools. The participants were asked to complete a questionnaire with items pertaining to demographic variables and 20 questions about traumatic events either directly or indirectly experienced. Events were drawn from the literature and reflected life-threatening situations, traumatic family conditions including abuse and neglect, rape, and sexual assault. The Harvard Trauma Questionnaire-Part IV (HTQ; Mollica et al., 1992) was also administered to estimate the presence and intensity of DSM-III-R PTSD at the time of a reported trauma exposure.

Death of a family member was the most prevalent traumatic experience reported by the sample (51.8%), followed by a threat of physical assault (41.0%), divorce/parent absence (21.5%), near-drowning (18.7%), and traffic/other serious accident (23.6%) (Elkit, 2002). Results of the HTQ indicated that 9% of the youth met DSM-III-R criteria for PTSD at the time

of the reported trauma, of which 5.6% were males and 12.3% were females. This study indicates the diverse types of trauma experienced by adolescents and their association with onset of PTSD.

Also with respect to community-based studies, Giaconia et al. (1995) administered the NIMH Diagnostic Interview Schedule, Version IIR, (DIS-IIR; Robins, Helzer, Cottler, & Goldring, 1989) to 18 year-olds in order to assess the prevalence of DSM-III-R-defined traumas, PTSD, major depression, specific phobia, social phobia, alcohol dependence, and drug dependence. Of the 384 youth interviewed, 43% reported they had experienced at least one PTSD-qualifying trauma in their lifetime. Further, 14.5% of the total sample met diagnostic criteria for lifetime PTSD. Of the youth who reported a qualifying trauma, 6.3% met diagnostic criteria for lifetime PTSD. Results indicated no gender differences with regard to the likelihood of experiencing a qualifying trauma. However, females were six times more likely to develop PTSD.

The prevalence of PTSD in a community sample was estimated by Gillock, Zayfert, Hegel, and Ferguson (2005). Participants were recruited from the waiting rooms of two primary care clinics associated with a medical center in rural New England. The sample consisted of 232 adults aged 18-60 who were making routine medical visits. Two instruments were administered to assess PTSD. The PTSD Checklist – Civilian Version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1994) is a self-report inventory that assesses the severity of DSM-IV criteria B, C, and D symptoms of PTSD over the past month. The second instrument, the Life Events Checklist, part of the Clinician Administered PTSD Scale (CAPS; Blake et al., 1990), is a self-report measure that lists traumatic events. Participants were asked to identify the “most traumatic” event experienced and give information regarding feelings of fear, helplessness, or horror. The data from these measures were utilized to determine the prevalence of PTSD

according to DSM-IV criteria. Results indicated 9% of the participants met diagnostic criteria for current PTSD.

The findings of the Gillock et al. (2005) study are consistent with results of a community-based study conducted by Stein, McQuaid, Pedrelli, Lenox, and McCahill (2000). Stein et al. (2000) assessed the prevalence of PTSD in a sample of adults recruited from a primary care clinic in San Diego, California while attending routine appointments. Participants received administrations of the PTSD Checklist-Civilian Version (PCL-C; Weathers, Litz, Huska, & Keane, 1994), a self-report measure that screens for possible PTSD based on symptoms described in DSM-IV. On a scale of 1 (not at all) to 5 (extremely), potential participants indicated the degree to which they were bothered by each PTSD symptom. If participants endorsed a score of 4 (quite a bit) or 5 for at least one DSM-IV B criterion, at least two DSM-IV C criterion, and at least one DSM-IV D criterion, they were considered “screen positive.”

Regarding PTSD criterion A1, 65.6% reported they had experienced at least one traumatic event in their lifetime, most commonly witnessing serious injury or death (15.1%) and sexual molestation (14.0%). Of the 368 patients who were screened, 9.0% were determined to “screen positive” and were asked to participate in further assessment using the Comprehensive International Diagnostic Interview-Version 2.1 (CIDI 2.1; World Health Organization, 1997) and the CIDI Short Form (CIDI-SF; Kessler et al., 1998). A random sample of “screen negative” participants also received administrations of the CIDI 2.1 and CIDI-SF. Results indicated that 11.3% of this subsample met diagnostic criteria for full-blown PTSD according to DSM-IV criteria.

Prevalence estimates of PTSD among youth referred to an inner-city outpatient child and adolescent psychiatric clinic were investigated by Silva et al. (2000). Utilizing the Children’s

Structured Clinical Interview for DSM-IV (KID-SCID; Hein et al., 1998), 59 individuals who experienced at least one trauma consistent with DSM-IV criterion A1 were identified. Reported traumas included physical abuse by a parent (24%), sexual abuse by an adult (22%), witnessing serious domestic violence (39%), and other traumas including accidents (54%). The authors found that 22% of the youth met DSM-IV criteria for PTSD according to the KID-SCID and 32.2% of the overall sample evinced partial or subthreshold PTSD. Youth with no PTSD symptoms accounted for 45.8% of the sample.

As the frequency of exposure to traumatic events among youth is high, prevalence rates of PTSD in juveniles is also significant. The reviewed studies report a wide range of PTSD prevalence estimates for children and adolescents, demonstrating the variability between epidemiological studies. Table 2.2 presents a summary of the community based PTSD prevalence studies.

Table 2.2

Community Based PTSD Prevalence

Study	Measure	N	Age	Elapsed Time	PTSD Prevalence
Copeland et al. (2007)	CAPA	1,470	9, 11, and 13 years	Lifetime to age 16 years	0.4%
Kilpatrick et al. (2003)	Modified National Women's Study (PTSD) Module	4,023	12-17 years	Previous 6-months	4.9%
Elkit et al. (2002)	Harvard Trauma Questionnaire (Part IV)	390	13-15 years	Lifetime	9%
Gillock et al. (2005)	PTSD Checklist; Life Events Checklist	232	18-60 years	Lifetime	9%
Stein et al. (2006)	PTSD Checklist; CIDI-SF	368	Adults	Lifetime	11.3%
Silva (2000)	KID-SCID	59	3-18 years	Lifetime	22%

Criminal victimization studies.

As violence and exposure to violence are increasingly common occurrences among youth (Richters & Martinez, 1993) the relationship between violence exposure and mental health problems has been examined in several contexts (Pynoos et al., 1987; Bell & Jenkins, 1991; Fitzpatrick & Boldizar, 1993; Singer, Anglin, Song, & Lunghofer 1995). Violence at school is increasingly a major concern (Carney, 2009; Time & Payne, 2008). Pynoos et al. (1987) estimated the psychological morbidity of students following a fatal sniper attack on a California school playground. Armed with a semi-automatic weapon and two shotguns, the sniper opened fire, killing one child and a nearby pedestrian, wounding a staff member, and injuring 13 students. One month following the event, the DSM-III-based PTSD Reaction Index, a self-report measure developed by the authors, was administered to a randomly selected sample of students who were either on the playground, inside the school, at home, or on vacation at the time of the siege. Of the 159 children who were assessed, 38.4% evinced either moderate or severe PTSD symptoms, 22% reported mild symptoms, and 39.6% had no PTSD symptoms (Pynoos et al., 1987). Results also indicated a positive association between PTSD prevalence and degree of exposure. Symptoms of PTSD were reported by 94.3% of children who were on the playground at the time of the attack, 88.9% of students who were within the school building, 44.2% of children who were at home, and 45.1% of children who were on vacation.

Also with reference to school violence, Brent et al. (1993) estimated PTSD prevalence among 28 high-school students who witnessed a suicide and the serious injury of another student while on a school bus. Geographic cluster sampling was utilized to obtain a demographically-matched control group from a separate community. Two months following the event, both groups were assessed for past and current psychopathology through use of the K-SADS-E and an

adolescent version of the Posttraumatic Stress Disorder Reaction Inventory (PTSDRI; Pynoos et al., 1987). Brent et al. (1993) reported that 14% of the exposed group evinced PTSD versus none (0%) of the controls. Furthermore, prevalence of any type of psychopathology was significantly higher for the exposed group (43%) relative to controls (14%).

Also within the context of exposure to urban violence, Fitzpatrick and Boldizar (1993) conducted an assessment of African American youth living in low-income housing communities within a southern city in the United States. Participants were recruited while attending a federally funded summer program implemented by the United Way organization. Data were collected via individual administrations of an adapted version of the National Institute of Mental Health screening Survey of Exposure to Community Violence (Richters & Saltzman, 1990), and a revised version of the DSM-III-R-based Purdue Post-Traumatic Stress Scale. PTSD criteria was reflective of criteria set forth in DSM-III-R, but was not identical. Fitzpatrick and Boldizar (1993) indicated that more than 70% of the sample experienced at least one violent incident and approximately 85% of youth reported witnessing at least one violent act. These authors also estimated that 27% of the sample met the criteria for PTSD.

Horowitz, Weine, and Jekel (1995) assessed 79 female adolescents (age 12-21) residing in New Haven, Connecticut for trauma history and posttraumatic stress symptoms. The authors developed The Adolescent Self-Report Trauma Questionnaire, which included the full PTSD Symptoms Scale (PSS; Foa, Riggs, Dancu, & Rothbaum, 1993) to determine which respondents met DSM-III-R criteria for PTSD. Horowitz et al. (1995) reported 67% of the sample met criteria for PTSD. Moreover, participants reported high rates of symptoms within each PTSD symptom cluster: 88.6% met reexperiencing criteria, 79.9% met avoidance criteria, and 89.9% met hyperarousal criteria.

Dubner and Motta (1999) examined the prevalence of posttraumatic stress disorder with respect to child abuse. Fifty sexually abused, 50 physically abused, and 50 non-abused children in foster care were compared based on their responses to the Child Post-Traumatic Stress Reaction Index (CPTSD-RI; Frederick et al., 1992) and the Childhood PTSD Interview (CPI; Frederick, in press). Evaluations were conducted within six months of placement in the foster care system. The participating children reported abuse began no more than two years prior to placement. Reports of sexual abuse were categorized using Russell's (1983) criteria for seriousness of abuse. Physical abuse was defined as "a nonaccidental physical injury (e.g., bruises, cuts, burns, or fractures) inflicted on a child by a parent, guardian, or other caretaker having permanent or temporary custody" (as cited in Dubner & Motta, 1999, p. 369). Conservatively, Dubner and Motta (1999) reported that 64% of the sexually abused group, 42% of the physically abused group, and 18% of the non-abused controls met DSM-III-R criteria for PTSD. Across all groups, a significantly greater proportion of girls evidenced PTSD relative to boys.

In a retrospective survey-based study, Saunders, Kilpatrick, Hanson, Resnick, and Walker (1999) examined the prevalence of childhood sexual abuse and PTSD in two probability samples of adult females residing in the United States. The first sample was comprised of women aged 18 and older, and the second, an oversample due to the higher incidence of sexual abuse among younger women, included women aged 18-34. Incidence of completed rape was assessed through administrations of a modified version of the Incident Classification Interview (Kilpatrick, Resnick, Saunders, & Best, 1989; Kilpatrick, Saunders, Veronen, Best, & Von, 1987; Saunders et al., 1992) and follow-up questions when needed. A modified version of the depression module of the Structured Clinical Interview for DSM-III-R (Spitzer, Williams, &

Gibbon, 1987) was administered to determine lifetime major depressive episode. PTSD was assessed according to the DSM-III-R criteria using the National Women's Study PTSD module (Kilpatrick et al., 1989).

Of the 4,009 women surveyed, 8.5% reported experiencing at least one completed rape before age 18 (Saunders, 1999). The prevalence of completed childhood rape among respondents aged 18 to 29 years was significantly greater (1 in 8) relative to women aged 70 or more (1 in 30). Childhood rape victims were significantly more likely than non-victims to report both lifetime and current PTSD and major depression. Criteria for lifetime PTSD was met by 32.3% of victims versus 10.4% of non-victims. Current PTSD was reported by 8.5% of victims relative to 1.9% of non-victims.

In the Silva et al. (2000) study, the PTSD module of the KID-SCID (Hein, Matzner, First, Spitzer, Williams, & Gibbon, 1998) was fully administered to the 59 children who reported a trauma consistent with DSM-IV criterion A1 in order to identify point prevalence estimates. Physical abuse (24%), sexual abuse (22%), and witnessing domestic violence (39%) were the most prevalent types of trauma reported. With regard to PTSD prevalence within these categories, results indicated that 21% of the sample who were physically abused, 15% of those who reported being sexually abused, and 17% of those who witnessed domestic violence developed PTSD. It should be noted that the authors do not delineate operational definitions of "physical abuse," "sexual abuse," or "domestic violence."

Based on the findings of these studies, it is apparent that the point prevalence estimates for PTSD among youth who experienced criminal victimization range from 14% to 64%. Table 2.3 presents a summary of the crime-related child and adolescent PTSD studies.

Table 2.3

Criminal Victimization

Study	Measure	N	Age	Elapsed Time	PTSD Prevalence
Silva et al. (2000)	KID-SCID	59	3-18 years	Not reported	22%
Dubner and Motta (1999)	Child Post-Traumatic Stress Index; Childhood PTSD Interview	150	8-19 years	≤ 30 months	64% sexually abused group; 42% physically abused group; 18% non-abused controls
Saunders (1999)	National Women's Study PTSD module	4,009	18-70+ years	Not reported	32.3% lifetime PTSD; 8.5% current PTSD
Horowitz et al. (1995)	PTSD Symptom Scale	79	12-21 years	Not reported	67%
Brent et al. (1993)	K-SADS-E; Posttraumatic Stress Disorder Reaction Inventory	28	Exposed: 15.8 years (mean); Control: 16.1 years (mean)	2 months	14%
Fitzpatrick and Boldizar (1993)	Purdue Post-Traumatic Stress Scale	221	7-18 years	Not reported	27%
Pynoos et al. (1987)	DSM-III PTSD Reaction Index	159	5-13 years	1 month	38.4% moderate to severe; 22% mild

War studies.

Over the past two decades, a number of studies have reported high PTSD prevalence estimates among children and adolescents who were exposed to war-related traumas (De Jong et al., 2001; Servan-Schreiber, Lin, & Birmaher 1998; Thabet, Tawahina, El Sarraj & Vostanis, 2008; Rothe et al., 2002).

Gaza Strip

With regard to ongoing conflict in the Gaza Strip, Thabet, Tawahina, El Sarraj and Vostanis (2008) investigated psychological responses to war experienced by 100 families living areas that have been exposed to regular shelling since 2005 (Thabet et al., 2008). Families composed of both parents and two children, one boy and one girl, between ages 9 and 18, were randomly selected from two villages, one refugee camp, and one city. All families had resided in the area for at least one year prior to study participation in June 2006. Children were administered the Gaza Traumatic Events Checklist (Abu Hein, Qouta, Thabet, & El Sarraj, 1993), the Children's Revised Impact of Events Scale (CRIES-13; Horowitz, Wilner, & Alvarez, 1979) to assess PTSD according to DSM-IV criteria, and the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) to measure anxiety-related symptoms. Parents completed the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001) to measure the behavioral and emotional functioning of their children. In addition, parents marked the Gaza Traumatic Checklist and the Posttraumatic Stress Disorder Checklist for parents (PCL; Weathers, Huska, & Keane, 1993) to determine the presence of PTSD as denoted by the DSM-IV diagnostic criteria and the extent to which symptoms were distressing over the previous month. Finally, parents completed the Taylor's Manifest Anxiety Scale (MAS; Taylor, 1953) to measure the extent of their chronic anxiety symptoms.

Thabet et al. (2008) reported that 70.1% of the children met criteria for PTSD within the previous six months according to CRIES-13. Results of the RCMAS indicated that 33.9% of children evinced clinically significant anxiety symptoms, and 42.7% of youth were rated as having significant mental health problems by their parents. Exposure to traumatic events was significantly associated with PTSD symptoms according to CRIES-13, and the number of traumatic events experienced was significantly associated with total anxiety scores on the RCMAS. Regarding the PCL, 60% of parents had potentially clinically-significant symptoms according to a cutoff score set by the authors. Severe to very severe anxiety symptoms were reported by 26% of the parents on the MAS. PTSD symptoms reported by parents and children were significantly correlated for the intrusion and arousal subscales but not for the avoidance subscale. A significant correlation was reported for parents' and children's anxiety scores.

Lebanese conflict.

Within the context of the Lebanese conflict, Macksoud and Aber (1996) investigated the psychosocial effects of war trauma among 224 randomly-selected 10 to 16 year-old children enrolled in public and private schools in four geographical areas. Consideration was given to the diverse range of war-related traumas experienced by youth, as well as the potential effects of chronic violence. In order to assess participants' exposure to types of war traumas, The Childhood War Trauma Questionnaire (CWTQ; Macksoud, 1992), a semi-structured interview, was utilized. A number of children's behavior scales, including the Behavior Problem Checklist (Quay & Peterson, 1979), the Bergen Reaction Index (Dyregrov & Raundalen, 1988), the Youth Self-Report for ages 11-18 (Achenbach & Edelbrock, 1987) and the Children's Behavior Questionnaire - Scale A (Rutter, 1967), were adapted by an international team of psychologists to reflect cultural appropriateness and applicability to populations living in war zones. Finally,

The Post-Traumatic Stress Reaction Checklist (PTSRC; Macksoud, Aber, Dyregrov, & Raundalen, 1990), a structured interview that dichotomously assesses the presence of PTSD symptoms with regard to a “most disturbing trauma,” was administered to participants. Only those youth who were able to specify a “worst trauma” were given the PTSRC.

The sample experienced an average of six traumatic events and results of the PTSRC administrations indicated that 43% of the youth who identified a “most disturbing trauma” met criteria for PTSD (Macksoud & Aber, 1996). In some cases, the “worst trauma” occurred up to 10 years prior to data collection, which suggests that chronic exposure to war puts some children at greater risk for “continuous PTSD” (Macksoud & Aber, 1996). Being a victim of a violent act (e.g., kidnapping, torture), having lost someone close (i.e. friend, family member) due to the war, and exposure to bombings/shellings were associated with children who exhibited “continuous PTSD.”

Within the context of the Lebanese conflict, Saigh, Mroueh, and Bremner (1997) estimated the prevalence of PTSD among 95 randomly selected, non-referred Lebanese adolescents enrolled in private schools. Respondents received administrations of the DSM-III Children’s PTSD Inventory (Saigh, 1987) and the DSM-III-R Severity of Psychological Stress Scale: Children and Adolescents (American Psychiatric Association, 1987). Of the 30 students who reported exposure to extreme stressors related to the war, 14 (46.7%) met criteria for PTSD.

Also with regard to the Lebanese conflict, Saigh (1988) collected data from twelve students at the American University of Beirut with regard to PTSD symptomatology. An author-devised, structured interview based on the DSM-III criteria for PTSD was conducted with the students 63 days before they were exposed to a major bombardment. The interview was conducted again with the students 37 and 316 days after the bombardment. None (0%) of the

students met criteria for PTSD at the first data collection point before the trauma, nine (75%) met criteria for acute PTSD at the 37 days following the bombardment, and one student (8.3%) continued to meet criteria for PTSD at the 316 day point. These findings are consistent with the observation that stress reactions tend to remit over time (Saigh, 1988).

Refugees from Cambodia, Cuba, and Afghanistan.

Sack et al. (1993) conducted a longitudinal study of Cambodian refugees who had endured war trauma as children due to the Pol Pot regime. In 1984, approximately 1 to 2 years after fleeing Cambodia for the United States, a sample of 40 late-adolescents was evaluated for PTSD. According to Sack et al. (1993), Kinzie et al. (1986) reported that 20 (50%) of the youth met DSM-III criteria for PTSD and most presented with a comorbid depressive disorder. In contrast, none of 6 control subjects who left Cambodia prior to the Pol Pot regime met criteria for PTSD or a mood disorder. In 1987, 27 of the refugee sample and 3 of the controls were evaluated again for PTSD. Thirteen (48%) cases of PTSD were identified, which presented no significant change in prevalence from the first evaluation, although 5 of the 13 cases diagnosed at the second evaluation were new and 3 other participants no longer met criteria for PTSD. Again, in 1990, 29 of the original Pol Pot group were re-interviewed. The K-SADS (K-SADS; Puig-Antich, 1980, 1983) was utilized to determine DSM-III-R diagnoses, and the corresponding section of the Diagnostic Interview for Children and Adolescents (DICA; Welner, Reich, Herjanic, Jung, & Amado, 1987) was administered to assess PTSD. Sack et al. (1993) reported that 11 (38%) of the Pol Pot sample met criteria for PTSD in 1990. A nonsignificant decline over time was reported for the 19 cases who received a PTSD diagnosis at all three data collection points, as 52% had PTSD in 1984, 47% in 1987, and 32% in 1990. In contrast, depressive

disorder diagnoses represented a substantial decline over time, as 41% of the sample met criteria in 1987 while only 6% met criteria for depression in 1990.

Rothe et al. (2002) evaluated the prevalence of PTSD and behavioral symptoms among youth who fled Cuba by sea in 1994 following confinement with their families in refugee camps at Guantanamo Bay. The sample consisted of 87 6 to 18 year-old children who were interviewed while attending transitional summer schools in Miami four to six months after leaving Cuba. Children and adolescents were assessed for PTSD with the Post-Traumatic Stress Disorder Reactive Index (PTSDRI; Frederick, Pynoos & Nader, 1992). The PTSDRI is a questionnaire that assesses the degree of PTSD symptoms on a scale of 1 (none of the time) to 5 (most of the time). The instrument can yield a diagnosis of PTSD based on DSM-III-R criteria and also categorizes scores to reflect severity of symptoms (doubtful, mild, moderate, severe, and very severe). The authors collapsed the five severity categories into three (none, moderate, severe). Behavioral ratings were made by teachers who endorsed the Child Behavior Check List – Teacher Report Form (CBCL-TRF; Achenbach & Edelbrock, 1986).

According to results of the PTSDRI, Rothe et al. (2002) reported 43% of the youth showed no evidence of PTSD, 32% evinced moderate PTSD, and 25% yielded scores consistent with severe PTSD. Overall, 57% of the sample met criteria for a PTSD diagnosis according to the PTSDRI. The total number of stressors reported by each child was positively correlated with global PTSDRI scores. Being older and having witnessed acts of violence in the refugee camps significantly predicted PTSDRI scores. There was a trend towards statistical significance for the withdrawn scale of the CBCL-TRF. However, overall teacher reports indicated social and academic functioning was largely intact.

Mghir, Freed, Raskin, and Katon (1995) also assessed the prevalence of PTSD and other psychiatric disorders among a group of refugee children and adolescents who fled Afghanistan with their families following the 1979 invasion by the Soviet Union and subsequent civil war. Families resided in the Seattle, Washington area. Data were collected for 38 youth and young adults aged 12 to 14 years using The Harvard Trauma Questionnaire (HTQ; Mollica et al., 1992), a self-report scale consisting of four sections: A 17-item checklist that specifies which, if any, traumatic events the participants witnessed or experienced directly or vicariously; a personal description of traumatic events identified in the first section; a questionnaire regarding head and brain injuries; and an inventory of trauma-related symptoms experienced in the past week including a severity rating scale for each symptom. In addition to the HTQ, the Clinician-Administered PTSD Scale (CAPS; Blake et al., 1990), the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and select modules of the Structured Clinical Interview for DSM-III-R (SCID; Spitzer et al., 1987) were administered to the youth. Parents completed the HTQ, BDI, and the Hopkins Symptoms Checklist-25 (HSCL-25). The HSCL assesses anxiety and depressive symptoms via self-report.

Based on the CAPS, 13.2% of youth met the DSM-III-R PTSD criteria. Results of the SCID indicated major depression was the most common current DSM-III-R diagnosis (28.9%) and 44.7% of participants met criteria for a lifetime diagnosis of major depression. Thirty-four percent of the adolescents and young adults met criteria for PTSD, major depression, or both. Dysthymia and adjustment disorder with depressed mood were less prevalent in the sample, as 5.3% of the sample met criteria for each. None (0%) of the sample met criteria for generalized anxiety disorder, panic disorder, or specific phobia. Estimates of comorbidity were not reported.

The aforementioned studies of PTSD among war-exposed youth demonstrate prevalence estimates ranging from 6% to 70.1%. The differences in prevalence rates of PTSD may in part be attributed to different methodologies between studies, including variations in the time between the trauma exposure and evaluation for PTSD. Table 2.4 presents a summary of these studies.

Table 2.4

War

Study	Measure	N	Age	Elapsed Time	PTSD Prevalence
Thabet et al. (2008)	Children's Revised Impact of Events Scale – 13	197	9-18 years	≥ 1 year	70.1% current PTSD
Rothe et al. (2002)	Children's PTSD Inventory	87	6-18 years	4-6 months	57%
Saigh et al. (1997)	DSM-III Children's PTSD Inventory	95			46.70%
Macksoud and Aber (1996)	The Post-Traumatic Stress Reaction Index	224	10-16 years		43%
Mghir et al. (1995)	Clinician-Administered PTSD Scale	38	12-14 years	Not reported	32%
Sack et al. (1993)	DICA		Mean at time of entry to US: 14.7 years Mean at Time 3: 23.03 years	Time 1: 1-2 years Time 2: 4-5 years Time 3: 7-8 years	Time 1: 50% Time 2: 48% Time 3: 38%
Saigh et al. (1988)	DSM-III based structured clinical interview	12		Time 1: -63 days Time 2: 37 days Time 3: 316 days	Time 1: 0% Time 2: 75% Time 3: 8.3%

Accidents/Disaster studies.***Natural disasters.***

Garrison et al. (1995) examined a sample of 400 youth aged 12-17 years who experienced Hurricane Andrew while living in either a “high impact” area or “low impact” area depending on zip code. Six months after the event, a battery of measures was administered to youth in order to assess the severity of exposure to Hurricane Andrew, possible previous traumatic exposures, and PTSD symptoms as measured by a modified version of the DISC (Kilpatrick et al., 1989). A diagnosis of PTSD was determined according to DSM-III criteria. Parents were given the same measures except their own PTSD symptomatology was assessed using a nine-item PTSD symptom scale (Saunders et al., 1990). Results indicated that during the six months following Hurricane Andrew, 7.3% of the sample met diagnostic criteria for PTSD. Females evinced a higher rate of PTSD (9.2%) relative to males (2.9%). Black non-Hispanics and Hispanics evinced the highest rates of PTSD (8.3% and 6.1%, respectively), while other non-Hispanics and white non-Hispanics had the lowest rates (2.5% and 4.9%, respectively). Significant correlates of PTSD were being female, decreased feelings of safety during the hurricane, fear for others’ safety during the storm, personal-social resource loss, a history of exposure to a different traumatic event, and undesirable life events (e.g. a failing grade in school, argument with parents) since Hurricane Andrew (Garrison et al., 1995).

Following the 1999 Istanbul earthquake, Eksi and Braun (2009) identified adolescents living near the epicenter who reported three or more negative experiences due to the earthquake. Among the initial 160 participants, 84% had experienced the collapse of their home, 50% witnessed death and/or extreme suffering, 43% experienced the death of someone significant (non-family), 35% reported injury of family members, 24% indicated the death of a family

member, and 15% were personally injured. At baseline (6 to 20 weeks following the disaster) and 18-20 month follow-up, a psychiatrist conducted an unstructured interview with each adolescent followed by administrations of the Clinician-Administered Post-Traumatic Stress Disorder Scale (CAPS; Blake et al., 1995). The CAPS is a structured interview consisting of 17 items that assess PTSD according to DSM-IV criteria. Respondents are asked to rate both frequency and severity of each symptom on a scale of 0 to 4, with 4 being the most frequent and most severe. At baseline only, the State-Trait Anxiety Inventory (Spielberger, 1983) and the Children's Depression Inventory (CDI; Kovacs, 1981) were also administered.

According to Eksi and Braun (2009), results of the baseline assessment indicated that 60% (n=96) of the sample met criteria for PTSD, of which 51% (n=49) evinced comorbid depression. At follow-up, 74 of the 96 PTSD positive youth were reassessed. Of these participants, 34% (n=25) had received cognitive-behavioral therapy and pharmacotherapy, whereas the rest did not receive treatment. Re-administration of the CAPS indicated that 18.9% (n=14) adolescents met criteria for PTSD, 2.7% (n=2) met criteria for major depression, and 2.7% (n=2) evinced comorbid PTSD and major depression. Six of the 14 youth with PTSD had received treatment and 2 of the 4 youth with major depression or comorbid PTSD/major depression received treatment prior to follow-up.

Also with reference to natural disaster, Evans and Oehler-Stinnett (2006) assessed 152 students aged 6 to 12 years for symptoms of PTSD following a severe tornado. All participants were directly exposed to the May 1999 tornado, in which, according to the National Oceanic and Atmospheric Administration (2009), 11,602 homes and other buildings were obliterated or damaged, two schools were demolished, and 45 people were killed and 597 were injured (as cited in Evans & Oehler-Stinnett, 2006). All children were in or near the direct path of the

tornado and directly experienced its effects, most frequently in the form of property damage. The OSU PTSD Scale-CF, an author-developed instrument that assesses PTSD according to DSM-IV criteria, was administered to youth one year following the tornado. Point prevalence of PTSD was estimated to be 41%, indicating that at one year following a natural disaster many children still experienced serious psychological symptomatology.

Accidents.

Kuhn et al. (2006) investigated the presence of psychopathology in the six months following a serious, man-made accident. Fifty-eight participants aged 18-63 were recruited from the surgical wards of two hospitals in Germany, of whom 87.9% were injured in a traffic accident and the remaining participants were involved in a household accident. Instruments including the German version of the SCID-I for DSM-IV (SKID-I; Sass, Wittchen, Zaudig, & Houben, 1996) were administered within six weeks of the accident and again at six months to assess past and current psychiatric symptomatology. Exclusion criteria were intellectual disability, presence of a current serious psychiatric disorder that needed immediate attention by a psychiatrist upon initial presentation to the hospital following the accident, or being under psychiatric or psychotherapeutic treatment prior to hospital admission.

Results indicated the lifetime prevalence of at least one psychiatric disorder prior to the accident was 35%. Within 6 weeks following the accident, 27.6% of patients met criteria for a psychiatric disorder, with acute stress disorder (6.9%) as most prevalent. At 6-month follow-up, 19.2% of participants continued to report psychiatric symptoms. Of these, 5.8% met criteria for PTSD, while 9.6% evinced major depressive disorder. PTSD was comorbid with major depressive disorder or specific phobia in an unspecified proportion of participants (Kuhn et al, 2006).

Maes, Mylle, Delmeire, and Altamura (2000) investigated the prevalence of PTSD and other Axis I disorders following exposure to accidental, man-made trauma. A group of 128 participants who experienced a serious fire and a group of 55 motor vehicle accident victims were administered the Composite International Diagnostic Interview (CIDI; Smeets & Dingemans, 1993) between seven and nine months after the traumatic event. Diagnostic criteria for PTSD reflected DSM-III-R criteria. Participants also received an administration of the Semi-structured Interview for the DSM-III-R (Spitzer, Williams, Gibbon, & First, 1990) to assess lifetime and current Axis I diagnoses. Only subjects with new-onset psychopathology were entered into data analysis. Results indicated 45.9% of participants met criteria for PTSD while 29.6% met criteria for either generalized anxiety disorder, agoraphobia, panic disorder, simple phobia, obsessive compulsive disorder, major depression, or psychoactive substance use disorders. Fire victims were significantly more likely than motor vehicle accident victims to evince any of these diagnoses.

Taken together, the findings of these studies indicate high rates of PTSD following natural disasters and man-made accidents, ranging from 7.3% to 60%. Methodological variations between studies may partially account for these differences. Table 2.5 presents a summary of these findings.

Table 2.5

Accidents and Disasters

Study	Measure	N	Age	Elapsed Time	PTSD Prevalence
Eksi and Braun (2009)	Clinician-Administered	160 at baseline	Adolescents	Baseline: 6-20 weeks	60% at baseline
	Post-Traumatic Stress Disorder Scale	98 at follow-up		Follow-up: 19-21 months	18.9% at follow-up
Evans and Oehler-Stinnett (2006)	OSU PTSD Scale-CF	152	6-12 years	1 year	41%
Kuhn et al. (2006)	SCID	58	18-63 years	6 weeks; 6 months	Not reported at 6 weeks
					5.8% at 6 months
Maes et al. (2000)	Composite International Diagnostic Interview	128	Not reported	6-9 months	45.9%
Garrison et al. (1995)	DISC	400	12-17 years	6 months	7.3%

Comorbidity

Comorbidity among PTSD positive youth is highly prevalent (Cohen et al., 2010). As such, investigating the symptoms of comorbid PTSD can lead to more efficient and effective treatment (Steele, Roberts, & Elkin, 2008), as well as a better understanding of the etiology and course of PTSD (Saigh, Yasik, Sack, & Koplewicz, 1999). In the community-based study conducted by Stein, McQuaid, Pedrelli, Lenox, and McCahill (2000), comorbidity also was investigated. Select modules of the CIDI-SF were administered to assess the “screen positive” participants for past-year major depressive disorder, panic disorder, social phobia, generalized anxiety disorder, and drug and alcohol use and dependence. Of the patients who met DSM-IV diagnostic criteria for PTSD, 61.1% had comorbid major depressive disorder, 38.9% had comorbid generalized anxiety disorder, 16.7% had comorbid panic disorder, 16.7% had comorbid social phobia, and 22.2% had a substance use disorder within the past year. Only 27.8% of PTSD positive participants did not evince a comorbid disorder.

Comorbidity was investigated by Maes et al. (2000) among adults exposed to motor vehicle accidents and serious fire. Administration of the Semistructured Interview for the DSM-III-R (Spitzer et al., 2000) indicated that 51% of participants with PTSD evinced comorbid Axis I disorders. Major depression was most commonly comorbid (26.2%), followed by generalized anxiety disorder (24.6%), and agoraphobia (21%). Only 12.1% of the participants without PTSD had one or more diagnosis.

In the community sample of older adolescents investigated by Giaconia et al. (1995), youth who met criteria for a lifetime diagnosis of PTSD were significantly more at risk for developing other psychiatric disorders by age 18. Participants with PTSD were seven times as likely as non-traumatized youth and four times as likely as traumatized PTSD negative youth to

meet DSM-III-R criteria for one of the five disorders assessed: major depression, specific phobia, social phobia, alcohol dependence, and drug dependence. PTSD positive youth were most at risk for major depression, with two-fifths (40%) of the population meeting criteria for both diagnoses versus less than 8% of the non-traumatized and traumatized PTSD negative groups collectively meeting diagnostic criteria for major depression. More than 66.7% of the PTSD positive sub-sample qualified for a comorbid diagnosis of substance dependence.

In the nationally representative sample of youth examined by Kilpatrick et al. (2003), nearly 75% of the PTSD cases evinced a comorbid diagnosis. Less than 40% of cases with major depression or substance abuse/dependence met criteria for a comorbid diagnosis. PTSD and major depression were most frequently comorbid, with 29% of major depression cases also meeting PTSD criteria, and 62% of PTSD cases also meeting criteria for major depression.

McLeer, Callaghan, Henry, and Wallen (1994) examined rates of PTSD and comorbidity in a sample of sexually abused children and a psychiatric comparison group. Using the Schedule for Affective Disorders and Schizophrenia for School-Age Children – Epidemiologic Version (K-SADS-E: Orvaschel, Puig-Antich, Chambers, Tabrizi, & Johnson, 1982), McLeer et al. (1994) identified that 42.3% of the sexually abused group met criteria for PTSD. Regarding comorbidity, 23.1% of the sexually abused children had both PTSD and attention deficit hyperactivity disorder (ADHD), 15.4% met criteria for both PTSD and conduct disorder, and 11.5% met criteria for PTSD, ADHD, and conduct disorder. With regard to the psychiatric comparison group, 8.7% met criteria for PTSD and 4.3% evidenced PTSD and ADHD.

Summary and Risk Factors

Whereas risk factors associated with the development of PTSD among adults have been examined to a considerable extent, fewer studies have focused on risk factors relative to youth.

In a meta-analysis of the PTSD literature, Breslau (2002) identified three categories of risk factors that are regularly associated with trauma exposure and development of PTSD relative to adults: Pre-existing psychiatric disorders, family history of psychopathology, and childhood trauma. Likewise, Cohen (1998) identified three factors extant in the literature that appear to increase the risk for PTSD among children: Severity of the traumatic event, the parental reaction to the traumatic event, and the physical proximity to the traumatic event.

When cross-referenced, the literature reviewed in the current paper represents several risk factors for PTSD across a range of traumatic events, including criminal victimization, war, and accidents/disasters. The sequela of a traumatic event may vary based on the type and severity of the stressor. As such, Garrison et al. (1995) indicated the psychological impact of a natural disaster may vary based on the type of disaster. Degree of exposure to the same event also may account for differences in psychological effects, whether organic and manmade (Garrison et al., 1995; Goenjian et al., 1994). Physical proximity to the traumatic event was reported as a significant risk factor for developing PTSD, and for increased intensity of PTSD symptoms in youth who were on a school playground at the time of a sniper attack (Pynoos et al., 1987).

The degree of acquaintance with the victim of a traumatic event also predicts PTSD in youth. Brent (1993) reported that children who knew a suicide victim well were more likely to develop PTSD. Likewise, children who knew the victims of a sniper attack well were more likely to evince PTSD symptoms relative to children who were not well acquainted with the victims. In a study of children affected by the Lebanese war, Macksoud and Aber (1996) found that the loss of a family member significantly predicted the presence of PTSD. With reference to accidents, Maes et al. (2000) reported that seeing a relative or friend injured significantly predicted PTSD among victims of fire or motor vehicle accidents.

The reviewed literature also indicates that certain demographic variables present as risk factors for PTSD, including gender, age, and socioeconomic status. Females were significantly more likely than males to develop PTSD across all types of trauma reviewed (Dubner & Motta, 1999; Fitzpatrick & Boldizar, 1993; Garrison et al., 1995; Maes et al., 2000). It is interesting to note, however, that males typically are at higher risk for trauma exposure than females (Macksoud & Aber, 1996; Mghir et al., 1995; Rothe et al., 2002). Conflicting evidence for age as a risk factor is evident among the reviewed literature. Several studies found that older youth were at greater risk for developing PTSD (Fitzpatrick & Boldizar, 1993; Macksoud & Aber, 1996; Mghir et al., 1995; Rothe et al., 2002). In the case of sexual abuse, however, Dubner and Motta (1999) reported that younger adolescents were more likely than older children to receive a PTSD diagnosis and to report more severe symptoms. An inverse relationship was found between socioeconomic status of traumatized individuals and incidence of PTSD symptoms in the case of children exposed to war trauma in the Gaza Strip (Thabet et al., 2008).

Across victims of crime, war, and accidents/disasters, multiple trauma exposures significantly increased the risk for PTSD (Garrison et al., 1995; Horowitz, Weine & Jekel, 1995; Macksoud & Aber, 1996). Mghir et al. (1995) reported a significant positive correlation between the number of traumatic events experienced and a diagnosis of either PTSD or major depression. Elapsed time between the trauma and evaluation was significantly and negatively correlated with rate of PTSD diagnosis, suggesting that symptoms remit over time (Kuhn et al., 2006; Saigh, 1988). For example, among refugees, Sack et al. (1993) found that those youth who had been in the United States longer reported lower rates of PTSD symptoms and diagnosis. Likewise, youth who had spent fewer years in the United States since their escape from Afghanistan were significantly more likely to evince PTSD (Mghir et al., 1995). Interestingly, Mghir et al. reported

higher rates of PTSD among refugee youth who lived in non-English speaking homes or whose mother did not speak English. Whether this is a reflection of time spent in the United States or indicative of a lack of acculturation or social isolation is unclear. Finally, significant damage to property was reported as a risk factor for PTSD among youth who had been exposed to a tornado (Evans & Oehler-Stinnett, 2006) and children who lived through war trauma in Lebanon (Macksoud & Aber, 1996).

The aforementioned literature underscores the variability with regard to prevalence estimates of PTSD among youth. Differences in rates of PTSD among youth in the literature may be attributed to several variables. Methodological variations between studies, including sampling techniques, time lapse between exposure and assessment, and instrumentation may contribute to differences in findings (Garrison et al., 1995). As such, depending on the measure, a qualifying “traumatic event” may be defined differently. Moreover, as the DSM-IV definition of trauma is more inclusive than that of the DSM-III, studies utilizing DSM-IV criteria for trauma exposure indicate higher prevalence rates (Breslau, 2002). In a study comparing the prevalence of lifetime trauma exposure using the DSM-IV definition of trauma versus the DSM-III, Breslau and Kessler (2001) found that the revision of criterion A led to an increase from 68.1% to 89.6%. Finally, with respect to comorbidity, it is clear that more focused and controlled research is needed in order to better understand the etiology, course, and treatment of PTSD among youth.

Chapter 3

Methodology

This chapter provides background information with regard to the expression of anger relative to traumatized youth. In addition, the statement of the problem and information regarding the purpose, need, and design of the study will be reported. The rationale and research hypotheses will be presented, followed by descriptions of participant selection procedures, diagnostic measures, the dependent variable, and the socioeconomic index.

Background Information and Statement of the Problem

The DSM-IV specifies that PTSD is indicated by exposure to “an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others” (American Psychiatric Association, 2000, p. 467) and is characterized by repeated trauma-related thoughts and nightmares, avoidance/numbing, increased arousal, and functional impairments. With regard to increased arousal, the DSM-IV specifies “irritability and outbursts of anger” (p. 468) as diagnostic symptoms of the disorder. While extensive information regarding anger expression in adults with PTSD is extant in the literature (Kilpatrick & Resnick, 1992; Koenen, Stellman, Stellman & Sommer, 2003; Kulka et al., 1990; Lasko, Gurvitis, Kuhne, Orr, & Pittman, 1994; Ouimette, Cronkite, Prins, & Moos, 2004; Schutzwahl & Maercker, 2000), little information is available regarding anger among children and adolescents with PTSD.

To date, few investigations of the expression of anger with respect to traumatized youth have been conducted (Saigh, Yasik, et al., 2007). Lehmann (1997) interviewed 84 children between the ages of 9 and 15 years who were referred by child welfare agencies and shelters for battered women and had witnessed assault of their mothers. Participants were administered The Children’s Impact of Traumatic Events Scale – Family Violence Form (CITES-FVF; Wolfe &

Lehmann, 1992) to assess the presence of PTSD symptoms and the Anger Response Inventory Scales (Hoshmand & Austin, 1987) to measure levels of anger. Results indicated that children who witnessed assault of their mother and developed PTSD had significantly higher anger scores relative to children who witnessed assault of their mother and did not develop PTSD.

In a similar vein, Ehlers, Mayou, and Bryant (2003) administered the children's version of the Impact of Event Scale (Horowitz et al., 1979) and the Child Post-traumatic Stress Reaction Index in order to assess the severity of PTSD symptoms in 86 children who had been involved in road traffic accidents. In addition to the PTSD scales, an author-devised anger scale was administered at hospital admission, 2 weeks, 3 months, and 6 months after their accidents. Findings indicated that anger ratings at the time of hospital admission significantly predicted severity of PTSD symptoms at 3 and 6 months.

More recently, Saigh, Yasik, et al. (2007) compared the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) ratings of traumatized youth with and without PTSD to those of non-traumatized controls. After systematically excluding youth with comorbid disorders frequently seen in conjunction with PTSD (i.e., ADHD, conduct disorder, major depressive disorder, and substance dependence), the authors determined that youth with PTSD had significantly higher ratings on the STAXI State Anger, Trait Anger, and Angry Temperament scales relative to traumatized counterparts without PTSD and non-traumatized controls. These authors also determined that the STAXI scores of traumatized youth without PTSD did not significantly differ from the scores of the controls on the anger scales.

Examined *in toto*, the three studies that were reviewed (Ehlers et al., 2003; Lehmann, 1997; Saigh, Yasik, et al., 2007) suggest that anger is significantly associated with PTSD among youth. Although these studies provide some support for the DSM-IV position regarding

increased anger expression as a symptom of PTSD, a number of methodological limitations are apparent. It is important to note the lack of a non-traumatized control group in the Lehmann (1997) and Ehlers et al. (2003) studies. The absence of a control group without trauma exposure makes it impossible to establish whether traumatized youth who do not develop PTSD are at risk for increased anger relative to non-traumatized controls. Another limitation of the Lehmann (1997) and Ehlers et al. (2003) studies is the use of measures that produce a single, overall anger score. While analysis of an overall anger score sheds some light on whether youth with PTSD are at increased risk for anger, use of a multi-dimensional anger scale would evidence specific variations in the expression of anger among traumatized youth.

Although Saigh, Yasik, et al. (2007) utilized a three-group comparative design (i.e., traumatized youth with PTSD, traumatized PTSD negatives, and non-traumatized controls) and a multi-dimensional anger scale, this study excluded youth with major comorbid disorders in order to avoid possible confounds. While this approach is theoretically sound from a nosological perspective, the literature clearly indicates that PTSD among children and adolescents is frequently seen with one or more comorbid disorders including attention deficit hyperactivity disorder (ADHD), conduct disorder, substance abuse or dependence, and major depressive disorder (Ballenger, Davidson, Lecrubier, & Nutt, 2000; Foa, Keane, & Friedman, 2000; Saigh, Yasik, Sack, & Koplewicz, 1999; Schnurr, Friedman, & Bernardy, 2002; Shea & Zlotnick, 2002). As such, the exclusion of disorders like ADHD, conduct disorder, substance dependence, and major depressive disorder in the Saigh, Yasik, et al. (2007) study may have produced different clinical presentations of youth with PTSD. Of note, Saigh, Yasik, et al. (2007) acknowledged that the exclusion of comorbid cases may have reduced the external validity of their study and suggested that a similar investigation that includes comorbid cases may provide a

more generalizable representation of anger among traumatized youth with or without PTSD. Accordingly, the current study explored STAXI scores among youth with PTSD, traumatized youth without PTSD, and non-traumatized controls. Cases with comorbid ADHD, major depressive disorder, conduct disorder, and substance abuse or dependence were included in the experimental sample.

Purpose of the Study

The purpose of this study was to compare self-reported anger ratings of clinically referred youth with PTSD to clinically referred traumatized youth without PTSD. This study also sought to compare the self-reported anger ratings of clinically referred traumatized youth with and without PTSD to those of a non-traumatized control group. Youth with comorbid major depressive disorder and substance dependence were included in the study. Data from a previous investigation that was approved by the institutional review boards of Bellevue Hospital, the Graduate Center of the City University of New York, and Teachers College were analyzed.

Need for the Study

Although the awareness of PTSD as a major public health issue has increased in the medical community (Groves, Zuckerman, Marans, & Cohen, 1993), the amount of research that has examined the effects of childhood traumas pales in comparison to the amount of research that has been conducted among adults (Alder-Nevo & Manassis, 2005; Dalgleish, Meiser-Stedman, & Smith, 2005; Saigh, Green, & Korol, 1996). Accordingly, information involving anger among traumatized youth with PTSD relative to traumatized youth without PTSD and non-traumatized controls would provide clearer information regarding the expression of PTSD in children and adolescents and would help establish if anger varies as a function of diagnostic status. In effect, this study sought to investigate whether anger as denoted by a multi-dimensional

measure is associated with PTSD or exposure to trauma without the development of PTSD. These outcomes may be of interest to scientists who are involved in the study of models of classification.

Further, the inclusion of cases with comorbid disorders may increase the external validity of findings relative to studies that exclude comorbid cases, as it is important to recall that PTSD in children and adolescents is frequently observed with ADHD, conduct disorder, substance use or dependence, or major depressive disorders (Saigh et al., 1999). As such, this study may identify anger-related profiles that are commonly associated with clinically referred youth with PTSD. Additionally, investigating the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) relative to youth with PTSD could also provide information that may be useful in planning and evaluating treatments for this population.

Examined from a more clinical perspective, the participants and their families received significant benefits from this study. Individual psychiatric and psychological evaluations were performed that served to identify the presence or absence of PTSD and other psychopathology. The results of these evaluations were shared with participants and their parents/guardians and appropriate referrals were made as necessary. As PTSD is a serious psychiatric disorder with major long-term effects such as academic failure and chronic unemployment (Engel et al., 1999; Giaconia et al., 1995; Lipschitz, Rasmusson, Anyan, Cromwell, & Southwick, 2000; McFall, Mackay, & Donovan, 1991) and as PTSD is a treatable disorder (Deblinger, McLeer, & Henry, 1990; Deblinger, Steer, & Lippmann, 1999; Foa et al., 1999; King et al., 2000; March, Amaya-Jackson, Murray, & Schulte 1998; Saigh, Lee, Wilson, Ward, Westphal, & Fairbank, 2007), the provision of timely diagnoses and referrals provided a major clinical contribution to the mental health of participants.

Research Design

This study consisted of a three-group comparative design. Designation to the PTSD, traumatized PTSD negative, and non-traumatized control groups denoted the independent variable. The dependent variable was performance on the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996). Figure 1 depicts a schematic representation of the research design.

Figure 1

Schematic Representation of the Research Design

State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996)	Traumatized PTSD Group (n = 31)	Traumatized PTSD Negative Group (n = 59)	Non-Traumatized Control Group (n = 39)
State Anger Scale			
Trait Anger Scale			
Angry Temperament subscale			
Angry Reaction subscale			
Anger Expression Scale			
Anger In Scale			
Anger Out Scale			
Anger Control Scale			

Rationale and Hypotheses

Rationale for Hypotheses 1-8.

It was anticipated that youth with PTSD would evidence significantly higher anger scores on the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) scales relative to traumatized youth without PTSD. Support for this hypothesis was based on four sources of information. First, the outcomes of the Lehmann (1997) study indicated that the anger estimates of children and adolescents with PTSD significantly exceeded the estimates of traumatized PTSD negatives. Second, an investigation by Saigh, Yasik, Oberfield, Halamandaris, and McHugh (2002) reported that on the parent-completed Child Behavior Checklist (CBCL; Achenbach, 1991), Aggressive Behavior scores of youth with PTSD significantly exceeded the scores of traumatized youth without PTSD. Third, a treatment study by March, Amaya-Jackson, Murray, and Schulte (1998) reported that the STAXI scores of youth with PTSD decreased by 35% after receiving a trial of cognitive-behavioral therapy. Finally, the outcomes of the Saigh, Yasik, et al. (2007) study indicated that youth with PTSD evinced significantly higher State Anger and Trait Anger scores on the STAXI relative to traumatized PTSD negatives when controlling for major comorbid disorders. More specifically, the following hypotheses were investigated:

HO1: Children and adolescents with PTSD will have significantly higher STAXI State Anger scores than traumatized youth without PTSD.

HO2: Children and adolescents with PTSD will have significantly higher STAXI Trait Anger scores than traumatized youth without PTSD.

HO3: Children and adolescents with PTSD will have significantly higher STAXI Angry Temperament scores than traumatized youth without PTSD.

HO4: Children and adolescents with PTSD will have significantly higher STAXI Angry Reaction scores than traumatized youth without PTSD.

HO5: Children and adolescents with PTSD will have significantly higher STAXI Anger Expression scores than traumatized youth without PTSD.

HO6: Children and adolescents with PTSD will have significantly higher STAXI Anger In scores than traumatized youth without PTSD.

HO7: Children and adolescents with PTSD will have significantly higher STAXI Anger Out scores than traumatized youth without PTSD.

HO8: Children and adolescents with PTSD will have significantly lower STAXI Anger Control scores than traumatized youth without PTSD.

Rationale for Hypotheses 9-16.

It was anticipated that youth with PTSD would evidence significantly higher anger scores on the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) scales relative to non-traumatized controls. Support for this hypothesis was based on an investigation by Saigh, Yasik, Oberfield, Halamandaris, and McHugh (2002) which reported that on the parent-completed Child Behavior Checklist (CBCL; Achenbach, 1991), Aggressive Behavior scores of youth with PTSD significantly exceeded the scores of non-traumatized controls. In addition, Saigh, Yasik, et al. (2007) reported that youth with PTSD yielded significantly higher mean State Anger and Trait Anger scores on the STAXI relative to non-traumatized controls when controlling for major comorbid disorders. More specifically, the following hypotheses were investigated:

HO9: Children and adolescents with PTSD will have significantly higher STAXI State Anger scores than non-traumatized controls.

HO10: Children and adolescents with PTSD will have significantly higher STAXI Trait Anger scores than non-traumatized controls.

HO11: Children and adolescents with PTSD will have significantly higher STAXI Angry Temperament scores than non-traumatized controls.

HO12: Children and adolescents with PTSD will have significantly higher STAXI Angry Reaction scores than non-traumatized controls.

HO13: Children and adolescents with PTSD will have significantly higher STAXI Anger Expression scores than non-traumatized controls.

HO14: Children and adolescents with PTSD will have significantly higher STAXI Anger In scores than non-traumatized controls.

HO15: Children and adolescents with PTSD will have significantly higher STAXI Anger Out scores than non-traumatized controls.

HO16: Children and adolescents with PTSD will have significantly lower STAXI Anger Control scores than non-traumatized controls.

Rationale for Hypotheses 17-24.

It was anticipated that the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) scores of traumatized youth without PTSD and non-traumatized controls would not significantly differ. Support for this hypothesis was based on an investigation by Saigh et al. (2002) which reported that the Child Behavior Checklist (CBCL; Achenbach, 1991) Aggressive Behavior scores of traumatized PTSD negatives and non-traumatized controls were not significantly different. Additional support for this prediction is based on studies that reported that the anxiety, depression, misconduct, academic achievement, memory, and cognitive scores of traumatized youth without PTSD and non-traumatized controls were not significantly different

(Saigh, 1989a; 1989b; 1991; Saigh, Yasik, Oberfield, Halamandaris, & Bremner, 2006; Yasik, Saigh, Oberfield, & Halamandaris, 2007). Further support for this hypothesis was based on the Saigh, Yasik, et al. (2007) study which reported that mean STAXI State Anger and Trait Anger scores were not significantly different between the traumatized PTSD negative group and controls when controlling for major comorbid disorders. More specifically, the following hypotheses were examined:

HO17: Traumatized children and adolescents without PTSD will not have significantly different STAXI State Anger scores than non-traumatized controls.

HO18: Traumatized children and adolescents without PTSD will not have significantly different STAXI Trait Anger scores than non-traumatized controls.

HO19: Traumatized children and adolescents without PTSD will not have significantly different STAXI Angry Temperament scores than non-traumatized controls.

HO20: Traumatized children and adolescents without PTSD will not have significantly different STAXI Angry Reaction scores than non-traumatized controls.

HO21: Traumatized children and adolescents without PTSD will not have significantly different STAXI Anger Expression scores than non-traumatized controls.

HO22: Traumatized children and adolescents without PTSD will not have significantly different STAXI Anger In scores than non-traumatized controls.

HO23: Traumatized children and adolescents without PTSD will not have significantly different STAXI Anger Out scores than non-traumatized controls.

HO24: Traumatized children and adolescents without PTSD will not have significantly different STAXI Anger Control scores than non-traumatized controls.

Method

Sample selection.

As noted, participants were children and adolescents drawn from an existing data set of a study that was approved by the Teachers College Institutional Review Board (IRB), Bellevue Hospital IRB, and the IRB of the Graduate School of the City University of New York. Bellevue Hospital practitioners referred 228 youth aged 6-18 years with known or suspected exposure to extreme stress. Parental consent and youth assent was obtained from 69% of the referrals. Following administration of diagnostic interviews and cognitive testing, 50 youth were excluded due to: Head injury ($n = 24$), insufficient English ($n = 8$), history of parental abuse or neglect ($n = 2$) and deficient-range WISC-III (Wechsler, 1991) Full Scale IQ scores ($n = 16$). Of the remaining participants, 11 did not complete the STAXI.

With reference to the controls, participants were recruited while attending appointments for routine medical services at the Bellevue Family Care Clinic and the Adolescent Medical Unit. Participants in the control group reported no history of trauma exposure. Consent was obtained from 28% of the 280 parents/guardians of children who were potentially eligible for the non-traumatized control group. Following diagnostic interviews and cognitive assessment, 37 participants were excluded due to: reporting trauma exposure ($n = 5$), head injury ($n = 2$), limited English proficiency ($n = 15$), current psychopharmacological treatment ($n = 8$), and deficient-range Full Scale IQ scores according to the WISC-III ($n = 7$). Two youth did not complete the STAXI.

The final sample consisted of 31 PTSD positives, 59 traumatized PTSD negatives, and 39 non-traumatized controls. Each of the three groups consisted of at least 21 cases as Cohen's (1988) power analyses tables indicate a minimum of 21 cases per cell is required to specify a

large effect in a three-group case-control design. Among the PTSD group, eight met DICA-R criteria for comorbid major depressive disorder and one met criteria for comorbid substance dependence. Participants in the traumatized PTSD negative and non-traumatized control groups did not meet criteria for any comorbid disorders based on administration of the DICA-R.

PTSD inclusion criteria.

To be included in the PTSD group, individuals must have been between the age of 6 and 18 years. These participants also received two independent PTSD positive diagnoses as determined by psychiatrists or psychologists. Finally, these individuals received two independent PTSD positive diagnoses via two administrations of the Children's PTSD Inventory (CPTSDI; Saigh, 2003a) by doctoral-level students in school psychology. Youth with comorbid ADHD, conduct disorder, major depressive disorder, and substance abuse or dependence, as per a diagnostic assessment conducted by a graduate student in school psychology, also were eligible for inclusion.

Traumatized PTSD negative group inclusion criteria.

To be included in the traumatized PTSD negative group, individuals must have been exposed to traumatic events that reflected DSM-IV PTSD Criterion A1 and not met the DSM-IV diagnostic criteria for PTSD. This determination was made through two independent interviews conducted by psychiatrists or psychologists in which participants were deemed to have been exposed to traumatic stressors as defined by DSM-IV PTSD Criterion A1. Further, using DSM-IV criteria for PTSD, these psychiatrists or psychologists independently determined that the participants did not meet the minimum diagnostic criteria for PTSD. In addition, participants in the traumatized PTSD negative group must have reported exposure to one or more traumatic events consistent with the DSM-IV PTSD Criterion A1 and not met diagnostic criteria for PTSD

as indicated by two administrations of the Children's PTSD Inventory (CPTSDI; Saigh, 2003a) by doctoral level school psychology students.

Non-traumatized control group inclusion criteria.

To be included in the non-traumatized control group, individuals must have been between the ages of 6 and 18 years and received two independent PTSD-negative diagnoses from psychiatrists or psychologists, and two independent PTSD-negative diagnoses as indicated by two administrations of the Children's PTSD Inventory (CPTSDI; Saigh, 2003a) by doctoral level school psychology students. Finally, in order to have been included in the non-traumatized control group, individuals' verbatim responses to the CPTSDI must not have reflected the DSM-IV Criterion A1 definition for trauma exposure as determined by two independent psychologists or psychiatrists.

Exclusion criteria.

Youth with a history of abuse or neglect were not included in the study, given that these individuals may experience ongoing distress due to court proceedings and/or placements in the foster care system (McLeer, Callaghan, Henry, & Wallen, 1994; Merry & Andrews, 1994). In this study, history of abuse and neglect was defined by the New York State Family Court Act, Article 10, Section 1012 (1970), which states that it is a felony for a "parent or guardian or other persons legally responsible for a child's care to inflict or allow to be inflicted on a child physical injury... which causes or creates a substantial risk of death, or serious or protracted disfigurement, or protracted impairment of physical or emotional health or... commits or allows to be committed, a sex offense against a child..." (p. 300). Individuals who were assaulted sexually or physically by a parent or guardian were excluded from this study and individuals

who were assaulted sexually or physically by anyone other than a parent or guardian were included.

Individuals with Full Scale IQ scores in the deficient range (69 or less) on the WISC-III (Wechsler, 1991) were excluded from this study. Saigh (2003b) reported that individuals in the deficient IQ range experienced difficulty understanding test questions and produced inconsistent responses. Youth who were not able to speak or understand English also were excluded from this study. Individuals with a history of significant head trauma, psychotic symptoms, and who were taking medication that could impact cognitive functioning also were excluded.

Diagnostic Measures

Children's PTSD Inventory (Saigh, 2003a, 2003b).

The Children's PTSD Inventory (CPTSDI; Saigh, 2003a) is a structured clinical interview that directly corresponds to the DSM-IV criteria for PTSD. The instrument is designed for use with youth aged 6 through 18 years. The CPTSDI is comprised of five subtests that are scored dichotomously as based on the DSM-IV diagnostic criteria. Regarding internal consistency estimates, Saigh (2003b) reported an *alpha* of .95 at the diagnostic level. The CPTSDI yielded high estimates of inter-rater reliability at the diagnostic level, with agreement between raters of 98%. An inter-rater intraclass correlation coefficient (ICC) of .98 and an inter-rater reliability *kappa* of .96 were reported at the diagnostic level. Analysis of test-retest reliability evinced 97.6% agreement at the diagnostic level. A test-retest *kappa* of .91 and an ICC of .90 were calculated at the diagnostic level. Evidence for concurrent validity of the CPTSDI was obtained using clinician-derived diagnoses as well as diagnoses established through administrations of the Structured Clinical Interview for the DSM-IV (SCID; First, Gibbon, Williams, & Spitzer, 1996) and the Diagnostic Interview for Children and Adolescents-Revised

(DICA-R; Reich, Leacock, & Shanfield, 1995) PTSD modules. Overall, moderate to high levels of sensitivity (.84-.92), specificity (.93-.98), positive (.63-.98) and negative (.95-.99) predictive power, and diagnostic efficiency (.93-.95) were reported.

Diagnostic Interview for Children and Adolescents-Revised (Reich et al., 1995).

The Diagnostic Interview for Children and Adolescents-Revised (DICA-R; Reich et al., 1995) is a semi-structured interview consisting of modules that assess Axis I psychopathology in youth based on DSM-IV criteria. In order to identify comorbid conditions, participants in this study received individual administrations of the major depressive disorders, ADHD, conduct disorder, substance dependence, and psychotic symptoms modules by a trained interviewer. According to Reich (2000), test-retest kappa coefficients for the major depressive disorders module ranged from .55 to .80. Test-retest kappas for the ADHD module ranged from .32 to .59 and a coefficient of .92 was reported for the conduct disorder module. Further, test-retest kappas for the substance dependence module ranged from .66 to 1.00 and a kappa of .76 was indicated for the psychotic symptoms module (Reich, 2000). Sensitivity coefficients of .82, .85, .92, 1.00, and 1.00 for the major depressive disorders, ADHD, conduct disorder, substance dependence, and psychotic symptoms modules were reported, respectively (Reich, personal communication, February 5, 2001), as well as specificity coefficients of .72, .73, .71, .80, and .72 for each respective module.

Clinical interviews.

Participants each received two clinical interviews by one of two board-certified child psychiatrists and/or a licensed psychologist. Through independent interviews, clinicians established whether participants had been exposed to traumatic events which met DSM-IV PTSD Criterion A1 (i.e., trauma exposure) and if their symptoms met DSM-IV criteria for PTSD.

Examiners.

Participants received individual administrations of the CPTSDI, DICA-R, Hollingshead Four Factor Index of Social Status (Hollingshead, 1975), and the STAXI. Doctoral school psychology students administered these measures in a counterbalanced design in order to avoid an order effect.

Dependent Measure**State-Trait Anger Expression Inventory (Spielberger, 1996).**

The State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) is a norm-referenced self-report inventory that measures three components of anger as denoted by Spielberger's state-trait anger theory (1996). These components involve: anger experience, anger expression, and anger control. The STAXI contains 44 Likert-type items grouped into six factorially-derived scales and two subscales. Each of the 44 items is comprised of a 4-point scale (1-4), with higher ratings reflecting greater intensity of angry feelings or a higher frequency that anger is experienced, expressed, suppressed, or controlled. The 10-item State Anger scale measures the situational disposition to experience anger and the 10-item Trait Anger scale assesses the overall tendency to experience angry feelings. The Trait Anger scale includes two subscales, Angry Temperament and Angry Reaction. The Angry Temperament subscale consists of four items that measure the general disposition to experience angry feelings without provocation, and the four-item Angry Reaction subscale assesses the propensity to express anger when provoked. The STAXI also includes an eight-item Anger In scale that measures how frequently anger is suppressed, an eight-item Anger Out scale that measures how frequently anger is expressed toward people or objects, and an eight-item Anger Control scale that measures the frequency of attempts to control and inhibit expression of anger. Finally, a 24-item Anger

Expression scale combines the Anger In, Anger Out, and Anger Control scales to yield an omnibus measure of anger that reflects how one generally reacts or behaves when angry.

With reference to reliability, Spielberger (1996) reported mean *alpha* coefficients ranging from .93-.87, .84-.82, .86-.73, .78-.73, and .88-.81 respectively for the State Anger, Trait Anger, Anger In, Anger Out, and Anger Control scales and .89-.85, and .71-.65 respectively for the Angry Temperament and Angry Reaction subscales. Evidence regarding the convergent validity of the STAXI Trait Anger scale was established using the Buss Durkee Hostility Inventory (BDHI; Buss & Durkee, 1957) and the Hostility (Ho; Cook & Medley, 1954) and Overt Hostility (Hv; Schultz, 1954) scales of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1967). Significant correlations were reported across samples for both males and females; validity coefficients ranged from .73-.66 for the BDHI, .59-.43 for the MMPI Ho, and .32-.27 for the MMPI Hv. Convergent and divergent validity of the STAXI Trait Anger and State Anger scales were established using the Extroversion, Neuroticism, Psychoticism, and Lie scales of the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975) and the State Anxiety (S-Anxiety), State Curiosity (S-Curiosity), Trait Anxiety (T-Anxiety), and Trait Curiosity (T-Curiosity) scales of the State-Trait Personality Inventory (STPI; Spielberger et al., 1979). Across males and females, correlations between the State Anger scale and each respective EPQ and STPI scale were reported as -.03 - -.08, .43 - .27, .27 - .26, -.04 - -.11, .63 - .63, -.07 - -.18, .35 - .30, and -.12 - -.20, respectively. Correlation coefficients reported for the Trait Anger scale and each respective EPQ and STPI scale were .06 - -.07, .50 - .49, .21 - .20, -.20 - -.25, .25 - .19, -.08 - -.15, .38 - .37, and -.07 - .08, respectively.

Socioeconomic Index

Hollingshead Four Factor Index of Social Status (Hollingshead, 1975).

The Hollingshead Four Factor Index of Social Status (Hollingshead, 1975) is a measure of socioeconomic status. The index is based on four factors: education, occupation, sex, and marital status. The status score for an individual or nuclear family is calculated according to directions outlined in Hollingshead (1975). Scores range between 8 and 66 points, such that “the higher score of a family or nuclear unit, the higher the status its members are accorded by other members of our society” (Hollingshead, 1975, p. 17). Hollingshead sets forth five ranges of computed scores, indicating five social strata with the highest scores assigned to Class I and the lowest scores assigned to Class V. Cirino et al. (2002) found moderate (.73) to high (.95) inter-rater reliability coefficients for the Hollingshead Four Factor Index of Social Status. Convergent validity estimates ranged from .42 to .92 when the Hollingshead scores were correlated with the Socioeconomic Index of Occupations (Nakao & Treas, 1992) scores (Cirino et al., 2002).

Chapter 4

Results

This chapter provides a description of the data analysis procedures and results.

Descriptive statistics with regard to the demographic characteristics of the selected sample and the types of traumas reported by participants in the PTSD positive and traumatized PTSD negative groups will be denoted. Next, descriptive statistics with regard to STAXI scale and subscale scores for the three experimental groups, as well as results of the ANOVA and MANOVA analyses, univariate F -tests, and post-hoc comparisons will be reported. Finally, results of analyses examining the potentially confounding effects of SES, age, and gender will be reported.

Preliminary Data Analysis

Demographic characteristics.

The age range for participants was 7.08 to 18.42 years ($M = 13.41$, $SD = 2.82$). With regard to gender, 72 males and 57 females participated overall. A chi-square test revealed significant differences between the comparison groups with regard to ethnicity, $\chi^2 (N = 129) = 21.37, p < .01$. Specifically, the proportion of African American participants in the PTSD group was significantly lower than the proportion of African Americans in the traumatized PTSD negative group. In addition, the proportions of Hispanic participants in the PTSD and control groups were each significantly greater than the proportion of Hispanics in the traumatized PTSD negative group. No significant differences between groups with regard to gender were found when a chi-square analysis was conducted. An ANOVA indicated significant age and SES differences. Pearson product moment correlations were calculated in order to determine whether SES and age significantly predicted STAXI scores and this information appears in Table 4.6.

Post-hoc tests identified that the PTSD group was significantly older than the control group, $t(70) = 3.10, p < .01$. All other age comparisons were nonsignificant. Post-hoc tests determined that the PTSD group had significantly lower Hollingshead socioeconomic ratings than the traumatized PTSD negatives, $t(90) = -3.14, p < .01$, and non-traumatized controls, $t(70) = -2.77, p < .05$. The Hollingshead socioeconomic ratings of the traumatized PTSD negatives and the non-traumatized controls did not significantly differ. The demographic characteristics of the sample are presented in Table 4.1.

Table 4.1

Demographic Variables

Variable	PTSD		Traumatized		Non-Traumatized		Group Comparisons
	PTSD	PTSD Negative	PTSD Negative	Control	Control	Control	
Age (years)							
M	14.53	13.43	12.49				$F(2, 126) = 4.79, p < .01$
SD	3.06	2.72	2.50				$1 > 3^{**}$
Socioeconomic Rating ^a							
M	26.34	34.67	34.29				$F(2, 125) = 5.49, p < .01$
SD	12.65	10.77	12.74				$1 < 2^{***}, 3^*$
Gender							
Male	%	%	%				$X^2(\underline{N} = 129) = 5.29, p > .05$
Female	58.1	64.4	41.0				
Race/Ethnicity							
African-American	41.9	35.6	59.0				$X^2(\underline{N} = 129) = 21.37, p < .01$
Asian	%	%	%				
Caucasian	6.5	28.8	12.8				
Hispanic	3.2	10.2	0.0				
Other	6.5	16.9	12.8				
	83.9	44.1	71.8				
	0.0	0.0	2.6				

Note: 1 = PTSD, 2 = Traumatized PTSD Negative, 3 = Control

^aHollingshead (1975) Four-Factor Index of Social Status

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

Types of trauma.

Table 4.2 lists the types of traumatic events that were reported by participants in the PTSD and traumatized PTSD negative groups by gender, including participants who met DICA-R criteria for comorbid major depressive disorder ($n = 8$) and comorbid substance dependence ($n = 1$). With specific reference to the types of trauma reported by the nine comorbid cases, five reported physical assault and four reported sexual assault. It is also of interest to note that all participants in the sample who reported sexual assault ($n = 5$) met criteria for PTSD. Overall, the mean number of traumas reported by the PTSD group ($M = 1.63$, $SD = .89$) was not significantly greater, $F(1, 87) = 3.82$, $p = .054$, than the mean number of traumas reported by the traumatized PTSD negatives ($M = 1.32$, $SD = .60$). Among the PTSD group, 53.3% reported exposure to a single traumatic event, 36.7% reported exposure to two traumatic events, and 10.0% reported exposure to more than two traumatic events. Among the traumatized PTSD negatives, 74.6% reported exposure to a single traumatic event, 18.6% reported exposure to two traumatic events, and 6.8% reported exposure to more than two traumatic events. These proportions are represented in Table 4.3.

Table 4.2

Types of Traumas Reported by Male and Female Participants between Groups

Stressor	<u>PTSD+</u> ^a		<u>PTSD-</u> ^b		<u>Total</u> ^c	
	Male n (%)	Female n (%)	Male n (%)	Female n (%)	Male n (%)*	Female n (%)*
Sexual Assault	1 (5.6%)	4 (30.8%)	0 (0.0%)	0 (0.0%)	1 (1.8%)	4 (11.8%)
Physical Assault	7 (38.9%)	4 (30.8%)	9 (23.7%)	3 (14.3%)	16 (28.6%)	7 (20.6%)
Shot	5 (27.8%)	0 (0.0%)	4 (10.5%)	1 (4.8%)	9 (16.1%)	1 (2.9%)
Dog Attack	1 (5.6%)	0 (0.0%)	3 (7.9%)	3 (14.3%)	4 (7.1%)	3 (8.8%)
Motor Vehicle Accident	1 (5.6%)	3 (23.1%)	8 (21.1%)	7 (33.3%)	9 (16.1%)	10 (29.4%)
Hand Injury	1 (5.6%)	0 (0.0%)	11 (28.9%)	2 (9.5%)	12 (21.4%)	2 (5.9%)
Smoke Inhalation	1 (5.6%)	1 (7.7%)	0 (0.0%)	2 (9.5%)	1 (1.8%)	3 (8.8%)
Other	1 (5.6%)	0 (0.0%)	3 (7.9%)	0 (0.0%)	4 (7.1%)	0 (0.0%)
Witnessed Trauma	0 (0.0%)	1 (7.7%)	0 (0.0%)	3 (14.3%)	0 (0.0%)	4 (11.8%)

^a n = 31. ^b n = 59. ^c n = 90

*Reflects percentage of males and females in both group

Table 4.3

Number of Traumas Reported by Group

Traumas Reported	<u>PTSD+</u> ^a (%)	<u>PTSD-</u> ^b (%)
1 Trauma	53.3	74.6
2 Traumas	36.7	18.6
>2 Traumas	10.0	6.8

^a n = 31. ^b n = 59.

Primary Data Analysis

Quantitative findings regarding the six STAXI scale scores and the two subscale scores for the three experimental groups are presented as follows. In addition, results of analyses examining the possible confounding effects of SES, age, and gender will be denoted.

Multivariate and univariate analyses.

The mean scores and standard deviations for the six scales and two subscales of the STAXI were calculated for each experimental group. Individual ANOVAs were conducted in order to test for group differences on the STAXI State, Trait and Anger Expression scores. In order to assess group differences across the two Trait Anger subscales (Angry Temperament and Angry Reaction), a MANOVA was executed. A separate MANOVA was conducted to examine group differences across the three scales that comprise the Anger Expression (omnibus) scale (Anger In, Anger Out, and Anger Control). Given a significant MANOVA, univariate *F*-tests and post-hoc comparisons were conducted to identify significant group differences.

STAXI means and standard deviations for the comparison groups are presented in Table 4.4 and Figure 2. Results of the univariate analyses also are presented in Table 4.4. With regard to the STAXI means and standard deviations, is of note that the control group evidenced a mean score of 10.0 and a standard deviation of 0.0 for the State Anger scale. This finding indicates that all participants in the control group marked 1 (“not at all”) for the 10 State Anger scale items, suggesting the absence of state anger at the time of completing the STAXI. Univariate *F* tests identified significant differences on the State Anger scale, $F(2, 126) = 7.98, p = .001$, and Trait Anger scale, $F(2, 126) = 7.76, p = .001$. On the other hand, nonsignificant differences were apparent on the Anger Expression scale, $F(2, 126) = 1.46, p = .237$, and on the Anger In, $F(2, 126) = 2.36, p = .098$; Anger Out, $F(2, 126) = .95, p = .391$; and Anger Control, $F(2, 126) = .41,$

$p = .664$ scales. A MANOVA identified significant group differences on the Trait Anger scale at the subscale level, Wilks λ , $F(4, 250) = 4.02, p < .01$. Univariate F -tests denoted significant group differences on the Angry Temperament subscale, $F(2, 126) = 7.64, p = .001$, and Angry Reaction subscale, $F(2, 126), = 4.79, p = .010$.

Table 4.4

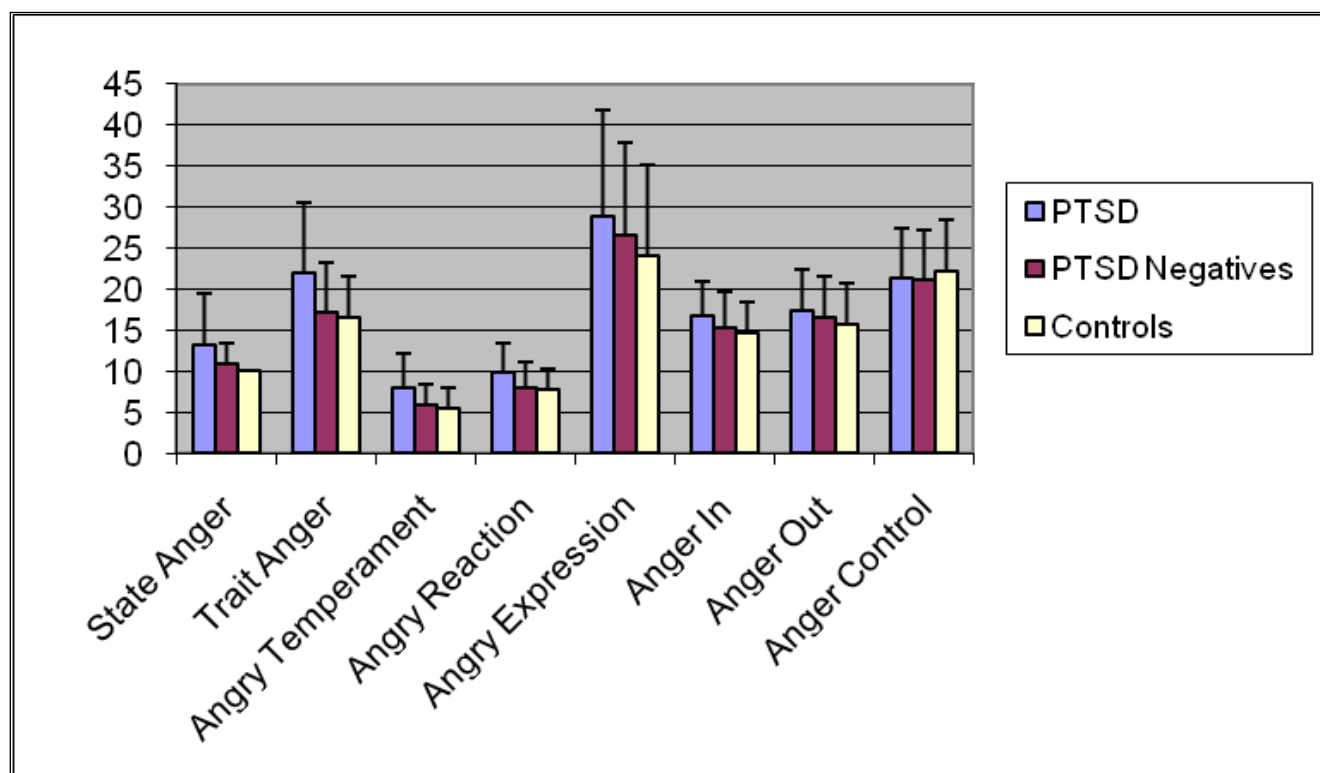
Means, Standard Deviations, and Univariate Results for STAXI

Scale	PTSD ^a		Traumatized PTSD Negatives ^b		Controls ^c		Univariate Results	
	M	SD	M	SD	M	SD	F ^d	p
State Anger	13.29	6.26	10.85	2.61	10.0	0.0	7.98	0.001
Trait Anger	22.03	8.44	17.22	5.94	16.44	5.03	7.76	0.001
Angry Temperament	8.06	4.11	5.9	2.5	5.49	2.39	7.64	0.001
Angry Reaction	9.84	3.5	8.07	3.0	7.74	2.61	4.79	0.01
Anger Expression	28.87	12.84	26.51	11.36	24.1	11.1	1.46	0.237
Anger In	16.74	4.2	15.22	4.47	14.59	3.74	2.36	0.098
Anger Out	17.42	4.94	16.46	5.03	15.77	4.95	0.95	0.391
Anger Control	21.29	6.16	21.17	5.93	22.26	6.13	0.41	0.664

Note. ^a n = 31. ^b n = 59. ^c n = 39. ^d df = (2, 126).

Figure 2

Means and Standard Deviations for STAXI Scales



Post-hoc analyses.

Levine's (1960) Test of Equality of Error Variance performed by SPSS version 17.0 (2008) identified unequal variance between groups on the STAXI State Anger and Trait Anger scores and on one of the two Trait Anger subscales. Thus, these findings indicated that the data are in violation of the ANOVA/MANOVA assumption of homogeneity of error variances among groups. While heterogeneity of variance between groups is a common occurrence in experiments, "gross mistakes in inference" are possible when the problem of heterogeneity is ignored (Gill, 1976), such that the probability of Type I error increases while power decreases (Wilcox 1987). Thus, with regard to post-hoc analyses, Tamhane's T2 test (Tamhane, 1979) was

implemented in SPSS version 17.0, as this procedure may be used to make comparisons when cell sizes are unequal and/or when the homogeneity of variance is unequal (De Muth, 2006). Tamhane's T2 test is a multiple-comparison, pairwise procedure based on the Student t-distribution. The procedure guarantees that the familywise Type I error probability is *alpha* even when variances are unequal between groups (Wilcox, 1987). Thus, it is a more conservative post-hoc comparison for data with unequal variances (De Muth, 2006).

Results of the post-hoc analyses are presented in Table 4.5. Tamhane T2 post-hoc comparisons revealed that the mean STAXI State Anger scores of the PTSD positive group ($p < .05$) and the traumatized PTSD negative group ($p < .05$) were significantly higher than the mean score of the non-traumatized controls. As such, Hypothesis 9 was supported. In contrast, the STAXI State Anger means of the traumatized PTSD negatives and PTSD positives did not significantly differ ($p = .13$). Post-hoc comparisons utilizing Tamhane's T2 test revealed that the mean STAXI Trait Anger score of the PTSD positive group was significantly higher than the mean score of the traumatized PTSD negative group ($p < .05$) and non-traumatized controls ($p < .05$). In contrast, the STAXI Trait Anger means of the traumatized PTSD negative group and non-traumatized control group did not significantly ($p = .86$) differ. As such, Hypotheses 2, 10, and 18 were supported.

With regard to the Angry Temperament and Angry Reaction subscales, Tamhane T2 post-hoc comparisons revealed that the mean STAXI Angry Temperament scores of the PTSD positive group was significantly higher than the mean score of the traumatized PTSD negative group ($p < .05$) and non-traumatized controls ($p < .01$). As such, Hypotheses 3 and 11 were supported. The STAXI Angry Temperament scores of the traumatized PTSD negative group and non-traumatized controls did not significantly differ ($p = .80$), which supports Hypothesis 19.

Furthermore, in support of Hypothesis 12, Tamhane T2 post-hoc comparisons indicated that the mean STAXI Angry Reaction score of the PTSD positive group was significantly higher than the mean score of the non-traumatized controls ($p < .05$). In contrast, the mean STAXI Angry Reaction score of the PTSD positive group did not significantly differ from the traumatized PTSD negative group ($p = .06$). Furthermore, in support of Hypothesis 20, the Angry Reaction scores of the traumatized PTSD negatives and non-traumatized controls did not significantly ($p = .92$) differ.

Table 4.5

Results of Post-hoc Analyses

STAXI Scale/Subscale	Post-hoc Comparisons (T2)	Hypotheses Supported
State Anger	1>3*; 2>3*	9
Trait Anger	1>2*, 3*	2, 10, 18
Angry Temperament	1>2*, 3*	3, 11, 19
Angry Reaction	1>3*	12, 20
Anger Expression	N.A.	N.A.
Anger In	N.A.	N.A.
Anger Out	N.A.	N.A.
Anger Control	N.A.	N.A.

Note: 1: PTSD, 2: Traumatized PTSD Negative, 3: Control

* $p < .05$

Analyses of possible confounds.

Pearson product moment correlations were calculated in order to determine whether SES and age significantly predicted STAXI scores. Results indicated that SES, as indicated by scores on the Hollingshead Four Factor Index of Social Position (Hollingshead, 1975), was not significantly associated with any of the STAXI scale/subscale scores. Age significantly predicted scores on the STAXI Trait Anger scale. Age was not significantly correlated with the State Anger, Anger Expression, Anger In, Anger Out, Anger Control, Angry Temperament, and Angry Reaction scales and subscales. Results of these analyses are presented in Table 4.6.

Table 4.6

STAXI Correlations with SES and Age

STAXI Scale/Subscale	SES*	Age**
State Anger	-.004	.161
Trait Anger	-.030	.207 ($p = .018$)
Angry Temperament	-.074	.111
Angry Reaction	-.023	.165
Anger Expression	-.039	.133
Anger In	-.099	.034
Anger Out	.088	.169
Anger Control	.078	-.094

*all $p > .05$, ** all $p > .05$ unless otherwise noted

Additional analyses were conducted to examine the possible confounding effect of gender on findings, as the STAXI scores have the “potential for gender differences”

(Spielberger, 1996, p. 5). Two-factor ANOVAs and MANOVAs including gender and PTSD status were conducted for the STAXI scales. For the State Anger scale, a nonsignificant main effect was indicated for gender, $F(1, 123) = 1.72, p > .05$, while PTSD status remained significant, $F(2, 123) = 6.63, p < .01$, with a nonsignificant interaction. Similarly, analyses of the Trait Anger scale resulted in a nonsignificant main effect for gender, $F(1, 123) = 2.46, p > .05$; while PTSD status remained significant, $F(2, 123) = 6.26, p < .01$, with a nonsignificant interaction term. Analyses of the two Trait Anger subscales revealed a significant main effect for gender, $F(1, 123) = 5.02, p < .05$, and a significant main effect for PTSD status, $F(2, 123) = 3.83, p < .05$, on the Angry Reaction subscale. The mean Angry Reaction score of males ($M = 9.16, SD = 3.27$) was significantly greater than that of females ($M = 7.92, SD = 2.78$). The interaction between gender and PTSD status was nonsignificant on the Angry Reaction subscale, $F(4, 244) = .86, p > .05$. Regarding the Angry Temperament subscale, a significant main effect for PTSD status was found, $F(2, 123) = 6.28, p < .01$, and a nonsignificant main effect for gender was observed. Main effects for gender and PTSD status were nonsignificant for the Anger Expression scale and subscales. Results of the gender analyses are presented in Table 4.7.

Table 4.7

Two-Factor Analyses (Gender and PTSD Status) for STAXI Scales and Subscales

STAXI Scale/Subscale	Main Effect Gender	Main Effect PTSD Status	Interaction (Gender x PTSD Status)
State Anger	N.S.	$F(2,123)=6.63, p<.01$	N.S.
Trait Anger	N.S.	$F(2,123)=6.26, p<.01$	N.S.
Angry Temperament	N.S.	$F(2,123)=6.28, p<.01$	N.S.
Angry Reaction	$F(1,123)=5.02, p<.05$ (Males > Females)	$F(2,123)=3.83, p<.05$	N.S.
Anger Expression	N.S.	N.S.	N.S.
Anger In	N.S.	N.S.	N.S.
Anger Out	N.S.	N.S.	N.S.
Anger Control	N.S.	N.S.	N.S.

Chapter 5

Discussion

In this chapter, a summary of the purpose and results of the study will be presented. A discussion of the observed results including theoretical and clinical significance will also be presented. Finally, limitations of the study will be addressed as well as possible directions for future research.

Summary

The purpose of this study was to examine the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) anger scores among youth with PTSD, traumatized PTSD negatives, and non-traumatized controls while including cases with comorbid disorders. Specifically, this study compared self-reported anger ratings of clinically referred youth with PTSD to clinically referred traumatized youth without PTSD. This study also compared the self-reported anger ratings of clinically referred traumatized youth with and without PTSD to those of a non-traumatized control group. Data from a previous investigation that was approved by the institutional review boards of Bellevue Hospital, the Graduate Center of the City University of New York, and Teachers College were analyzed. A total of 129 youth were included in the study (31 youth with PTSD; 59 traumatized youth without PTSD; and 39 non-traumatized controls).

In order to potentially increase external validity of findings relative to studies that exclude comorbid cases, this study included youth who met criteria for major depressive disorder and substance dependence. It is important to recall that PTSD in children and adolescents is frequently observed with comorbid disorders including ADHD, conduct disorder, substance use or dependence, or major depressive disorders (Saigh et al., 1999). Youth with a positive history for child abuse or neglect by a parent were excluded from the study. Similarly, individuals with

deficient-range full scale WISC-III (Wechsler, 1991) IQ scores, youth who were not able to speak or understand English, individuals with a history of significant head trauma, psychotic symptoms, and youth who were taking medication that could impact cognitive functioning also were excluded. It was hypothesized that youth with PTSD would have significantly higher anger scores on the STAXI scales relative to traumatized youth without PTSD and non-traumatized controls. Further, it was anticipated that the STAXI scores of traumatized youth without PTSD and non-traumatized controls would not significantly differ.

The overall findings suggest that the relationship between PTSD and anger varied depending on the STAXI domain that was assessed. Statistical analyses revealed significant group differences on the State Anger, Trait Anger, Angry Temperament, and Angry Reaction scales and subscales. Specifically, the PTSD group and traumatized PTSD negative groups had significantly higher State Anger scores relative to the control group. On the other hand, the scores of PTSD and traumatized PTSD negative groups did not significantly differ. As predicted, the PTSD group had significantly higher anger estimates on the Trait Anger scale than both the traumatized PTSD negative and control groups. In addition, the Trait Anger scores of the traumatized PTSD negative and control groups did not significantly differ. Also as predicted, Angry Temperament scores for the PTSD group significantly exceeded scores of the traumatized PTSD negative and control groups. Moreover, the Angry Temperament scores of the traumatized PTSD negative and control groups did not differ. On the Angry Reaction scale, the PTSD group scores were significantly higher than the scores of the control group only. Angry Reaction scores for the PTSD and traumatized PTSD negative groups did not differ, and the traumatized PTSD negative and control group scores also did not differ for this scale. Statistical

analyses failed to identify significant group differences for the Anger Expression, Anger In, Anger Out, and Anger Control scales.

Statistical analyses indicated the PTSD group was significantly older than the control group. With regard to ethnicity, significant differences were found between comparison groups, as the proportion of African American participants in the PTSD group was significantly lower than the proportion of African Americans in the traumatized PTSD negative group. The proportions of Hispanics in the PTSD and control groups were each significantly greater than the proportion of Hispanics in the traumatized PTSD negative group. In addition, the PTSD group had significantly lower socioeconomic (SES) ratings relative to the traumatized PTSD negative group and non-traumatized controls. SES was not significantly correlated with any of the STAXI scales. No significant differences were found between comparison groups with regard to gender. A Pearson product moment correlation denoted a significant relation between age and the STAXI Trait Anger scale. Nonsignificant correlations were evident for age and the STAXI State Anger, Angry Temperament, Angry Reaction, Anger Expression, Anger In, Anger Out, and Anger Control scales and subscales.

With respect to the current study, the significantly higher Trait Anger scores suggest that youth with PTSD had an overall increased tendency to experience angry feelings relative to traumatized PTSD negatives and non-traumatized controls. Similarly, on the Angry Temperament subscale (a subscale that loads into the Trait Anger scale), the significantly higher scores suggest that children and adolescents in the PTSD group had a greater general disposition to experience angry feelings without specific provocation relative to traumatized youth without PTSD and non-traumatized controls. According to Spielberger (1996), the construct of Trait Anger is defined as “individual differences in anger-proneness as a personality trait” (p. 13), and

essentially has two components. First, “individuals high in trait anger were more likely to perceive a wide range of situations as anger-provoking” (p. 10) and second, these individuals “respond to such situations with elevations in state anger” (p. 10). In effect, it may be that youth with PTSD were more prone to misinterpret social and environmental cues and react more frequently with anger.

In discussing the higher Trait Anger and Angry Temperament scores for youth with PTSD relative to traumatized youth without PTSD and controls, it is of interest to consider theories that support the idea that individuals with PTSD are more prone to misperceive situations as threatening or hostile, and react with anger. Chemtob, Novaco, Hamada, Gross, and Smith (1997) conceptualized increased anger in individuals with PTSD as part of a “survival mode,” characterized by a lowered threshold for threat perception, increased hostile appraisal, and a resultant maladaptive “hyperactivation of cognitive structures which facilitate response to life threatening situations” including “the activation of anger structures” (Chemtob, Novaco, Hamada, Gross, & Smith, 1997, pg. 23). From a neurobiological perspective, brain-imaging studies (Bremner, Narayan, et al., 1999; Bremner, Staib, et al., 1999) have supported a theory that dysfunction in specific areas of the brain, including the medial prefrontal cortex, induces diminished capacity in PTSD patients to accurately evaluate stimuli and appropriately regulate emotional responses (Bremner, 2004). According to Bremner (2004), as a result of these differences in brain function, “PTSD patients may be more likely to interpret social cues as being hostile or threatening” (p. 3). Accordingly, anger may be the result of faulty cognitive processing of social situations (Dodge & Coie, 1987) whereby increased levels of anger have been associated with misattribution of cues due to biased information-processing (Deffenbacher, 1999) and “hostile attributional bias” (Deffenbacher, 2010).

A Pearson product moment correlation was significant for Trait Anger scores and age, such that increased age predicted higher scores on the STAXI Trait Anger scale. This outcome is consistent with the finding that the PTSD group was significantly older than the controls, and the PTSD group evidenced significantly higher Trait Anger scores than both the traumatized PTSD negative group and controls. Furthermore, the significant correlation between Trait Anger scores and age is not surprising given that, according to Spielberger (1996), the construct of Trait Anger is defined as “individual differences in anger-proneness as a personality trait” (p. 13), and there is evidence in the literature that the consistency of a given personality trait increases with age (Roberts & DelVecchio, 2000). As such, the significant association of Trait Anger scores and age in this study may support the validity of the construct of Trait Anger as a measure of “individual differences in anger proneness” (p. 302) and a personality disposition towards anger (Spielberger & Sydeman, 1994).

With respect to the Angry Reaction scale, results indicated that the PTSD group was more apt to have angry reactions in situations when criticized or treated unjustly relative only to non-traumatized controls. It may be that the Angry Reaction scale items tap feelings of anger that are more associated with symptoms of depression than PTSD or trauma exposure alone. Specifically, Angry Reaction items may measure anger triggered by situations that evoke “feelings of worthlessness,” a DSM-IV symptom of major depressive disorder, thus increasing the scores of the PTSD group, which included cases with comorbid MDD, enough to differentiate them from controls. According to Spielberger (1996), individuals with high Angry Reaction scores “are highly sensitive to criticism, perceived affronts, and negative evaluation by others (p. 8),” which may be associated with feelings of worthlessness.

As indicated above, traumatized youth with and without PTSD scored significantly higher on the State Anger scale relative to the control group only. Therefore, results of this study indicate that trauma exposure was associated with higher State Anger scores and PTSD status was not. According to Spielberger (1996), the State Anger scale measures the emotional experience associated with *current* angry feelings, which fluctuates situationally and over time (Spielberger & Sydeman, 1994). Given that the STAXI and the Children's Posttraumatic Stress Disorder Inventory (CPTSDI; Saigh, 2003a) were administered in the same testing session, and that traumatic reminders can trigger feelings of anger (Foa, Riggs, Massie, & Yarczower, 1995), it is possible that the discussion of trauma history contributed to increases in State Anger in the testing situation for both traumatized groups relative to non-traumatized controls.

As noted, statistical analyses failed to indicate significant group differences on the Anger Expression scale or any of the three scales that load into the Anger Expression score (Anger In, Anger Out, and Anger Control). These results are consistent with findings reported by Saigh, Yasik, et al. (2007) and suggest that these particular STAXI scales may not be useful in clinical practice or research, as they did not differentiate groups. Furthermore, according to Spielberger (1996), the Anger Expression score "provides a general index of the frequency with which anger is expressed, regardless of the direction of expression" (p. 1). Accordingly, these results may suggest that exposure to trauma and diagnostic status do not invariably affect management (i.e., internalization or externalization) of angry feelings.

In general, results of this study, which included participants with comorbid major depressive disorder and substance dependence, were fairly similar to those presented by Saigh, Yasik, et al. (2007), in a study that examined a sample without comorbid cases. However, in contrast to findings of the current study, Saigh, Yasik, et al. (2007) reported that the State Anger

scores of the PTSD group were significantly higher than the traumatized PTSD negative and control groups, while the means of the PTSD negatives and controls did not significantly differ. This variation in statistical outcomes may be attributed to differences in data analysis procedures, specifically in the post-hoc analyses. Also in contrast to findings of the current study, Saigh, Yasik, et al. reported no significant differences on the Angry Reaction scale. This variation in results is likely attributable to the addition of comorbid cases in the current study. All other findings between studies were consistent.

Significance

From a clinical perspective, the findings of this study have important implications. The assessment of anger in children and adolescents is important in clinical practice given the extensive literature indicating the adverse effects of anger on functioning across the lifespan, including evidence that increased anger is associated with interpersonal problems (Byrne & Riggs, 1996; Carroll, Rueger, Foy, & Donahoe, 1985; Jordan et al., 1992; Novaco & Chemtob, 2002), substance use problems (DeMoja & Spielberger, 1997; Eftekhari, Turner, & Larimer, 2004; Leibsohn, Oetting, & Deffenbacher, 1994; Schnitt & Nocks, 1984), poorer physical health (Beckham, Moore, Feldman, Hertzberg, Kirby, & Fairbank, 1998; Schnurr & Jankowski, 1999; Spielberger, Crane, Kearns, Pellegrin, Rickman, & Johnson, 1991), and unemployment and vocational difficulties (Evans, Giosan, Patt, Spielman, & Difede, 2006; Frueh, Hening, Pellegrin, & Chobot, 1997). With specific reference to children, anger has been associated with decreased academic achievement (Fryxell & Smith, 2000; Stiffler, 2008). Given the risks associated with increased anger, clinicians may utilize anger estimates, derived from measures such as the STAXI Trait Anger and Angry Temperament scales, in order to develop tailored treatment plans for youth with and without PTSD, and to monitor and assess treatment outcomes. Furthermore,

as evidence indicates that anger can significantly interfere with treatment efficacy in exposure therapy for PTSD (Foa et al., 1995), assessment and treatment of anger symptoms in individuals with PTSD is of particular importance.

Also from a clinical perspective, it is important to note that participants received significant clinical benefits at the time the data was collected. Participants underwent individual, comprehensive psychiatric and psychological evaluations of PTSD and other types of psychopathology. Feedback regarding results of the evaluations was given to participants and their parent/guardian, and diagnoses and referrals were made as appropriate. Given the serious long-term effects associated with PTSD, including academic difficulties, economic disadvantage, and chronic unemployment (Engel et al., 1999; Giaconia et al., 1995; Saigh, Mroueh, & Bremner, 1997), the services provided during the data collection process may have reduced the likelihood of these consequences and, overall, provided a major clinical contribution to the mental health of participants.

Within an epidemiological context, it is important to note that of the youth in this study who reported experiencing a DSM-IV PTSD Criterion A1 trauma ($n = 90$), the majority (66%, $n = 59$) did not meet DSM-IV criteria for PTSD. The high proportion of traumatized youth in this study who did not meet criteria for PTSD provides evidence that youth are highly resilient to traumatic stressors. Furthermore, this outcome is congruent with findings of other studies of PTSD in youth where the majority of participants who were exposed to a traumatic event did not meet criteria for PTSD (Brent et al., 1993; Evans & Oehler-Stinnett, 2006; Giaconia et al., 1995; Maes et al., 2000; Saigh et al., 1999; Silva et al., 2000).

From a theoretical perspective, the findings of this study also add to the growing recognition in the literature that children with PTSD have problems with anger (Ehlers, Mayou,

& Bryant, 2003; Lehmann, 1997; Saigh, Yasik, et al., 2007). Anger may be understood as a survival response to traumatic stress (Chemtob, Novaco, Hamada, Gross, & Smith, 1997; Novaco & Chemtob, 2002). Novaco and Chemtob (2002) explain the relationship between anger and PTSD as an evolutionary adaptation, such that anger in individuals with PTSD may be “viewed in terms of the engagement of the organism’s survival systems in response to threat” (Novaco & Chemtob, 2002, p. 124). By mobilizing anger as part of an adaptive survival response, individuals may increase and maintain the energy and focus necessary to respond to threatening stimuli. In addition, with anger there may be a sense of control over environmental threats, so that these threats can be met without fear. Accordingly, Foa, Riggs, Massie, and Yarczower (1995) theorize that anger and fear are incompatible reactions to a perceived threat, such that anger inhibits fear. However, in PTSD, anger is “intrusive,” “dysregulatory,” and associated with hyperarousal, hostile attribution bias, and aggressive behavior in response to severe threat (Chemtob, Novaco, Hamada, & Gross, 1997). In essence, anger in PTSD is often maladaptive. As such, the findings of this study suggest that children with PTSD may be at risk for presenting with maladaptive anger.

Also from a theoretical perspective, this study included participants with comorbid major depressive disorder and substance dependence. Given that PTSD in children and adolescents is frequently observed with comorbid major depressive disorder, substance use or dependence, ADHD, and conduct disorder (Ballenger et al., 2000; Foa, Kean, & Friedman, 2000; Saigh et al., 1999; Schnurr, Friedman, & Bernardy, 2002; Shea & Zlotnick, 2002), this study may have increased the external validity of findings relative to previous reports that excluded comorbid disorders. In addition, the three-group design of this study provides more specific information regarding the expression of anger in youth as a function of trauma exposure and diagnostic

status, as the vast majority of PTSD studies did not include a control group (Ehlers et al., 2003; Lehmann, 1997) or a traumatized PTSD negative group (McLeer et al., 1988). Finally, this study utilized a multi-dimensional measure of anger, whereas previous studies (Ehlers et al., 2003; Lehmann, 1997) employed measures that yield a single, overall anger score. While a single anger score may highlight differences in overall anger between groups, a multi-dimensional anger scale can provide clearer evidence of specific variations in the expression of anger among traumatized youth, and reflects the current view that anger is a multi-dimensional construct (Berkowitz & Harmon-Jones, 2004; Eckhardt, Norlander, & Deffenbacher, 2004; Kassonov & Sukhodolsky, 1995).

Limitations and Future Directions

The sample in this study is generally representative of the urban hospital-based population from which it was drawn (New York City Health and Hospitals Corporation, 2011). Specifically, 62.0%, 18.6%, 13.2%, and 5.4% of the sample were Hispanic, African American, Caucasian, and Asian. With regard to socioeconomic status (SES), the majority of youth who participated in this study came from lower to mid SES levels. As such, the external validity of findings from this study may be limited to children and adolescents with similar demographics.

While the inclusion of participants with comorbid disorders may extend the external validity of findings from this study, it should be noted that comorbidity was limited to major depressive disorder and substance dependence, and all comorbid cases were in the PTSD group. The observed outcomes should be viewed with this in mind, as major depressive disorder and substance dependence each have been associated with higher levels of anger (Biaggio & Godwin, 1987; DeMoja & Spielberg, 1997). With regard to evidence of a strong association between major depressive disorder and anger, Biaggio and Godwin (1987) administered the

Anger Expression Scale (Spielberger, Johnson, Russell, Crane, Jacobs, & Worden, 1985) and the State-Trait Anger Scale (Spielberger, Jacobs, Russell, & Crane, 1983) to a sample of college students and reported that Trait Anger scores differentiated between participants who were “high” and “low” on an index of depression. Overall, students with higher scores on the Trait Anger scale were more depressed (Biaggio & Godwin, 1987). Similarly, with regard to anger and substance dependence, DeMoja and Spielberger (1997) found that a group of substance-dependent young adults reported significantly higher anger on all STAXI (Spielberger, 1994) scales than a non-substance dependent control group matched on demographic characteristics.

The findings from the current study also should be tempered with the understanding that comorbid cases were limited to major depressive disorder and substance dependence, whereas PTSD is commonly comorbid with other disorders, including ADHD and conduct disorder (Saigh, Yasik, Sack, & Koplewicz, 1999), as well as generalized anxiety disorder, panic disorder, and social phobia (Maes, Mylle, Delmeire, & Altamura, 2000; Stein et al., 2000). Therefore, future research should compare youth with PTSD to youth with other psychiatric disorders. This would provide information regarding variations in anger across diagnoses.

Within an epidemiological context, it is important to note that given the cross-sectional nature of this study, the temporal sequence of higher levels of anger and the onset of PTSD is unknown. Specifically, it is possible that premorbid, elevated Trait Anger and/or Angry Temperament may be a risk factor for the development of PTSD. Conversely, it is also possible that elevations in Trait Anger and/or Angry Temperament may be evident as a result of PTSD. Increased anger also may be both a risk factor for and consequence of PTSD. Some studies have indicated that post-trauma estimates of anger shortly after trauma exposure predicted subsequent severity of PTSD symptoms (Riggs, Dancu, Gershuny, Greenberg, & Foa, 1992; Feeny,

Zoellner, & Foa, 2000). Conversely, in a longitudinal study, Orth, Cahill, Foa and Maercher (2008) reported that PTSD symptoms predicted subsequent levels of anger when prior level of anger was controlled for, but anger did not predict subsequent development of PTSD symptoms when prior PTSD symptoms were controlled for. Finally, in a prospective study of anger and PTSD symptoms which utilized the STAXI-2 (Spielberger, 1999), Meffert et al. (2008) reported that elevated Trait Anger pre-trauma was a risk factor for development of PTSD, and PTSD symptoms were associated with increased State Anger post-trauma. Given these varied findings, future investigations should attempt to take a prospective approach relative to the evaluation of anger in youth with and without PTSD.

Few studies have explored the fundamental question of whether the relationship between anger and PTSD is a methodological artifact, given that anger is specified as a criterion of PTSD in the DSM-IV. Although endorsement of anger is not necessary for a DSM-IV PTSD diagnosis, there exists a potential for correlation between measures of anger and PTSD inventories. Novaco and Chemtob (2002) investigated whether the relationship between anger and PTSD symptoms in a sample of Vietnam veterans decreased when items measuring anger were removed from the Mississippi Scale for Combat-Related PTSD. Their findings indicated that the correlation between the modified PTSD scale and anger was as strong as the correlation between the full PTSD scale and anger, thereby providing evidence that the relationship was not a methodological artifact. Further support for the independence of PTSD and anger was provided by Novaco and Chemtob (2007) (as cited in Novaco, 2010) in an investigation involving the association between anger estimates and PTSD symptoms utilizing the National Vietnam Veterans Readjustment survey. Results indicated that the relationship between anger and combat-related PTSD was significant after anger items were removed from PTSD criteria while

controlling for factors such as age, education, anxiety, and depression (Novaco, 2010). Although these investigations provide evidence that the relationship between measures of anger and PTSD is not due to a methodological artifact, it should be noted that both of these studies were specific to adults with combat-related PTSD. Therefore, further research is warranted to investigate the independence of anger scales and PTSD diagnoses in youth.

It also should be noted that Spielberger accounted for the issue of independence between anger and anxiety when developing the STAXI. Items selected for the final version of the State Anger and Trait Anger scales included test items with the highest item-remainder coefficients for each scale and the lowest correlations with the State-Trait Anxiety Scale (STAI; Spielberger, 1983) (Spielberger, 1996; Spielberger & Sydeman, 1994). However, future investigations should evaluate the independence between STAXI items and anxiety symptoms specific to the diagnostic criterion for PTSD. This is of particular interest given that PTSD is the only DSM-IV anxiety disorder with anger as a diagnostic symptom.

As the DSM-IV indicates that PTSD “may be especially severe or long lasting when the stressor is of human design (e.g., torture, rape)” (American Psychiatric Association, 2000, p. 464), future research should seek to compare self-reported anger ratings of youth who developed PTSD following intentional or unintentional traumatic events, and also compare the self-reported anger ratings of these groups to a non-traumatized control group. Whereas epidemiological studies (Breslau et al., 1998; Giaconia et al., 1995; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Norris, 1992; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) have indicated that the prevalence of PTSD is higher among intentionally traumatized groups, the DSM-IV reflects a dichotomous system of classification and the extant epidemiological studies do not address the emotional adjustment of intentionally and unintentionally traumatized

individuals on continuous measures of distress, such as the STAXI. Moreover, while some case-control studies (Brady, 1999; Schreiner, 1994) provide measured support for the DSM-IV position regarding the effects of intentional traumas on continuous measures of psychological distress, methodological shortcomings are evident among these investigations. Therefore, while evidence supports the DSM-IV position, this evidence is inconclusive and more methodologically rigorous research is needed to substantiate the claim.

References

- Abu Hein, F., Qouta, S., Thabet, A. A., & El Sarraj, E. (1993). Trauma and mental health of children in Gaza. *British Medical Journal*, *306*, 1130-1131. Retrieved from <http://www.bmj.com>
- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist: 4-18 and 1991 Profile*. Burlington, VT: University of Vermont, Department of Psychiatry.
- Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the child behavior checklist and revised child behavior profile*. Burlington, VT: Queen City Printers.
- Achenbach, T. M., & Edelbrock, C. (1986). *Manual for the Teacher Report Form and Teacher Version of the Child Behavior Profile*. Burlington, VT: University of Vermont, Department of Psychiatry.
- Achenbach, T. M., & Edelbrock, C. (1987). *Manual for the Youth Self-Report and 1991 profile*. Burlington, VT: University of Vermont, Department of Psychiatry.
- American Psychiatric Association (1952). *Diagnostic and statistical manual of mental disorders*. Washington, DC: Author.
- American Psychiatric Association (1968). *Diagnostic and statistical manual of mental disorders* (2nd ed.). Washington, DC: Author.
- American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.
- American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed. Rev.). Washington, DC: Author.
- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: American Psychiatric Association.
- Angold, A., & Costello, E.J., (2000). The Child and Adolescent Psychiatric Assessment (CAPA). *Journal of the American Academy of Child and Adolescent Psychiatry*, *39*, 39–48. doi:10.1097/00004583-200001000-00015
- Ballenger, J. C., Davidson, J. R., Lecrubier, Y., Nutt, D. J., Foa, E. B., Kessler, R. C., & McFarlane, A. C. (2000). Consensus statement on posttraumatic stress disorder from the international consensus group on depression and anxiety. *Journal of Clinical Psychiatry*, *61*, 60-66. Retrieved from www.psychiatrist.com

- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 561–71. Retrieved from <http://archpsyc.ama-assn.org>
- Beckham, J. C., Moore, S. D., Feldman, M. E., Hertzberg, M. A., Kirby, A. C., & Fairbank, J. A. (1998). Health status, somatization and severity of posttraumatic stress disorder in Vietnam combat veterans with posttraumatic stress disorder. *American Journal of Psychiatry*, 155, 1565–1569. Retrieved from <http://ajp.psychiatryonline.org>
- Bell, C. C., & Jenkins, E. J. (1991). Children and traumatic stress. *Journal of Health Care for the Poor and Underserved*, 2, 175-185. Retrieved from http://www.press.jhu.edu/journals/journal_of_health_care_for_the_poor_and_underserved/
- Bender, L., & Blau, A. (1937). The reaction of children to sexual relations with adults. *American Journal of Orthopsychiatry*, 7, 500-518. doi:10.1111/j.1939-0025.1937.tb05293
- Benedek, E. P. (1985). Children and psychic trauma: A brief review of contemporary thinking. In S. Eth & R. S. Pynoos (Eds.), *Post-traumatic stress disorder in children* (pp. 1-16). United States of America: American Psychiatric Association.
- Berkowitz, L., & Harmon-Jones, E. (2004). Toward an understanding of the determinants of anger. *Emotion* 4, 107–130. doi: 10.1037/1528-3542.4.2.107
- Biaggio, M. K., & Godwin, W. H. (1987). Relation of depression to anger and hostility constructs. *Psychological Reports*, 61, 87-90. Retrieved from <http://www.amsciepub.com.ezproxy.cul.columbia.edu/doi/pdf/10.2466/pr0.1987.61.1.87>
- Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Gusman, F. D., Charney, D. S., & Keane, T. M. (1995). The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress*, 8, 75-90. doi: 10.1002/jts.2490080106
- Blake D. D., Weathers F., Nagy, L., Kaloupek, D., Klauminzer, G., Charney, D., & Keane, T. (1990). *Clinician-Administered PTSD Scale (CAPS)*. Boston: National Center for Posttraumatic Stress Disorder.
- Block, D., Siber, E., & Perry, S. (1956). Some factors in the emotional reaction of children to disaster. *American Journal of Psychiatry*, 113, 416-422. doi: 10.1176/appi.ajp.113.5.416
- Boney-McCoy, S., & Finkelhor, D. (1995). Psychosocial sequelae of violent victimization in a national youth sample. *Journal of Consulting and Clinical Psychology*, 63, 726-736. doi: 10.1037/0022-006X.63.5.726
- Bonita, R., Beaglehole, R., & Kjellstrom, T. (2006). *Basic Epidemiology* (2nd edition). [e-Book/Adobe version]. Retrieved from http://whqlibdoc.who.int/publications/2006/9241547073_eng.pdf

- Bowman, K. M. (1920). Analysis of a case of war neurosis. *Psychoanalytic Review*, 7, 317-332. Retrieved from <http://books.google.com/>
- Brady, A. (1999). *Comparing victims of domestic violence and motor vehicle accidents: Causal attributions and symptomatology* (Doctoral dissertation). Retrieved from <http://search.proquest.com.ezproxy.cul.columbia.edu/>
- Bremner, J. D. (2004). Does stress damage the brain? Understanding trauma-related disorders from a mind-body perspective. *Directions in Psychiatry*, 14, 167-176. Retrieved from http://userwww.service.emory.edu/~jdbremn/papers/does_stress_dir_psych.pdf
- Bremner, J. D., Narayan, M., Staib, L., Southwick, S. M., McGlashan, T., & Charney, D. S. (1999). Neural correlates of memories of childhood sexual abuse in women with and without posttraumatic stress disorder. *The American Journal of Psychiatry*, 156, 1787-1795. Retrieved from <http://ajp.psychiatryonline.org/>
- Bremner, J. D., Scott, T. M., Delaney, R. C., Southwick, S. M., Mason, J. W., Johnson D. R., . . . Charney, D. S. (1993). Deficits in short-term memory in posttraumatic stress disorder. *American Journal of Psychiatry*, 150, 1015-1019. Retrieved from <http://ajp.psychiatryonline.org/>
- Bremner, J. D., Staib, L. H., Kaloupek, D., Southwick, S. M., Soufer, R., & Charney, D. S. (1999). Neural correlates of exposure to traumatic pictures and sound in Vietnam combat veterans with and without posttraumatic stress disorder: A positron emission tomography study. *Biological Psychiatry*, 45, 806-816. Retrieved from <http://www.biologicalpsychiatryjournal.com/>
- Brent, D. A., Perper, J., Moritz, G., Friend, A., Schweers, J., Allman, C., . . . Balach, L. (1993). Adolescent witnesses to a peer suicide. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 1184-1188. doi:10.1097/00004583-199311000-00011
- Breslau, N. (2002). Epidemiologic studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. *Canadian Journal of Psychiatry*, 47, 923-929. Retrieved from <http://publications.cpa-apc.org/>
- Breslau, N., & Kessler, R. (2001). The stressor criterion in DSM-IV posttraumatic stress disorder: an empirical investigation. *Biological Psychiatry*, 50, 699-704. doi:10.1016/S0006-3223(01)01167-2
- Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L.R., Davis, G. C., & Andreski, P. (1998). Trauma and Posttraumatic Stress Disorder in the Community. *Archives of General Psychiatry*, 55, 626-632. Retrieved from <http://archpsyc.ama-assn.org/>
- Briere, J. (1996). *Trauma Symptom Checklist for Children (TSC-C) professional manual*. Odessa, FL: Psychological Assessment Resources.

- Burgess, A. W., & Holmstrom, L. L. (1974). Rape trauma syndrome. *American Journal of Psychiatry*, *131*, 981-986. doi: 10.1002/bsl.2370010310
- Buss, A. H., & Durkee, A. (1957). An inventory for assessing different kinds of hostility. *Journal of Counseling Psychology*, *21*, 343-349.
- Byrne, C. A., & Riggs, D. S. (1996). The cycle of trauma: Relationship aggression in male Vietnam veterans with symptoms of posttraumatic stress disorder. *Violence and Victims*, *11*, 213-225. Retrieved from <http://search.proquest.com.ezproxy.cul.columbia.edu/>
- Carney, J. (2009). School violence: Prevalence, impact, assessment, and treatment. In I. Marini & A. Mark (Eds.), *The professional counselor's desk reference* (pp. 575-766). New York: Springer Publishing Co.
- Carroll, E. M., Rueger, D. B., Foy, D. W., & Donahoe, C. P. (1985). Vietnam combat veterans with posttraumatic stress disorder: Analysis of marital and cohabitating adjustment. *Journal of Abnormal Psychology*, *94*, 329-337. doi: 10.1037/0021-843X.94.3.329
- Centers for Disease Control and Prevention, National Center for Health Statistics (2008). *National Hospital Ambulatory Medical Care Survey: 2006 Emergency Department Summary*. Retrieved from <http://www.cdc.gov/nchs/data/nhsr/nhsr007.pdf>
- Chemtob, C. M., Novaco, R. W., Hamada, R. S., & Gross, D. M. (1997). Cognitive-behavioral treatment for severe anger in posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, *65*, 184-189. doi: 10.1037/0022-006X.65.1.184
- Chemtob, C. M., Novaco, R. W., Hamada, R. S., Gross, D. M., & Smith, G. (1997). Anger regulation deficits in combat-related posttraumatic stress disorder. *Journal of Traumatic Stress*, *10*, 17-36. doi: 10.1002/jts.2490100104
- Cirino, P. T., Chin, C. E., Sevcik, R. A., Wolf, M., Lovett, M., & Morris, R. D. (2002). Measuring socioeconomic status: Reliability and preliminary validity for different approaches. *Assessment*, *9*, 145-155. doi:10.1177/10791102009002005
- Clark, L. A. (1996). *Schedule for Nonadaptive and Adaptive Personality: Manual for administration, scoring, and interpretation*. Minneapolis, MN: University of Minnesota Press.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd edition). Hillsdale, NJ: Erlbaum.
- Cohen, J. A. (1998). Practice parameters for the assessment and treatment of children and adolescents with posttraumatic stress disorder, *Journal of the American Academy of Child and Adolescent Psychiatry*, *37*, 10 supplement, 4S-26S. doi:10.1097/00004583-199810001-00002

- Cohen, J. A., Bukstein, O., Walter, H., Benson, R. S., Chrisman, A., Farchione, T. R., . . . Medicus, J. (2010). Practice parameters for the assessment and treatment of children and adolescents with posttraumatic stress disorder. *Journal of the Academy of Child & Adolescent Psychiatry, 49*, 414-430. doi:10.1016/j.jaac.2009.12.020
- Conners, C. K. (1969). A teacher rating scale for use in drug studies with children. *American Journal of Psychiatry, 126*, 884-888. Retrieved from <http://ajp.psychiatryonline.org/>
- Cook, W. W., & Medley, D. M. (1954). Proposed hostility and pharisaic-virtue scales for the MMPI. *Journal of Applied Psychology, 38*, 414-418.
- Cook-Cottone, C. (2004). Childhood posttraumatic stress disorder: Diagnosis, treatment, and school reintegration. *School Psychology Review, 33*, 127-139. Retrieved from http://www.nasponline.org/publications/spr/pdf/spr331cook_cottone.pdf
- Coopersmith, S. (1986). *Manual for the Self-Esteem Inventories*. Palo Alto, CA: Consulting Psychologists Press.
- Copeland, W. E., Keeler, G., Angold, A., & Costello, E. J. (2007). Traumatic events and posttraumatic stress in childhood. *Archives of General Psychiatry, 64*, 577-584. doi: 10.1001/archpsyc.64.5.577
- Costello, E. J., Angold, A., Burns, B. J., Stangl, D. K., Tweed, D. L., Erkanli, A., & Worthman, C. M. (1996). The great smoky mountains study of youth. Goals, design, methods, and the prevalence of DSM-III-R disorders. *Archives of general psychiatry, 53*, 1129-36. Retrieved from <http://archpsyc.ama-assn.org/>
- Costello, E. J., Erkanli, A., Fairbank, J. A., & Angold, A. (2002). The prevalence of potentially traumatic events in childhood and adolescence. *Journal of traumatic stress, 15*, 99-112. doi:10.1023/A:1014851823163
- Crocq, M., & Crocq, L. (2000). From shell shock and war neurosis to posttraumatic stress disorder: A history of psychotraumatology. *Dialogues in clinical neuroscience, 2*, 47-56. Retrieved from <http://www.dialogues-cns.org>
- Crocq, M. A., Macher, J. P., Barros-Beck, J. Rosenberg, S. J., & Duval, F. (1993). Posttraumatic stress disorder in World War II prisoners of war from Alsace-Lorraine who survived captivity in the USSR. In J.P. Wilson & B. Raphael (Eds.), *International handbook of traumatic stress syndromes* (pp. 253-261). New York: Plenum Press.
- Dagleish, T., Meiser-Stedman, R., & Smith, P. (2005). Cognitive aspects of posttraumatic stress reactions and their treatment in children and adolescents: an empirical review and some recommendations. *Behavioral and Cognitive Psychotherapy, 33*, 459-486. doi: 10.1017/S1352465805002389
- Daly, R. J. (1983). Samuel Pepys and posttraumatic stress disorder. *British Journal of Psychiatry, 143*, 64-68. Retrieved from <http://bjp.rcpsych.org>

- de Jong, J. T., Komproe, I. H., Van Ommeren, M., El Masri, M., Araya, M., & Khaled, N. (2001). Lifetime events and posttraumatic stress disorder in 4 postconflict settings. *Journal of the American Medical Association*, *286*, 555–562. doi:10.1001/jama.286.5.555
- Deblinger, E., McLeer, S. V., & Henry, D. (1990). Cognitive behavioral treatment for sexually abused children suffering post-traumatic stress: Preliminary findings. *Journal of the American Academy of Child & Adolescent Psychiatry*, *29*, 747-752. doi: 10.1097/00004583-199009000-00012
- Deblinger, E., Steer, R. A., & Lippmann, J. (1999). Two-year follow-up study of cognitive behavioral therapy for sexually abused children suffering post-traumatic stress symptoms. *Child Abuse & Neglect*, *23*, 1371-1378. doi:10.1016/S0145-2134(99)00091-5
- Deffenbacher, J. L. (1999). Cognitive-behavior conceptualization and treatment of anger. *In Session: Psychotherapy in Practice*, *55*, 295-309. doi: 10.1002/(SICI)1097-4679(199903)55:3<295::AID-JCLP3>3.0.CO;2-A
- Deffenbacher, J. L. (2010). Cognitive-behavioral conceptualization and treatment of anger. *Cognitive and Behavioral Practice*, *18*, 212. doi: 10.1016/j.cbpra.2009.12.004
- DeMoja, C. A., & Spielberger, C. D. (1997). Anger and drug addiction. *Psychological Reports*, *81*, 152–154. doi: 10.2466/pr0.1997.81.1.152
- DeMuth, J. E. (2006). Basic Statistics and pharmaceutical statistical applications. *Biostatistics*, volume 16. New York: CRC Press. Retrieved from <http://books.google.com>
- Dodge, K. A., & Coie, J. D. (1987). Social information processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology*, *53*, 1146-1158. doi: 10.1037/0022-3514.53.6.1146
- Dyregrov, A., & Raundalen, M. (1988). *The Bergen Reaction Index*. Bergen: Center for Crisis Psychology.
- Dubner, A. E., & Motta, R. W. (1999). Sexually and physically abused foster care children and posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, *67*, 367-373. doi: 10.1037/0022-006X.67.3.367
- Eckhardt, C. I., Norlander, B., & Deffenbacher, J. L. (2004). The assessment of anger and hostility: A critical review. *Aggression and Violent Behavior: A Review Journal* *9*, 17–43. doi: 10.1016/S1359-1789(02)00116-7
- Eftekhari, A., Turner, A. P., & Larimer, M. (2004). Anger expression, coping, and substance use in adolescent offenders. *Addictive Behaviors*, *29*, 1001-1008. doi:10.1016/j.addbeh.2004.02.050

- Ehlers, A., Mayou, R. A., & Bryant, B. (2003). Cognitive predictors of posttraumatic stress disorder in children: Results of a prospective longitudinal study. *Behaviour Research and Therapy, 41*, 1-10. doi:10.1016/S0005-7967(01)00126-7
- Eksi, A., & Braun, K. L. (2009). Over-time changes in PTSD and depression among children surviving the 1999 Istanbul earthquake. *European Child and Adolescent Psychiatry, 18*, 384-391. doi:10.1007/s00787-009-0745-9
- Elkit, A. (2002). Victimization and PTSD in a Danish national youth probability sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 174-181. doi:10.1007/s00787-009-0745-9
- Engel, C. C., Ursano, R., Magruder, C., Tartaglione, R., Jing, Z., Labbate, L. A., & Debakey, S. (1999). Psychological conditions diagnosed among veterans seeking Department of Defense Care for Gulf War-related health concerns. *Journal of Occupational & Environmental Medicine, 41*, 384-392. Retrieved from <http://journals.lww.com/joem/pages/default.aspx>
- Eth, S., & Pynoos, R.S. (Eds.). (1985). *Post-traumatic stress disorder in children*. United States of America: American Psychiatric Association.
- Evans, L. G., & Oehler-Stinnett, J. (2006). Structure and prevalence of PTSD symptomatology in children who have experienced a severe tornado. *Psychology in the Schools, 43*, 283-295. doi:10.1002/pits.20150
- Evans, S., Giosan, C., Patt, I., Spielman, L., & Difede, J. (2006). Anger and its association to distress and social/occupational functioning in the symptomatic disaster relief workers responding to the September 11, 2001, World Trade Center disaster. *Journal of Traumatic Stress, 19*, 147-152. doi: 10.1002/jts.20107
- Eysenck, H. J., & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire*. London: Hodder and Stroughton.
- Falcon, S., Ryan, C., Chamberlain, K., & Curtis, G. (1985). Tricyclics: Possible treatment for posttraumatic stress disorder. *Journal of Clinical Psychiatry, 46*, 385-388. Retrieved from <http://www.psychiatrist.com>
- Feeny, N. C., Zoellner, L. A., & Foa, E. B. (2000). Anger, dissociation, and posttraumatic stress disorder among female assault victims. *Journal of Traumatic Stress, 13*, 89-100. doi: 10.1023/A:1007725015225
- Figley, C. R. (1993). Foreword. In J.P. Wilson & B. Raphael (Eds.), *International handbook of traumatic stress syndromes* (pp. xvii-xx). New York: Plenum Press.
- Finkelhor, D., Ormrod, R., Turner, H., & Hamby, S. L. (2005). The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment, 10*, 5-25. doi: 10.1177/1077559504271287

- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1994). *Structured clinical interview for axis I DSM-IV disorders – patient edition*. New York: Biometrics Research Department.
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1996). *Structured clinical interview for DSM-IV axis I disorders—nonpatient edition*. New York: Biometrics Research Department, New York State Psychiatric Institute.
- Fitzpatrick, K. M., & Boldizar, J. P. (1993). The prevalence and consequences of exposure to violence among African-American youth. *Journal of the American Academy of Child & Adolescent Psychiatry*, 32, 424-430. doi:10.1097/00004583-199303000-00026
- Foa, E. B., Dancu, C. V., Hembree, E. A., Jaycox, L. H., Meadows, E. A., & Street, G. P. (1999). A comparison of exposure therapy, stress inoculation training, and their combination for reducing posttraumatic stress disorder in female assault victims. *Journal of Consulting and Clinical Psychology*, 67, 194-200. doi:10.1037/0022-006X.67.2.194
- Foa, E. B., Keane, T. M., & Friedman, M. J. (2000). Guidelines for treatment of PTSD. *Journal of Traumatic Stress*, 13, 539-588. doi: 10.1023/A:1007802031411
- Foa, E. B., & Riggs, D. S. (1993). Post-traumatic stress disorder in rape victims. In J. Oldham, M. B. Riba, & A. Tasman (Eds.), *American psychiatric press review of psychiatry, Volume 12* (pp. 273-303). Washington D.C.: American Psychiatric Press.
- Foa, E. B., Riggs, D. S., Dancu, D. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress*, 6, 459-473.
- Foa, E. B., Riggs, D. S., Massie, E. D., & Yarczower, M. (1995). The impact of fear activation and anger on the efficacy of exposure treatment for posttraumatic stress disorder. *Behavior Therapy*, 26, 487-499. doi: 10.1016/S0005-7894(05)80096-6
- Frances, A., Mack, A. H., Ross, R., & First, M. B. (2000). The DSM-IV Classification and Psychopharmacology. In F. E. Bloom & J. Kupfer (Eds.), *Psychopharmacology: The fourth generation of progress*. Retrieved from <http://www.acnp.org>
- Frederick, C., Pynoos, R. S., & Nader, K. (1992). *Child Post-Traumatic Stress Disorder Reaction Index (CPTSD-RI)*. Los Angeles: University of California Los Angeles.
- Frueh, B. C., Henning, K. R., Pellegrin, K. L., & Chobot, K. (1997). Relationship between scores on anger measures and PTSD symptomatology, employment, and compensation-seeking status in combat veterans, *Journal of Clinical Psychology*, 53, 871–878. doi: 10.1002/(SICI)1097-4679(199712)53:8<871::AID-JCLP12>3.0.CO;2-H
- Fryxell, D., & Smith, D. C. (2000). Personal, social, and family characteristics of angry students. *Professional School Counseling*, 4, 86-97. Retrieved from <http://search.proquest.com>

.ezproxy.cul.columbia.edu

- Galea, S., Ahren, J., Resnick, H., Kilpatrick, D., Bucuvalias, M., Gold, J., & Vlahov, D. (2002). Psychological sequelae of the September 11 terrorist attack in New York City. *New England Journal of Medicine*, *346*, 982-987. Retrieved from <http://www.nejm.org/>
- Garrison, C. Z., Bryant, E. S., Addy, C. L., Spurrier, P. G., Freedy, J. R., & Kilpatrick, D. G. (1995). Posttraumatic stress disorder in adolescents after hurricane Andrew. *Journal of the American Academy of Child and Adolescent Psychiatry*, *34*, 1193-1201. doi: 10.1097/00004583-199509000-00017
- Giaconia, R. M., Reinherz, H. Z., Silverman, A. B., Pakiz, B., Frost, A. K., & Cohen, E. (1995). Traumas and posttraumatic stress disorder in a community population of older adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, *34*, 1369-1380. doi: 10.1097/00004583-199510000-00023
- Gill, J. L. (1976). Multiple comparisons of means when variance is not homogeneous. *Journal of Dairy Science*, *60*, 444-449.
- Gillock, K. L., Zayfert, C., Hegel, M. T., & Ferguson, R. J. (2005). Posttraumatic stress disorder in primary care: Prevalence and relationships with physical symptoms and medical utilization. *General Hospital Psychiatry*, *27*, 392-399. doi:10.1016/j.genhosppsych.2005.06.004
- Goenjian, A. K., Najarian, L. M., Pynoos, R. S., Steinberg, A. M., Petrosian, P., Setrakyian, S., & Fairbanks, L. A. (1994). Posttraumatic stress reactions after single and double trauma. *Acta Psychiatrica Scandinavica*, *90*, 214-221. doi:10.1111/j.1600-0447.1994.tb01580.x
- Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*, 1337-1345. doi: 10.1097/00004583-200111000-00015
- Grauer, H. (1969). Psychodynamics of the survivor syndrome. *The Canadian Psychiatric Association Journal / La Revue de l'Association des psychiatres du Canada*, *14*, 617-622. Retrieved from <http://publications.cpa-apc.org/>
- Grinker, R. R., & Spiegel, J. P. (1945). *Men under stress*. Philadelphia: Blakiston.
- Grob, G. N. (1991). Origins of DSM-I: A Study in Appearance and Reality. *The American Journal of Psychiatry*, *148*, 421-431. Retrieved from <http://ajp.psychiatryonline.org/>
- Groves B. M., Zuckerman B., Marans S., & Cohen D. J. (1993). Silent victims. Children who witness violence. *Journal of the American Medical Association*, *269*, 262-264. Retrieved from <http://jama.ama-assn.org/>

- Hamby, S. L., Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2004). *The juvenile victimization questionnaire (JVQ): Administration and scoring manual*. Durham, NH: Crimes Against Children Research Center.
- Hannay, H. J., & Levin, H. S. (1985). Selective Reminding Test: An examination of the equivalence of four forms. *Journal of Experimental Neuropsychology*, 7, 251-263. doi: 10.1080/01688638508401258
- Hathaway, S. R., & McKinley, J. C. (1967). *MMPI manual, (Rev. ed.)*. New York: The Psychological Corporation.
- Hein, D., Matzner, F., First, M., Spitzer, R., Williams, J., & Gibbon, M. (1998). *Structured Clinical Interview for the DSM-IV Childhood Diagnoses*. New York: Department of Psychiatry, Columbia University Medical School
- Helzer, J. E., Robins, L. N., & McEvoy, L. (1987). Post-traumatic stress disorder in the general population: Findings of the Epidemiologic Catchment Area survey. *New England Journal of Medicine*, 317, 1630-1634. doi: 10.1056/NEJM198712243172604
- Hollingshead, A. B. (1975). *Four factor index of social status*. New Haven, CT: Yale University.
- Horowitz, K., Weine, S., & Jekel, J. (1995). PTSD symptoms in urban adolescent girls: Compounded community trauma. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34, 1353-1361. doi: 10.1097/00004583-199510000-00021
- Horowitz, M. J., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine*, 41, 209-218. Retrieved from <http://www.psychosomaticmedicine.org/>
- Hoshmand, L. T., & Austin, G. W. (1987). Validation studies of a multifactor cognitive-behavioral Anger Control Inventory. *Journal of Personality Assessment*, 51, 417-432. doi: 10.1207/s15327752jpa5103_9
- Hoven, C. W., Duarte, C. S., Lucas, C. P., Wu, P., Mandell, D. J., Goodwin, R. D., ...Susser, E. (2005). Psychopathology among New York City public school children 6 months after September 11. *Archives of General Psychiatry*, 62, 545-551. doi: 10.1001/archpsyc.62.5.545
- Hurst, M. D. (2005). Exposure to violence. *Education Week*, 24, 14. Retrieved from <http://www.edweek.org/ew/index.html>
- Jablensky, A. (1985). Approaches to the definition and classification of anxiety and related disorders in European psychiatry. In A. H. Tuma & J. D. Maser (Eds.), *Anxiety and the anxiety disorders* (pp. 735-758). Hillsdale, NJ: Erlbaum.

- Jordan, K. B., Marmar, C. R., Fairbank, J. A., Schlenger, W. E., Kulka, R., Hough R., & Weiss, D. (1992). Problems in families of male Vietnam veterans with posttraumatic stress disorder, *Journal of Consulting and Clinical Psychology*, *60*, 916–926. doi: 10.1037/0022-006X.60.6.916
- Kassinove, H., & Sukhodolsky, D. G. (1995). Anger disorders: basic science and practice issues. In H. Kassinove (Ed.), *Anger disorders: definition, diagnosis, and treatment* (pp. 1–27). Washington, D.C.: Taylor & Francis.
- Kessler, R. C., Andrews, G., Mroczek, D., Üstün, B., & Wittchen, H. U. (1998). World Health Organization Comprehensive International Diagnostic Interview-Short Form (CIDI-SF). *International Journal of Methods in Psychiatric Research*, *7*, 171-185. doi: 10.1002/mpr.47
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, *52*, 1048-1060. Retrieved from <http://archpsyc.ama-assn.org/>
- Kilpatrick, D. G., & Resnick, H. S. (1992). A description of the posttraumatic stress disorder field trial. In J. R. T Davidson & E. B. Foa (Eds.), *Posttraumatic Stress Disorder: DSM-IV and beyond* (pp. 243-250). Washington D.C.: American Psychiatric Press. Retrieved from <http://books.google.com>
- Kilpatrick, D. G., Resnick, H., Freedy, J., Pelcovitz, D., Resick, P., Roth, S., & van der Kolk, B. (1998). Posttraumatic stress disorder field trial: evaluation of the PTSD construct – criteria A through E. In T. Widiger, A. Frances, H. Pincus, R. Ross, M. First, W. Davis, & M. Kline (Eds.). *DSM-IV Sourcebook, vol. 4. (pp. 803-844)*. Washington D.C.: American Psychiatric Association.
- Kilpatrick, D. G., Resnick, H. S., Saunders, B. E., & Best, C. L. (1989). *The National Women's Study PTSD Module*. Charleston, SC: Medical University of South Carolina, Department of Psychiatry & Behavioral Sciences.
- Kilpatrick, D. G., Ruggiero, K. J., Acierno, R., Saunders, B. E., Resnick, H. S., & Best, C. L. (2003). Violence and risk of PTSD, major depression, substance abuse/dependence, and comorbidity: Results for the national survey of adolescents. *Journal of Consulting and Clinical Psychiatry*, *71*, 692-700. doi:10.1037/0022-006X.71.4.692
- Kilpatrick, D. G., & Saunders, B. E. (1995). *National Survey of Adolescents in the United States*. [Computer file]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research. doi: 10.3886/ICPSR02833.v1
- Kilpatrick, D. G., Saunders, B. E., Veronen, L. J., Best, C. L., & Von, J. M. (1987). Criminal victimization: Lifetime prevalence, reporting to police, and psychological impact. *Crime & Delinquency*, *33*, 479-489. doi: 10.1177/0011128787033004005

- King, N. J., Tonge, B. J., Mullen, P., Myerson, N., Heyne, D., Rollings, S., Martin, R., & Ollendick, T. H. (2000). Treating sexually abused children with posttraumatic stress symptoms: A randomized clinical trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, *39*, 1347-1355. doi: 10.1097/00004583-200011000-00008
- Kinzie, J. D., Sack, W. H., Angell, R. H., & Manson, S. (1986). The psychiatric effects of massive trauma on Cambodian children: I. The children. *Journal of the American Academy of Child Psychiatry*, *25*, 370-376. doi: 10.1097/00004583-199303000-00027
- Koenen, K. C., Stellman, J. M., Stellman, S. D., & Sommer, J. F. J. (2003). Risk factors for course of PTSD among Vietnam veterans: a 14-year follow-up of American legionnaires. *Journal of Consulting and Clinical Psychology*, *71*, 980-986. doi: 10.1037/0022-006X.71.6980
- Kovacs, M. (1981). *The Children's Depression Inventory*. Pittsburgh, PA: University of Pittsburgh Press.
- Kraepelin, E. (1904). *Lectures on clinical psychiatry*. doi: 10.1037/10789-025
- Kuhn, M., Ehlert, U., Rumpf, H., Backhaus, J., Hohagen, F., & Broocks, A. (2006). Onset and maintenance of psychiatric disorders after serious accidents. *European Archives of Psychiatry and Clinical Neuroscience*, *256*, 497-503. doi: 10.1007/s00406-006-0670-6
- Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the Vietnam war generation: Report of findings from the national Vietnam veterans readjustment study*. New York: Runer/Mazel.
- Lasko, N., Gurvitis, T., Kuhne, A., Orr, S., & Pittman, R. (1994). Aggression and its correlates in Vietnam veterans with and without posttraumatic stress disorder. *Comprehensive Psychiatry*, *35*, 373-381. doi: 10.1016/0010-440X(94)90278-X
- Last, J. M. (2001). *A dictionary of epidemiology*. 4th ed. Oxford, Oxford University Press.
- Lehmann, P. (1997). The development of posttraumatic stress disorder (PTSD) in a sample of child witnesses to mother assault. *Journal of Family Violence*, *12*, 241-257. doi: 10.1023/A:1022842920066
- Leibsohn, M. T., Oetting, E. R., & Deffenbacher, J. L. (1994). Effects of trait anger on alcohol consumption and consequences. *Journal of Child and Adolescent Substance Abuse*, *3*, 17-32. doi: 10.1300/J029v03n03_02
- Lipschitz, D. S., Rasmusson, A. M., Anyan, W., Cromwell, P., & Southwick, S. M. (2000). Clinical and functional correlates of posttraumatic stress disorder in urban adolescent girls at a primary care clinic. *Journal of the American Academy of Child & Adolescent Psychiatry*, *39*, 1104-1111. doi:10.1097/00004583-200009000-00009

- Looney, J. G., & Gunderson, E. K. (1978). Transient situational disturbances: course and outcome. *The American Journal of Psychiatry*, *135*, 660-663. Retrieved from <http://ajp.psychiatryonline.org>
- Lucas, C. P., Zhang, H., Fisher, P. W., Shaffer, D., Regier, D. A., Narrow, W. E., . . . Friman, P. (2001). The DISC Predictive Scales (DPS). *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*, 443-449. doi: 10.1097/00004583-200104000-00013
- Macksoud, M. (1992). Assessing war trauma in children: A case study of Lebanese children. *Journal of Refugee Studies*, *5*, 1-15.
- Macksoud, M. S., & Aber, J. L. (1996). The war experiences and psychosocial development of children in Lebanon. *Child Development*, *67*, 70-88. doi:10.2307/1131687
- Macksoud, M., Aber, L., Dyregrov, A., & Raundalen, M. (1990). *The Post-Traumatic Stress Reaction Checklist for Children (PTSRC)*. New York: Columbia University, Center for the Study of Human Rights, Project on Children and War.
- Maes, M., Mylle, J., Delmeire, L., & Altamura, C. (2000). Psychiatric morbidity and comorbidity following accidental man-made traumatic events: Incidence and risk factors. *European Archives of Psychiatry and Clinical Neuroscience*, *250*, 156-162. doi: 10.1007/s004060070034
- March, J. S., Amaya-Jackson, L., Murray, M. A., & Schulte, A. (1998). Cognitive-behavioral psychotherapy for children and adolescents with posttraumatic stress disorder after a single incident stressor. *Journal of the American Academy of Child and Adolescent Psychiatry*, *37*, 585-593. doi:10.1097/00004583-199806000-00008
- Marmar, C. R., & Horowitz, M. J. (1988). Diagnosis and phase-oriented treatment of post-traumatic stress disorder. In J.P. Wilson, Z. Harel, & B. Kahana (Eds.) *Human adaptation to extreme stress*. New York: Plenum Press.
- Mayes, R., & Horowitz, A. V. (2005). DSM-III and the revolution in the classification of mental illness. *Journal of the history of the behavioral sciences*, *41*, 249-267. doi: 10.1002/jhbs.20103
- McFall, M. E., Mackay, P. W., & Donovan, D. M. (1991). Combat-related PTSD and psychosocial adjustment problems among substance abusing veterans. *Journal of Nervous and Mental Disease*, *179*, 33-38. doi: 10.1097/00005053-199101000-00007
- McLeer, S. V., Callaghan, M., Henry, D., & Wallen, J. (1994). Psychiatric disorders in sexually abused children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *33*, 313-319. doi: 10.1097/00004583-199403000-00003

- McLeer, S. V., Deblinger, E., Atkins, M. S., Foa, E. B., & Ralphie, D. L. (1988). Post-traumatic stress disorder in sexually abused children. *Journal of the American Academy of Child & Adolescent Psychiatry, 27*, 650-654. doi:10.1097/00004583-198809000-00024
- Meffert, S. M., Metzler, T. J., Henn-Haase, C., McCaslin, S., Inslicht, S., Chemtob, C., . . . Marmar, C. R. (2008). A prospective study of trait anger and PTSD symptoms in police. *Journal of Traumatic Stress, 21*, 410-416. doi:10.1002/jts.20350
- Merry, S., & Andrews, L. K. (1994). Psychiatric status of sexually abused children 12 months after disclosure of abuse. *Journal of the American Academy of Child and Adolescent Psychiatry, 33*, 939-944. doi:10.1097/00004583-199409000-00002
- Mghir, R., Freed, W., Raskin, A., & Katen, W. (1995). Depression and posttraumatic stress disorder among a community sample of adolescent and young adult Afghan refugees. *The Journal of Nervous and Mental Disease, 183*, 24-30. doi:10.1097/00005053-199501000-00005
- Mollica, R. F., Caspi-Yavin, Y., Bollini, P., Truong, T., Tor, S., & Lavelle, J. (1992). The Harvard Trauma Questionnaire: validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. *Journal of Mental and Nervous Disease, 180*, 111-116. doi: 10.1097/00005053-199202000-00008
- Nakao, K. & Treas, J. (1992). *The 1989 socioeconomic index of occupations: Construction from the 1989 occupational prestige scores* (General Social Survey Methodological Report No. 74). Chicago: University of Chicago, National Opinion Research Center.
- National Highway Traffic Safety Administration (2006). *2005 Children Traffic safety fact sheet*. Retrieved from <http://www-nrd.nhtsa.dot.gov/Pubs/810618.PDF>
- New York City Health and Hospitals Corporation. (2011). *The New York City Council Committees on Health and Civil Rights, Oversight Hearing: Cultural Competency Training at New York City's Public Hospitals*. Retrieved from <http://www.nyc.gov/html/hhc/html/pressroom/oversight-hearing-competency-training-20111216.shtml>
- Niederland, W. G. (1968). Clinical observations on the "survivor syndrome." *International Journal of Psycho-Analysis, 49*, 313-315. Retrieved from <http://www.wiley.com/bw/journal.asp?ref=0020-7578>
- Norris, F. H. (1992). Epidemiology of trauma: frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology, 60*, 409-418. doi:10.1037/0022-006X.60.3.409
- Novaco, R. W. (2010). Anger and Psychopathology. In M. Potegal, G. Stemmler, & C. Spielberger (Eds.), *International Handbook of Anger* (pp. 465-498). doi: 10.1007/978-0-387-89676-2

- Novaco, R. W., & Chemtob, C. M. (2002). Anger and combat-related posttraumatic stress disorder. *Journal of Traumatic Stress, 15*, 123–132. doi: 10.1023/A:1014855924072
- Novaco, R. W., & Chemtob, C. M. (2007, August). Anger and combat-related PTSD in the National Vietnam Veterans Readjustment survey. Paper presented at the meeting of the American Psychological Association, San Francisco.
- Orth, U., Cahill, S. P., Foa, E. B., & Maercker, A. (2008). Anger and posttraumatic stress disorder symptoms in crime victims: A longitudinal analysis. *Journal of Consulting and Clinical Psychology, 76*, 208-218. doi: 10.1037/0022-006X.76.2.208
- Orvaschel, H., Puig-Antich J., Chambers, W., Tabrizi, M. A., & Johnson, R. (1982). Retrospective assessment of child psychopathology with the Kiddie-SADS-E. *Journal of the American Academy of Child Psychiatry, 21*, 392-397. Retrieved from www.jaacap.com
- Ouimette, P., Cronkite, R., Prins, A., & Moos, R. (2004). Posttraumatic stress disorder, anger, and hostility, and physical health status. *Journal of Nervous and Mental Disease, 192*, 563-566. doi:10.1097/01.nmd.0000135650.71761.ob
- Owens, G. P., & Chard, K. M. (2003). Comorbidity and psychiatric diagnoses among women reporting child sexual abuse. *Child Abuse & Neglect, 27*, 1075-1082. doi:10.1016/S0145-2134(03)00168-6
- Perkonig, A., Pfister, H., Stein, M. B., Hofler, M., Lieb, R., Maercker, A., & Wittchen, H. (2005). Longitudinal course of posttraumatic stress disorder and posttraumatic stress disorder symptoms in a community sample of adolescents and young adults. *American Journal of Psychiatry, 162*, 1320-1327. doi: 10.1176/appi.ajp.162.7.1320
- Pitman, R. K., Orr, S. P., Foa, D. F., Altman, B., de Jong, J. B., & Herz, L. R. (1990). Psychophysiological responses to combat imagery of Vietnam veterans with posttraumatic stress disorder versus other anxiety disorders. *Journal of Abnormal Psychology, 99*, 49-54. doi: 10.1037/0021-843X.99.1.49
- Puig-Antich, J., (1983). *A report on the Kiddie SADS (K-SADS)*. Paper presented at the research forum of the American Academy of Child Psychiatry, San Francisco, CA.
- Puig-Antich, J., Orvaschel, H., Tabrinzi, M. A., & Chambers, W. (1980). *Schedule of Affective Disorders and Schizophrenia for School age Children – Epidemiologic Version (Kiddie-SADS-E)*. New York: New York State Psychiatric Institute and Yale University School of Medicine.
- Pynoos, R. S., Frederick, C., Nader, K., Arroyo, W., Steinberg, A., Eth., S., . . . Fairbanks, L. (1987). Life threat and posttraumatic stress in school-age children. *Archives of General Psychiatry, 44*, 1057-1063. Retrieved from <http://archpsyc.ama-assn.org>

- Quay, H. C., & Peterson, D. R. (1979). *Manual for the behavior problem checklist*. Privately printed.
- Reich, W. (2000). Diagnostic Interview for Children and Adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 59-66. doi: 10.1097/00004583-200001000-00017
- Reich, W., Leacock, N., & Shanfeld, C. (1995). *Diagnostic Interview for Children and Adolescents-Revised (DICA-R)*. St. Louis, MO: Washington University.
- Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., Saunders, B. E., & Best, C. L. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology*, 61, 984-991. doi:10.1037/0022-006X.61.6.984
- Reynolds, C., & Richmond, B. (1978). What I think and feel: a measure of children's manifest anxiety. *Journal of Abnormal Child Psychology*, 6, 271-280. Retrieved from <http://www.springer.com/psychology/child+%26+school+psychology/journal/10802>
- Reynolds, C. & Richmond, B. (1997). What I think and feel: a revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology*, 25, 15-20. Retrieved from <http://www.springerlink.com/content/104756/>
- Richters, J. E., & Martinez, P. (1993). The NIMH community violence project: I: Children as victims and witnesses to violence. *Psychiatry*, 56, 7-21. Retrieved from www.guilford.com
- Richters, J. E., & Saltzman, W. (1990). *Survey of exposure to community violence: Self-report version*. Rockville, MD: National Institute of Mental Health, Child and Adolescent Disorders Branch.
- Riggs, D. S., Dancu, C. V., Gershuny, B. S., Greenberg, D., & Foa, E. B. (1992). Anger and post-traumatic stress disorder in female crime victims. *Journal of Traumatic Stress*, 5, 613-625. doi: 10.1002/jts.2490050410
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, 126, 3-25. doi:10.1037/0033-2909.126.1.3
- Robins, L., Helzer, J., Cottler, L., & Goldring, E. (1989). *NIMH Diagnostic Interview Schedule Version III, Revised*. St. Louis: Washington University Department of Psychiatry
- Roth, S., Newman, E., Pelcovitz, D., van der Kolk, B., & Mandel, F. S. (1997). Complex PTSD in victims exposed to sexual and physical abuse: Results from the DSM-IV field trial for posttraumatic stress disorder. *Journal of Traumatic Stress*, 10, 539-555. doi: 10.1023/A:1024837617768

- Rothe, E. M., Lewis, J., Castillo-Matos, H., Martinez, O., Busquets, R., & Martinez, I. (2002). Posttraumatic stress disorder among Cuban children and adolescents after release from a refugee camp. *Psychiatric Services, 53*, 970-976. doi: 10.1176/appi.ps.53.8.970
- Russell, D. H. (1983). The incidence and prevalence of intrafamilial and extrafamilial sexual abuse of female children. *Child Abuse and Neglect, 7*, 133-146.
- Russell, E. (1975). A multiple scoring method for the assessment of complex memory functions. *Journal of Consulting and Clinical Psychology, 43*, 800-809. doi: 10.1037/0022-006X.43.6.800
- Rutter, M. (1967). A children's behavior questionnaire for completion by teachers: Preliminary findings. *Journal of Child Psychology and Psychiatry, 8*, 1-17.
- Sack, W. H., Clarke, G., Him, C., Dickanson, D., Goff, B., Lanham, K., & Kinzie, J. D. (1993). A six year follow-up of Cambodian refugee adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*, 3-15. doi: 10.1097/00004583-199303000-00027
- Sahin, N. H., Batigun, A. D., & Yilmaz, B. (2007). Psychological symptoms of Turkish children and adolescents after the 1999 earthquake: Exposure, gender, location, and time duration. *Journal of Traumatic Stress, 20*, 335-345. doi: 10.1002/jts.20217
- Saigh, P. A. (1988). Anxiety, depression, and assertion across alternating intervals of stress. *Journal of Abnormal Psychology, 97*, 338-341. doi:10.1037/0021-843X.97.3.338
- Saigh, P. A. (1989a). A comparative analysis of the affective and behavioral symptomology of traumatized and non-traumatized children. *Journal of School Psychology, 27*, 247-255. doi: 10.1016/0022-4405(89)90039-3
- Saigh, P. A. (1989b). The validity of the DSM-III posttraumatic stress disorder classification as applied to children. *Journal of Abnormal Psychology, 98*, 189-192. doi: 10.1037/0021-843X.98.2.189
- Saigh, P. A. (1992). History, current nosology, and epidemiology. In P.A. Saigh (Ed.), *Posttraumatic stress disorder: A behavioral approach to assessment and treatment* (pp. 1-27). Boston, MA: Allyn & Bacon.
- Saigh, P. A. (2003a). *The Children's Posttraumatic Stress Disorder Inventory*. San Antonio, TX: Psychological Corporation.
- Saigh, P. A. (2003b). *The Children's Posttraumatic Stress Disorder Inventory test manual*. San Antonio, TX: Psychological Corporation.

- Saigh, P. A., & Bremner, J. D. (1999). The history of posttraumatic stress disorder. In P. A. Saigh & J. D. Bremner (Eds.), *Posttraumatic stress disorder: A comprehensive text* (pp. 1-17). Needham Heights, MA: Allyn & Bacon.
- Saigh, P. A., Green, B. L., & Korol, M. (1996). The history of posttraumatic stress disorder with special reference to children and adolescents. *Journal of School Psychology, 34*, 107-131. doi:10.1016/0022-4405(96)00002-7
- Saigh, P. A., Lee, K., Wilson, K., Ward, A., Wesatphal, E. L., & Fairbank, J. (2007). Posttraumatic stress disorder in children and adolescents: History, risk, and cognitive behavioral treatment. In R. Morris & T. Kratochwill (Eds.) *The practice of child therapy* (4th ed.). (pp. 433-454). New York: Lawrence Erlbaum.
- Saigh, P. A., Mroueh, M., & Bremner, J. D. (1997). Scholastic impairments among traumatized adolescents. *Behaviour Research and Therapy, 35*, 429-436. doi:10.1016/S0005-7967(96)00111-8
- Saigh, P. A., Yasik, A. E., Oberfield, R. O., & Halamandaris, P. (2007). Self-reported anger among traumatized children and adolescents. *Journal of Psychopathology and Behavioral Assessment, 29*, 29-37. doi:10.1007/s10862-006-9026-9
- Saigh, P. A., Yasik, A. E., Oberfield, R. O., Halamandaris, P., & Bremner, J. D. (2006). The intellectual performance of traumatized children and adolescents with or without posttraumatic stress disorder. *Journal of Abnormal Psychology, 115*, 332-340. doi:10.1037/0021-843X.115.2.332
- Saigh, P. A., Yasik, A. E., Oberfield, R. O., Halamandaris, P., & McHugh, M. (2002). A comparative analysis of the internalizing and externalizing behaviors of traumatized urban youth with and without PTSD. *Journal of Abnormal Psychology, 111*, 462-470. doi:10.1037/0021-843X.111.3.462
- Saigh, P. A., Yasik, A. E., Sack, W. H., & Koplewicz, H. S. (1999). Child-adolescent posttraumatic stress disorder: Prevalence, risk factors, and comorbidity. In P. A. Saigh & J. D. Bremner (Eds.) *Posttraumatic Stress Disorder: A comprehensive text* (pp. 18-43). Needham Heights, MA: Allyn & Bacon.
- Sass, H., Wittchen, H-U., Zaudig, M., & Houben, I. (1996). Diagnostisches und statistisches manual psychischer störungen DSM-IV. Hogrefe, Göttingen.
- Saunders, B. E., Arata, C. M., & Kilpatrick D. G. (1990). Development of a crime-related post-traumatic stress disorder scale for women within the Symptom Checklist-90-Revised. *Journal of Traumatic Stress, 3*, 439-448. doi:10.1002/jts.2490030312
- Saunders, B. E., Kilpatrick, D. G., Hanson, R. F., Resnick, H. S., & Walker, M. E. (1999). Prevalence, case characteristics, and long-term psychological correlates of child rape

- among women: A national survey. *Child Maltreatment*, 4, 187-200.
doi:10.1177/1077559599004003001
- Schlenger, W. E., Caddell, J., Ebert, L., Jordan, B., Rourke, K., Wilson, D., . . . Kulka, R. A. (2002). Psychological reactions to terrorist attacks: Findings from the national study of Americans' reactions to September 11. *Journal of the American Medical Association*, 288, 581-588. doi:10.1001/jama.288.5.581
- Schnitt, J. M., & Nocks, J. J. (1984). Alcoholism treatment of Vietnam veterans with post-traumatic stress disorder. *Journal of Substance Abuse Treatment*, 1, 179-189. doi: 10.1016/0740-5472(84)90021-7
- Schnurr, P. P., Friedman, M. J., & Bernardy, N. C. (2002). Research on posttraumatic stress disorder: Epidemiology, pathophysiology, and assessment. *Journal of Clinical Psychology*, 58, 877-889. doi: 10.1002/jclp.10064
- Schnurr, P. P., & Jankowski, M. K. (1999). Physical health and post-traumatic stress disorder: Review and synthesis. *Seminars in Clinical Neuropsychiatry*, 4, 295-304.
- Schreiner, M. A. (1994). *Post-traumatic stress disorder in children and adolescents: A comparison of victims of non-accidental versus accidental trauma*. (Doctoral dissertation). Retrieved from <http://search.proquest.com.ezproxy.cul.columbia.edu/>
- Schultz, S. D. (1954). A differentiation of several forms of hostility by scales empirically constructed from significant items on the MMPI. *Dissertation Abstracts*, 17, 717-720.
- Schutzwohl, M., & Maercker, A. (2000). Anger in former East German political prisoners: relationship to posttraumatic stress reactions and social support. *Journal of Nervous and Mental Disease*, 188, 483-490. doi: 10.1097/00005053-200008000-00002
- Schwab-Stone, M. E., Ayers, T. S., Kaspro, W., Voyce, C., Barone, C., Shriver, T., & Weissberg, R. P. (1995). No safe haven: A study of violence exposure in an urban community. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34, 1343-1352. doi: 10.1097/00004583-199510000-00020
- Servan-Schreiber, D., Lin, B., & Birmaher, B. (1998). Prevalence of posttraumatic stress disorder and major depressive disorder in Tibetan refugee children. *Journal of the American Academy of Child & Adolescent Psychiatry Issue*, 37, 874-879. doi: 10.1097/00004583-199808000-00018
- Shaffer, D. (1996). A participant's observations: Preparing DSM-IV. *Canadian Journal of Psychiatry*, 41, 325-329. Retrieved from <http://publications.cpa-apc.org/>
- Shea, M. T., & Zlotnick, C. (2002). Understanding and treating PTSD: introduction. *Journal of Clinical Psychology*, 58, 869-875. doi: 10.1002/jclp.10063

- Silva, R. R., Alpert, M., Munoz, D. M., Singh, S., Matzner, F., & Dummit, S. (2000). Stress and vulnerability to posttraumatic stress disorder in children and adolescents. *American Journal of Psychiatry*, *157*, 1229-1235. doi: 10.1176/appi.ajp.157.8.1229
- Singer, M. I., Anglin, T. M., Song, L., & Lunghofer, L. (1995). Adolescents' exposure to violence and associated symptoms of psychological trauma. *Journal of the American Medical Association*, *273*, 477-482. doi:10.1001/jama.273.6.477
- Smeets, R. M. R., & Dingemans, P. M. A. J. (1993). *Composite international diagnostic interview, version 1.1, Interviewer's version*, Dutch translation. World Health Organization.
- Spielberger C. D. (1973). *Manual for the State-Trait Anxiety Inventory for Children*. Palo Alto, CA: Consulting Psychologists Press.
- Spielberger, C. D. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Spielberger, C. D. (1994) *State-Trait Anger Expression Inventory, manuale*. Firenze, Italia: Organizzazioni Speciali.
- Spielberger, C. D. (1996). *State-trait anger expression inventory manual*. Odessa, FL: Psychological Assessment Resources.
- Spielberger, C. D. (1999). *State-Trait Anger Inventory-2*. Odessa, FL: Psychological Assessment Resources.
- Spielberger, C. D., Crane, R. S., Kearns, W. D., Pellegrin, K. L., Rickman, R. L., & Johnson, E. H. (1991). Anger and anxiety in essential hypertension. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress and emotion: Anxiety, anger, and curiosity* (pp. 266-283). New York: Hemisphere/Taylor & Francis.
- Spielberger, C. D., Jacobs, G., Russell, S., & Crane, R. S. (1983). Assessment of anger: the State-Trait Anger Scale. In J. N. Butcher & C. D. Spielberger (Eds.), *Advances in personality assessment, Vol. 2* (pp. 159-187). Hillsdale, N.J.: LEA.
- Spielberger, C. D., Johnson, E. H., Russell, S. F., Crane, R. J., Jacobs, G. A., & Worden, T. J. (1985). The experience and expression of anger: construction and validation of an Anger Expression Scale. In M. A. Chesney & R. H. Rosenman (Eds.), *Anger and hostility in cardiovascular and behavioral disorders* (pp. 5-30). New York: Hemisphere.
- Spielberger, C. D. & Sydeman, S. J. (1994). State-Trait Anxiety Inventory and State-Trait Anger Expression Inventory. In M. E. Maruish (Ed.), *The Use of Psychological Testing for Treatment Planning and Outcome Assessment* (pp. 292-321). Retrieved from <http://dionysus.psych.wisc.edu/Lit/Articles/SpielbergerC1994a.pdf>

- Spitzer, R. L., Williams, J. B. W., & Gibbon, M. (1987). *Structured Clinical Interview for DSM-III-R*. New York, New York State Psychiatric Institute, Biometrics Research.
- Spitzer, R. L., Williams, J. B. W., Gibbon, M., & First, M. B. (1990). *Structured clinical interview according to DSM-III-R*. American Press, New York.
- Steele, R. G., Roberts, M. C., & Elkin, T. D. (2008). Evidence-based therapies for children and adolescents: Problems and prospects. In Steele, R. G., Elkin, T. D., & Roberts, M. C. (Eds.), *Handbook of evidence-based therapies for children and adolescents: Bridging science and practice* (pp. 3-8). New York: Springer Science & Business Media, LLC. Retrieved from <http://books.google.com>
- Stein, M. B., McQuaid, J. R., Pedrelli, P., Lenox, R., & McCahill, M. E. (2000). Posttraumatic stress disorder in the primary care medical setting. *General Hospital Psychiatry, 22*, 261-269. doi: 10.1016/S0163-8343(00)00080-3
- Stiffler, K. L. (2008). *Adolescents and anger: An investigation of variables that influence the expression of anger*. (Doctoral dissertation). Retrieved from <http://search.proquest.com.ezproxy.cul.columbia.edu/>
- Tamhane, A. C. (1979). A comparison of procedures for multiple comparisons of means with unequal variances. *Journal of the American Statistical Association, 74*, 471-480. Retrieved from www.jstor.org
- Taylor, J. (1953). A personality scale of manifest anxiety. *Journal of Abnormal Psychology, 48*, 285-290.
- Thabet, A. A., Tawahina, A. A., El Sarraj, E., & Vostanis, P. (2008). Exposure to war trauma and PTSD among parents and children in the Gaza strip. *European Child and Adolescent Psychiatry, 17*, 191-198. doi: 10.1007/s00787-007-0653-9
- Time, V. & Payne, B. K. (2008). School violence prevention measures: School officials' attitudes about various strategies. *Journal of Criminal Justice, 36*, 301-306. doi:10.1016/j.jcrimjus.2008.06.001
- Trimble, M. R. (1981). *Post-traumatic neurosis*. Chicester: Wiley.
- van der Kolk, B. A., & van der Hart, O. (1989). Pierre Janet and the breakdown of adaptation in psychological trauma. *American Journal of Psychiatry, 146*, 1530-1540. Retrieved from <http://ajp.psychiatryonline.org/>
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993, October). *The PTSD Checklist (PCL): reliability, validity, and diagnostic utility*. Paper presented at the Annual Conference of the International Society for Traumatic Stress Studies, San Antonio, Texas.

- Weathers, F. W., Litz, B. T., Huska, J. A., & Keane, T. M. (1994). *PTSD Checklist (PCL) – Civilian Version for DSM-IV*. National Center for PTSD – Behavioral Science Division. Retrieved from http://www.ptsdassociation.com/~ptsdasso/cmsAdmin/uploads/ptsd_self_assessment.pdf
- Wechsler, D. (1981). *Wechsler Adult Intelligence Scale - Revised: Manual*. New York: The Psychological Corporation.
- Wechsler, D. (1991). *Wechsler Intelligence Scale for Children – 3rd edition: Manual*. San Antonio, TX: The Psychological Corporation.
- Weissberg, R. P., Voyce, C. K., Kaspro, W. J., Arthur, M. W., & Shriver, T. P. (1991). *The Social and Health Assessment*. New Haven, CT: Authors.
- Welner, Z., Reich, W., Herjanic, B., Jung, K., & Amado, H. (1987). Reliability, validity, and parent-child agreement studies of the Diagnostic Interview for Children and Adolescents (DICA). *Journal of the Academy of Child and Adolescent Psychiatry*, 26, 649-653. doi: 10.1097/00004583-198709000-00007.
- Widiger, T. A., Frances, A. J., Pincus, H. A., Davis, W. W., & First, M. B. (1991). Toward an empirical classification for the DSM-IV. *Journal of Abnormal Psychology*, 100, 280-288. doi:10.1037/0021-843X.100.3.280
- Wilcox, R. R. (1987). New designs in analysis of variance. *General Hospital Psychiatry*, 38, 29-60. Retrieved from www.annualreviews.org
- Williams, J. B. (1986). DSM-III-R: What's all the fuss about? *Hospital & Community Psychiatry*, 37, 549-550. Retrieved from <http://psychservices.psychiatryonline.org/>
- Wolfe, V. V., & Lehmann, P. (1992). *The Children's Impact of Traumatic Events Scale-Family Violence Form (CITES-FVF)*. Unpublished assessment instrument, Children's Hospital of Western Ontario.
- World Health Organization (1992). *International statistical classification of disease and related health problems (10th ed.)*. Arlington, VA: American Psychiatric Publishing, Inc.
- Yasik, A. E., Saigh, P. A., Oberfield, R. O., & Halamandaris, P. V. (2007). Posttraumatic stress disorder: Memory and learning performance in children and adolescents. *Biological Psychiatry*, 61, 382-388. doi:10.1016/j.biopsych.2006.06.005
- Yule, W. (2001). Posttraumatic stress disorder in the general population and in children. *Journal of Clinical Psychiatry*, 62, 23-28. Retrieved from www.psychiatrist.com

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