Assessing post-traumatic responses among South African adolescents: A comparison of different methods.

Sharain Suliman

Supervisor: Debbie Kaminer

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Declaration

The author hereby declares that this whole thesis, unless specifically indicated to the contrary in the text, is a product of her own work.

Signed by candidate

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Sharain Suliman (Date)

Abstract

The present study compares the use of standardised diagnostic clinical interviews, self-report scales, and unstructured interviews, to determine if these different methods of assessment elicit the same or similar information with regards to trauma exposure, post-traumatic stress disorder, and depression in adolescents. A sample of Grade 11 learners was drawn from two schools in the Northern Suburbs of Cape Town. The total sample comprised of 58 learners between the ages of 16 and 18 years. Each participant was administered a demographic questionnaire, a clinical diagnostic interview, two self-report scales, and an unstructured interview. The diagnostic interview used was the Schedule for Affective Disorders and Schizophrenia for School-Aged Children – Present and Lifetime version (K-SADS-PL), and the self-report scales used were the Child and Adolescent Trauma Survey (CATS) and the Children's Depression Inventory (CDI). The demographic questionnaire and qualitative interview were devised for the study. The McNemar Chi-Square statistic was used to determine differences between the interview and self-report methods of assessment, and a content analysis of the qualitative interview was conducted. Additionally, a Receiver Operating Characteristic analysis was used to establish a CATS score, indicating a high risk of PTSD, that was more sensitive to the sample. The results indicate that even though clinical interviews and self-report scales appear to produce different information, if appropriate cut-off points are used, self-report scales can be used as a screening device to reduce the number of clinical interviews required, thus contributing to a more efficient use of resources. They also indicate that unstructured qualitative interviews can elicit useful information about post-traumatic responses that is not captured by the DSM IV criteria.

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INTRODUCTION TO THE STUDY

The aim of this study is to assess rates of trauma exposure, post-traumatic stress disorder (PTSD), and co-morbid depression in South African adolescents using two different methodologies – a structured clinical interview and self-report scales. The usefulness of unstructured interviews in the assessment of PTSD will also be determined.

Adolescence is a critical developmental period, but may also be characterized as a period of great risk to healthy development (Takanishi, 1993). Today's children and adolescents are subjected to a multitude of traumatic events in their daily lives. As a group, children who are victimised and/or traumatised are known to lag behind those who are not, in terms of their behavioural and physical development (Schurink, Snyman, Krugel and Slabbert, 1992).

PTSD is a common syndrome resulting from trauma exposure, in both children and adults. Sub-clinical post-traumatic responses are also common, and depression (of clinical and sub-clinical significance) has frequently been found to be co-morbid with PTSD, in adults as well as children. As such, exposure to violence (television, media, domestic, political and community violence) in children and adolescents is a major concern for clinicians, parents, school personnel, and the youth themselves, as well as the general population (Mazza and Reynolds, 1999).

In South Africa community violence is very prevalent and it is important to delineate the consequences of this violence in order to be able to develop preventative and ameliorative strategies. There is therefore a need to establish reliable and valid measurements of post-traumatic responses, and particularly PTSD, in South Africa. PTSD assessment devices need to be standardized on South African samples in order to improve detection of the disorder in our population, as early and accurate diagnosis is essential for effective preventative and treatment programmes to be set up as well as for the allocation of limited resources.

It is also important to find cost-effective ways to assess as many individuals as possible. This is necessary as the increasingly limited resources, such as few school psychologists and large classes, make it difficult for traumatized children to be identified. Additionally, if those individuals who go on to develop PTSD after a traumatic event can be distinguished from those who do not, this would also contribute to a more targeted and efficient use of resources. This investigation attempts to contribute to the research in this area, of which there has been a lack, especially in children and adolescents.

This dissertation will begin with a historical review of the development of the PTSD diagnosis and diagnostic criteria, the development of newer conceptualisations of the post-traumatic stress response and the link between PTSD and depression. Developmental considerations will follow: the history of the study of childhood trauma and PTSD, traumatic exposure in children and adolescents, PTSD symptoms in children and adolescents and how they may differ from those of adults, and the impact of trauma on development will all be discussed.

Thereafter, assessment issues in childhood/ adolescent PTSD will be discussed; different methodologies for assessing trauma exposure and PTSD in youth and their usefulness in South Africa, and difficulties with researching PTSD, will be considered. The prevalence of trauma exposure, PTSD, and co-morbid depression in international studies will then be reviewed. Trauma and violence in South Africa, exposure to trauma, and rates of PTSD and depression in the earlier political violence and more recent community violence studies will also be reviewed.

Following the rationale, the methods used to carry out the study will be described. The results will then be presented and discussed, and conclusions and recommendations drawn from this.

Chapter 1: Literature Review

1.1 Historical Review of PTSD

1.1.1 Development of PTSD Diagnosis and Diagnostic Criteria

In recent years the role of traumatic experiences in the development of maladaptive emotional states has been examined and it is clear that various types of traumatic events can produce a number of emotional difficulties (Cooley-Quille, Turner and Beidel, 1995; Mazza and Reynolds, 1999). The consequences of these mental health outcomes are both short-term and long-term (Thompson, Kaslow, Bradshaw-Lane and Kingree, 2000). Therefore, trauma responses and exposure to traumatic events are a source of concern that needs to be addressed, by clinicians, researchers and society as a whole.

The idea that stress triggers psychiatric illness in normal individuals has been around longer than formal classification systems (Yehuda and McFarlane, 1995). Pathogenic memory (memories of horrible experiences that invade the sufferers' consciousness and affect him or her long after the event) was invoked in the nineteenth century, to explain cases involving spontaneous somnambulism and alternating personalities (Young, 1995), and was the basis of the traumatic hysterias and neuroses described by Charcot (1807), Janet (1920), and Freud (1962). The concept of Posttraumatic Stress Disorder (PTSD) was later developed in relation to studies of adults' reactions to major stress, particularly the shell shock or battle fatigue suffered by soldiers during war (Horowitz, 1976).

Early conceptions of PTSD were based in the field of biological studies, where most theoreticians' hypothesised that neurobiological changes in this disorder would be similar to those resulting from stress (Yehuda and McFarlane, 1995). Selye (1956) found that any adversity could provoke a biological stress response. Life events literature provided indirect support for the notion of PTSD as a normative stress response by demonstrating a temporal relationship between adverse life events and the development of psychiatric and physical symptoms (Yehuda and McFarlane,

1995). The crisis intervention and bereavement fields provided clinical support for the observation that transient traumatic events could produce symptoms that were amenable to intervention; and the crisis intervention literature formed the conceptual basis for viewing chronic PTSD as a prolongation of the normal response to stress (Yehuda and McFarlane, 1995).

Even though the effects of trauma and violence on the individual are diverse, a number of common responses have been observed. The diagnosis of PTSD was established to fill a gap in the prevailing mental health field by acknowledging that extremely traumatic events could produce chronic clinical disorders in normal individuals, and to describe one very common response to traumatic exposure (Herbert, 1996; Yehuda and McFarlane, 1995). Herman (1992; p33) notes that according to the Comprehensive Textbook of Psychiatry, the common denominator of psychological trauma is a feeling of "intense fear, helplessness, loss of control, and threat of annihilation."

Post Traumatic Stress Disorder (PTSD) in adults has been recognized as a diagnostic category in the American Psychological Association's (APA) Diagnostic and Statistical Manual since the publication of its third edition in 1980 (DSM-III). The fourth edition (DSM-IV), published in 1994, and the tenth edition of the World Health Organisation classification (ICD-10; 1992) both recognize that children and adolescents also suffer from PTSD (Herbert, 1996).

In the American Psychological Association's (APA) Diagnostic and Statistical Manual (DSM III) (APA, 1980) the aetiology of PTSD was formulated in terms of a distressing event outside the range of usual human experience (Criterion A). This lead to problems with identifying the criteria for specifying which stressors are outside the range of usual human experience (Herbert, 1996). Common stressors may have a wide range of effects on different individuals, and victimisation statistics challenge the assertion that traumatic events are unusual experiences; daily stressors have been found to have more of an effect on the development and maintenance of psychological problems than major life events (Wright-Berton and Stabb, 1996). Herman (1992) points out that traumatic events are extraordinary, not because they

occur rarely, but rather because they overwhelm the ordinary human adaptations to life.

More recently, Criterion A has been clarified such that the emphasis is placed on the threatening nature of the traumatic event to the person, rather than it being outside the range of normal human experience (APA, 1994). According to Garbarino, Kostelny and Dubrow (1991) events can be physically, psychologically or morally traumatic. Subjective perception plays a large part in how the events are given meaning and the subsequent development of symptoms (Randall and Parker, 1997) and there may be only a weak link between subjectivity and objectivity (Garbarino et al., 1991). McFarlane and de Girolamo (1996) note that the dimensions of helplessness, powerlessness and threat to one's life are central to the experience of traumatic stress, as the individual's sense of self and predictability of the world are attacked. The nature of trauma is such that it can have an adverse effect on an individual who has experienced, witnessed or simply heard about it.

According to the DSM-IV (APA, 1994), the core feature of PTSD is the development of characteristic symptoms following exposure to an extreme stressor (Criterion A). The characteristic symptoms include persistent reexperiencing of the traumatic event (Criterion B), persistent avoidance of stimuli associated with the trauma and a numbing of responsiveness (Criterion C), and persistent symptoms of increased arousal (Criterion D). Additionally, the symptoms must be present for more than one month (Criterion E) and cause significant distress of impairment in social, occupational, or other important areas of functioning (Criterion F). Refer to Appendix I for the full DSM IV diagnostic criteria for PTSD.

1.1.2 Recent Conceptualisations of the Post-traumatic Stress Response

In recent years the DSM criteria have been criticised for being too narrow, as many individuals, following traumatic events, experience symptoms that are not fully captured by the reexperiencing, arousal and avoidance symptoms of PTSD (Herman, 1992). Janoff-Bulman (1992) has described a variety of symptoms that are seen across trauma populations but are not part of PTSD symptomatology, including feelings of despair, self-blame and alienation from others.

Van der Kolk and Pelcovitz (1999) state that many traumatized individuals suffer from difficulties with their regulation of affective arousal, with impaired capacity for cognitive integration of experience (as in dissociation), impairment in the capacity to differentiate relevant from irrelevant information and with disturbances in relation to self and others and these problems may require clinical interventions different from those proven to be effective in simple PTSD.

Another criticism of the DSM diagnosis of PTSD is that it does not take cultural factors into consideration. Terr (1991a) notes that cultural influences may favour certain symptoms of psychic trauma over others. The PTSD construct may have both culture-bound and universal dimensions. As such there is a need to identify other posttraumatic expressions of distress, such as somatisation and dissociation, that may be particularly pertinent to non-Western individuals (Friedman, 1997; Marsella, 1996).

Herman (1992) claims that the present diagnosis is not accurate enough, as in individuals who have experienced prolonged or repeated trauma the symptoms are often far more complex: these individuals, including survivors of repeated childhood abuse, often develop personality changes as well as abnormal changes in relatedness and identity. The current formulation of PTSD fails to capture these symptomatic manifestations of prolonged, repeated trauma or the profound disturbances of personality that result (Herman, 1992). The literature suggests that the impact of trauma on self-regulation, self-concept and interpersonal functioning is most profound in younger victims of trauma (Van der Kolk and Pelcovitz, 1999).

A separate category of Disorders of Extreme Stress Not Otherwise Specified (DESNOS) has been suggested to encompass the complex symptomatology shown by people who have suffered prolonged or repeated traumatisation (Yule, 1995). The ICD-10 (World Health Organization, 1992) also recognises the occurrence of PTS alternations and includes a diagnostic category of "lasting personality changes following catastrophic stress" (Pelcovitz, Van der Kolk, Roth, Mandel, Kaplan and Resnick, 1997; p5). Similarly, Straker and The Sanctuaries Counselling Team (1987)

created the term "continuous traumatic stress syndrome" to describe the response to chronic trauma and violence in South Africa.

Herman (1992) notes that many experienced clinicians have invoked the need for a diagnostic formulation in the DSM that goes beyond that of simple PTSD. This is clearly needed if responses to trauma are to be understood more fully.

1.1.3 Link Between PTSD and Depression

Studies of the impact of psychological trauma on mental health have consistently shown, across a wide range of groups, populations and type of trauma, that the effects include other psychopathology besides PTSD, especially other anxiety and depressive psychopathology (Bolton, O'Ryan, Udwin, Boyle and Yule, 2000; Yule, 1995). According to Persaud (1999), exposure to stress renders a person more vulnerable to various ills, not just one. Herbert (1996) notes that approximately 90% of all individuals with PTSD meet the diagnostic criteria for some other disorder.

Problems with diagnosing a patient as having PTSD often stem from its heterogeneous presentation, frequent symptom overlap with depression or anxiety, and the fact that PTSD is often associated with co-morbidity (Bleich, Koslowsky, Dolev and Lerer, 1997; March and Amaya-Jackson, 1993; Perrin, Smith and Yule, 2000). Brady (1997) suggests that PTSD may be the underlying psychiatric diagnosis in persons with a variety of clinical presentations. The order of onset of PTSD relative to other co-morbid conditions is an important issue in exploring the nature of the relationship between PTSD and other psychiatric diagnoses (Brady, 1997).

Bleich et al. (1997), Brady (1997) and Deering, Glover, Ready, Eddleman and Alarcon (1996) note that depression has frequently been reported as the most common co-morbid disorder with PTSD in adult populations and has always been found when looked for (Shalev and Yehuda, 1998). The essential features of major depressive disorder (APA, 1994) are either a depressed or irritable mood, or a marked loss of interest or pleasure in almost all activities, with at least four other symptoms that should have been present for at least a two week period (Criterion A). The symptoms do not meet criteria for a mixed episode (Criterion B), must cause

clinically significant distress/ impairment in social, occupational, or other areas of functioning (Criterion C), are not due to substance use (Criterion D), and are not better accounted for by bereavement (Criterion E). (Refer to Appendix II for the full list of DSM IV criteria for major depressive disorder).

According to Ballinger, Davidson, Lecrubier, Nutt, Foa, Kessler et al. (2000) 60% to 80% of individuals who meet criteria for PTSD also experience depression. It is unclear, however, whether depression may precede and create a vulnerability to PTSD, if it develops as a result of PTSD symptoms, or if both arise out of a shared predisposition (Ballinger et al., 2000; Resnick, Kilpatrick, Best and Kramer, 1992). Like adults, children and adolescents with PTSD also exhibit high rates of psychiatric co-morbidity, especially depressive conditions (March, Feeny, Amaya-Jackson and Foa, 2000). (See section 1.4.1 for prevalence rates).

The frequency of co-morbid conditions in individuals with PTSD has lead to the idea that co-morbidity in PTSD may be a misnomer (Brady, 1997; March et al., 2000). Some believe that PTSD and its co-morbid conditions should be seen as a single disorder (Brady, 1997). For example, Friedman (1997) feels that one cannot distinguish between PTSD and depression, and that anxiety disorders as well as some Axis II disorders may all be part of the PTSD syndrome. It has been suggested that the syndrome be seen as "complex, somatic, cognitive, affective and behavioural effects of psychological trauma" (Van der Kolk, Pelcovitz, Roth, Mandel, McFarlane and Herman, 1996; p90).

The concept of PTSD has thus been evolving since its conception and it is likely to go through many more changes. Much still needs to be learned about the disorder and its manifestations.

1.2 Developmental Considerations

1.2.1 History of the Study of Childhood Trauma and PTSD

Doyle and Bauer (1989) note that early Freudian thinking connected childhood traumas to psychopathology. Sigmund Freud, however, later came to believe that the

development of neuroses was related more to childhood fantasies and misinterpretations of childhood events rather than actual traumas (Freud, 1959). Still, little was known about childhood trauma until psychoanalysts began to directly study children and the retrospective reconstruction of the childhoods of adult patients in the 1940's (Terr, 1991a). Terr (1991b) notes that later studies of mentally disturbed adults and adolescents have proved that many of these individuals were indeed traumatised as children.

The study of childhood traumatic stress has passed through several stages of development (Pynoos, Steinberg and Goenjian, 1996). The first was characterised by efforts to develop psychologically and clinically sound approaches to interviewing children exposed to traumatic situations. In the second stage researchers began to organise the complex phenomenology of children's distress under the emerging concept of PTSD and to describe more precisely how these symptoms manifested in children and adolescents.

The third and current stage encompasses three broad areas (Pynoos et al., 1996). The first focuses on a more thorough examination of etiological and mediating factors. The second has expanded the scope of research and clinical attention beyond simple PTSD. It includes the role of traumatic reminders and secondary adversities; co-morbid conditions; developmental consequences; the impact on emerging personality and moral development; the impact of multiple traumatic experiences; the effect of environmental factors on trauma responses; the role of child intrinsic factors on coping; and the link between PTSD (and secondary disorders) and genetic predispositions. The third area is concerned with biological alterations associated with biological stress symptoms in children and adolescents.

1.2.2 Traumatic Exposure in Children and Adolescents

In recent years there has been an increased recognition that children and adolescents, rather than adults, are becoming the victims of trauma (Boney-McCoy and Finkelhor, 1995; Finkelhor and Dzuiba-Leatherman, 1994; Randall and Parker, 1997). According to Duncan (1996), teenagers are two and a half times more likely than

adults to be victims of violent crimes and are frequently witnesses of violence in the community they live in.

A wide variety of stressors have been associated with PTSD in children and adolescents. (See Table 1.1).

Table 1.1: Types of Trauma Associated with PTSD in Children and Adolescents

Kidnapping and hostage situations
Exposure to violence, including terrorism, gang violence, sniper attacks and war atrocities
Sexual or physical abuse
Severe accidental injury, including burns and hit-and-run accidents
Life-threatening illnesses and life-endangering medical procedures
Train, airplane, ship and automobile accidents
Major disasters

From: Pynoos (1990)

These can be directly experienced events or vicariously experienced events (personally witnessed events or events experienced and conveyed by significant others) (Marsella, 1996). However, given individual differences in reaction to objectively similar stressors, it is difficult to predict how many children or adolescents will react adversely to a particular event, but a better understanding of the range and nature of reactions to different life events will help improve the predictions (Yule, 1995).

Terr (1991b) has delineated two classes of childhood trauma. Type I trauma involves single, sudden and severely traumatic events such as natural disasters and car accidents. Type II entails a series of traumatic events or prolonged exposure to a repeated set of specific stressors that very often are expected, such as physical and sexual abuse.

It appears that the severity and duration of, and proximity to, the traumatic event all contribute to the development of emotional problems in children and adolescents

(APA, 1994; Pynoos, 1993). Recent research suggests that it is common for individuals to experience multiple traumatic events in their lives, that prior exposure to a traumatic event may affect an individual's responses to a later event and that the effects of traumatic experiences may be cumulative (Goodman, Corcoran, Turner, Yuan and Green, 1998).

Traumatic events are often associated with secondary stresses and adversities, which may vary considerably with both the type of trauma and environmental responsiveness to the individual (Pynoos, 1993). These fall into four categories: social structure and values, community and school organisation, family function, and individual challenges (Pynoos, 1993). Along with traumatic reminders, which represent trauma –specific references to external and internal threats and reactions, secondary stresses constitute additional sources of ongoing distress for children and adolescents (Pynoos, 1993).

1.2.3 PTSD in Children and Adolescents

Even though the DSM criteria were not developed on the basis of studies of young people, it is now well established that children and adolescents can manifest PTSD symptoms similar to those of adults (Yule, 1995). However, there is uncertainty as to how accurately the ICD and DSM categories reflect the range of symptoms presented by children, the extent to which children fail to show some of the adult symptoms, and the way symptom presentation varies with developmental age (Yule, 1995).

Although the post-traumatic stress reactions of children and adolescents are essentially the same as adults (Smith and Holford, 1993), many authors note that there are developmentally based differences: the appraisal and tolerance of external and internal dangers, expectations of outside intervention and self-efficacy, and the extent to which these are influenced by reliance on care-givers, siblings and peers all vary with the maturation of the child (Herbert, 1996; Osofsky, 1997; Pynoos et al., 1996).

Children may re-experience the trauma by means of repetitively playing out themes derived from the traumatic event, there may be a loss of recently acquired

developmental skills (regression), an increased belief in omens, the onset of new fears or the recurrence of old ones, accidents and reckless behaviour (Herbert, 1996). They may refuse to talk about the trauma even though they remember it vividly, and may show a marked change in orientation to the future as well as a variety of physical symptoms such as stomach aches and headaches (Yule, 1995).

In addition to these, Terr (1991b) notes that there are several other prominent characteristics that distinguish the trauma responses of childhood. These include thought suppression, sleep problems, exaggerated startle responses, fears of the mundane, deliberate avoidances, panic, irritability, hyper vigilance and most importantly, strongly visualised or repeatedly perceived memories, repetitive behaviours, trauma specific fears and changed attitudes about people and life.

Authors have also noted post-traumatic responses that are specific to particular kinds of traumatic experiences: research on sexually and physically abused children has demonstrated that they experience extended periods of apprehension, guilt and fear, unmodulated aggression and alterations in their relationships to caregivers, including anxious clinging and difficulty with intimacy (Pelcovitz et al., 1997). It has also been shown that age-appropriate psychological defences used to cope with early traumatic experiences, such as dissociation, are frequently used in periods of subsequent stress (Pelcovitz et al., 1997).

A significant difference between adult and childhood PTSD is concerned with the possibility that the child form may be of two types. Terr (1991b) proposes Type I or simple childhood PTSD, which results from a single stressor, and Type II or complex childhood PTSD, which is the result of multiple or continuous stressors. The Type I disorder is typically characterised by hypermnesia, or full detailed etched-in memories of the event/s, a new belief in omens or cognitive reappraisals, and misperceptions, misidentifications, visual hallucinations and time distortions. The Type II disorder is characterised by massive denial and psychic numbing, self-hypnosis, depersonalisation and dissociation, and extreme rage, which may be turned against the self.

Many authors, such as Lewis (1999) and Smith and Holford (1993), have noted the responses outlined above as common reactions to traumatic stress in children. As they approach adolescence children begin to conceptualise things more as adults do (Barker, 1990) and their reactions to trauma become more adult-like.

Monahon (1993) describes symptoms of trauma that are more specific to adolescents. Externalising symptoms include: acting out behaviour (sexual acting out or reckless, risk-taking behaviour); hyperactivity and increased involvement with others, or retreating from others in order to manage inner turmoil; accident proneness; sleep and eating disturbances; changes in quality of important relationships; "growing up too quickly" as a way of escaping impact and memory of trauma (early marriage, dropping out of school, etc); a fear of growing up and a need to stay within the family orbit. Internalising symptoms include: efforts to distance oneself from feelings of shame, guilt and humiliation; a wish for revenge and action-orientated responses to trauma; increased self-focusing and withdrawal; an acute awareness of, and distress with, intrusive imagery and memories of the trauma; vulnerability to depression, withdrawal and a pessimistic worldview; personality changes; vulnerability to flashback episodes of recall; and acute distress experienced at any reminder of event.

In addition to the above symptoms, Lewis (1999) includes the following symptoms of trauma common in adolescents: an increase in generalised anxiety and fears; hyper arousal; feelings of helplessness and powerlessness; increased irritability and aggression; difficulty concentrating; poor memory and forgetfulness; and running away from home.

1.2.4 Impact of Trauma on Development

Often children's abnormalities consist of deficiencies in positive adaptive behaviours and a failure to progress in the expected fashion along one or more dimensions of development, rather than specific symptoms (Achenbach, 1980).

Research has shown that trauma has a different impact on psychological adaptation at different stages of development, and that earlier trauma affects subsequent maturational processes. Traumatic experiences, especially if they occur early in the

life cycle, interfere with the development of self-regulation, self-identity, interpersonal functioning and with the capacity to manage subsequent stresses (Pelcovitz et al., 1997).

Pynoos et al. (1996) point out that the developmental impact of traumatic stress includes effects on the acquisition of both proximal and distal developmental competencies, the achievement of developmental transitions, moral development, and emerging personality.

Childhood exposure to traumatic stress impinges on the course of development by shaping children's expectations about the world, safety and security of their interpersonal life and their sense of personal integrity (Pynoos, 1993). People generally operate under the assumption that they are worthy, decent people. The experience of being victimized leads to a serious questioning of these self-perceptions, since they feel that they have been singled out for misfortune, and this establishes them as different from other people (Janoff-Bulman, 1984).

Children and adolescents, like adults, operate on a set of assumptions. These expectancies contribute to the child's inner plans of the world, shape concepts of self and others, and can lead to forecasts about the future that can have a profound influence on current and future behaviour (Bowlby, 1973 in Pynoos et al., 1996). If these assumptions are shattered by a traumatic experience, critical developmental transitions, such as attachment, can be retarded or accelerated (Pynoos et al., 1996). The continuous establishment of a sense of safety and security throughout childhood provides a foundation for developmental maturation and achievement of age-appropriate competencies (Sandler, 1987 in Pynoos, 1993).

Recent research has demonstrated interference with the normal developmental achievement of narrative coherence in children exposed to intrafamilial and community violence (Osofsky, 1993 in Pynoos et al., 1996). Achievement of this developmental task is essential to subsequent competencies in reading, writing and communication skills (Pynoos et al., 1996).

Developmental studies of the generation of intense negative emotions indicate ways in which childhood traumatic experiences may challenge maturing mechanisms of emotional regulation (Parens, 1991 in Pynoos et al., 1996), which is critical to family, peer and school functioning. Fear of affective intensity may interfere with the efforts of adolescents to achieve a better understanding of the origin and consequences of negative emotions, and generate somatic complaints and a negative self-image (Pynoos, 1993).

Trauma interferes with children's capacity to regulate their arousal levels. The inability to regulate arousal levels can lead to problems from learning disabilities to aggression against the self and others. The capacity to regulate internal states and behavioural responses to external stress defines one's core concept of oneself and one's attitude towards one's surroundings (Pynoos et al. 1996).

There can also be a profound impact on moral development. There may be interference with the emergence of moral concepts and extreme moral confusion (Pynoos, 1993). There can also be a disruptive influence on one's sense of continuity (integrating past, present and future expectations into a lasting sense of identity) (Pynoos, 1993).

Perry (in Pynoos et al., 1996) claims that neurophysiological alterations in traumatised children may disrupt normal biological maturation. The startle reaction provides a good example of neurophysiological vulnerability (Pynoos, 1993). These alterations, along with their effects over time, may have a significant impact on a variety of other aspects of child development, such as learning, habituation and stimulus discrimination (Pynoos et al., 1996).

Reexperiencing phenomena may affect the processing of information by skewing attention either towards or away from concrete and symbolic reminders (Pynoos, 1993). In adolescents this may cause difficulty with the acquisition of abstract concepts and impairment in attention and learning, which in turn may result in scholastic decline and failure and thus loss of self-esteem (Pynoos, 1993).

Recent studies have implicated childhood trauma in a variety of later psychiatric disorders, such as phobic and overanxious disorders, trauma-related disorders of attachment and conduct, new-onset attention deficit disorder, depression and sleep disorder, personality disorders, somatisation disorders, dissociative disorders, self-mutilation, eating disorders and substance use ((Pynoos, 1993; Pynoos et al., 1996).

Adolescence is often viewed as a high-risk period for experiences of trauma and an inherently stressful stage of development (Udwin, Boyle, Yule, Bolton and O'Ryan, 2000). Yet, within developmental psychopathology adolescents have received much less attention than children have. Ebata, Peterson and Conger (1990) and Kazdin (1993) have attributed this neglect to several factors. The first is that adolescence has often been viewed as a transitional period between childhood and adulthood, so research has either focused on adulthood, when development is seen as relatively stable, or childhood, when the roots of adult adjustment are planted; secondly, as a transactional period, adaptation, emotional and behavioural problems are considered to be age and stage specific and hence likely to pass with time; and thirdly, adolescence raises theoretical and methodological challenges, as biological and psychological maturation, sources of influence and opportunities contribute to the dynamic nature of adolescent development.

Although developmental differences in manifestations of clinical dysfunction in general are only beginning to be elaborated (Kazdin, 1993), it is clear that childhood and adolescent trauma and PTSD can have significant adverse consequences. Emotional and behavioural responses to stress may impinge on the possibility of healthy development and the realisation of one's fullest potential (Schwab-Stone, Ayers, Kasprow, Voyce, Barone, Shriver and Weissberg, 1995). Effective identification of PTSD in children and adolescents is therefore extremely important.

Examining individual PTSD symptoms rather than the full PTSD syndrome may be more appropriate for children/adolescents, as many who experience post-traumatic stress symptoms do not technically meet the PTSD diagnosis (Margolin and Gordis, 2000). Giaconia Reinherz, Silverman, Pakiz, Frost and Cohen (1995) note that partial symptoms are common and may be disabling even if the full criteria are not met. For

example they found that adolescents who experienced trauma but did not meet strict criteria for PTSD diagnosis showed important deficits in later adolescence. These include behavioural-emotional problems, poor academic performance, suicidal ideation, suicide attempts and poor health (Giaconia et al, 1995).

Adolescence is a period of life typically associated with great risks. Information about the prevalence of trauma in contemporary adolescent populations, and the impact on later psychosocial functioning, can alert those working with adolescents to the level of risk faced by youth in community settings, and aid in developing early intervention and prevention strategies aimed at reducing long-term sequelae (Giaconia et al., 1995).

1.3 Assessment Issues in Childhood PTSD

1.3.1 Assessment Techniques

Numerous assessment devices that seek to systematize the assessment of childhood psychiatric disorders and symptoms have been developed in the last two decades (American Academy of Child and Adolescent Psychiatry, 1995). Most of these are American in origin (Randall and Parker, 1997). Although these instruments have revolutionised child psychiatric clinical and epidemiological research, their usefulness and suitability for routine clinical practice remain to be defined (American Academy of Child and Adolescent Psychiatry, 1995).

No existing single measure can function as a definitive indicator of PTSD. According to Newman, Kaloupek and Keane (1996), reasons include firstly, that different assessment formats have different strengths and secondly, the fact that a respondent may have difficulty with a particular test format, or may demonstrate response bias in a particular test. The impact of extraneous factors like these is reduced when a range of assessment approaches is used.

The different measures used to assess childhood and adolescent PTSD and exposure to trauma include self-report scales, parent and teacher report scales, parent, teacher

and child structured and semi-structured interviews, and psychophysiological assessments.

Child/Adolescent clinical interviews

Structured and semi-structured interviews constitute the main methods of assessing the presence and intensity of PTSD symptoms among children and adolescents (Randall and Parker, 1997). A common feature of most structured interviews for assessing childhood PTSD is that they are based on DSM criteria (Marsella, 1996) . A number of DSM based child/adolescent PTSD interviews have been constructed to date, which have served to facilitate research and practice over time (Saigh, Yasik, Oberfield, Green, Halamandaris, Rubenstein, et al., 2000).

According to Nader (1997), the semi-structured interview is best because in general, children and adolescents tend to answer more accurately when they can ask questions and when a skilled interviewer asks the appropriate probing questions. Also, interviewers can increase comprehension by rephrasing questions to ensure that a respondent understands them (Newman et al., 1996). According to many authors, for example Nader (1997) and Terr (1979), a proper assessment requires a face-to-face interview with the child, where he or she is directly asked about PTSD symptoms. Even though it is time consuming, a semi-structured interview is recommended (Perrin et al., 2000).

While semi-structured interviews are recommended by many authors, others, such as Steinberg, Lamb, Orbach, Kaplin and Mitchell (2000) urge investigators to rely more extensively on an open-ended format. They concluded in their study that open-ended prompts elicited more information than option-posing and suggestive questions.

On the other hand, the interviewer format, whether structured, semi-structured, or open-ended, can decrease the accuracy of a response by virtue of the reluctance some people feel about revealing certain experiences to another person directly (Newman et al., 1996). Perrin et al. (2000) also point out the importance of recognising that the

interview itself is a potentially threatening experience, requiring considerable skill and sensitivity on the part of the interviewer.

There are a number of PSTD interview schedules available. (See review by Nader, 1997). These include: The Clinician Administered PTSD Scale for Children and Adolescents (CAPS – C) (Nader, Kriegler, Blake and Pynoos, 1994); The Child Posttraumatic Stress Reaction Index (CPTS - RI) (Frederick, Pynoos and Nader, 1992); The Diagnostic Interview for Children and Adolescents (DICA) – PTSD subscale (Reich, Shayka and Taibleson, 1991); The Diagnostic Interview Schedule for Children and Adolescents (DISC) – PTSD subscale (Schaffer, Fisher, Piacentini, Shwab-Stone and Wicks, 1992); and The Schedule for Affective Disorders and Schizophrenia for School-Aged Children (K-SADS) – PTSD subscale (Kaufman, Birmaher, Brent, Rau and Ryan, 1996).

In addition, the narrowness of the current PTSD diagnosis (Herman, 1992; Yule, 1995) has lead to the development of instruments assessing broader post-traumatic responses. The DESNOS workgroup developed the Structured Interview for Disorders of Extreme Stress (SIDES), which is made up of 27 symptoms of trauma that were not addressed by the DSM criteria for PTSD (Pelcovitz et al., 1997). Pelcovitz et al. (1997) suggest that the SIDES can be a useful tool for investigating responses to extreme stress that are not currently captured by the PTSD diagnosis and in facilitating an improved understanding of the totality of the impact of trauma on the individuals psychological and interpersonal functioning. However, at present there is no such measure for children.

Self-report scales

In the last ten years a number of self-report instruments have been developed to assess the severity of trauma exposure and PTSD in children and adolescents (Perrin et al., 2000). The majority have been adapted from adult questionnaires, usually having been developed for research purposes (Perrin et al., 2000). It has been suggested that the relative privacy of a questionnaire may result in the increased reporting of particularly traumatic events (Cuffe, Addy, Garrison, Waller, Jackson,

McKeown et al., 1998). Newman et al. (1996) note that self-report instruments can yield information that is less influenced by a respondent's direct interpersonal communications with the evaluator, although flexibility to aid comprehension or gather qualitative data is lost.

Self-report inventories have become an extremely popular method of assessment, as they are quick, easy, and inexpensive to administer, score and interpret (Newman et al., 1996). In addition they allow for group administration so wider and larger samples can be assessed, and no clinical training is required to administer them. This is important in the South African context, where resources are scarce. If self-report data yield the same diagnostic results as clinical interviews, it may be possible to discard long interviews that require trained clinicians, of which there is a limited availability, and to assess larger populations of children and adolescents. Another major advantage of self-report scales is that they usually yield a severity rating for PTSD, which diagnostic interviews typically do not.

However, self-report scales must be viewed with caution, especially when they are the only source of data (O' Keefe, 1997). It is possible that respondents may be biased in their reporting of their problems or accurately recalling the amount of exposure to violence. For example, adolescents may exaggerate their experiences on self-report scales. Many authors, such as Perrin et al. (2000), argue that self-report measures can be used to screen for PTSD, depression and anxiety, but are not a substitute for a clinical interview. Often authors of the scales themselves point this out. Parry (1996) points out that screening instruments have a tendency to overestimate prevalence, yet numerous South African studies rely on them to assess mental status (see Section 1.4.2).

PTSD self-report measures include: The Child's Reaction to Traumatic Events Scale (CRTES) (Jones, 1994); The Children's Impact of Traumatic Events Scale (CITES) (Wolfe, Wolfe, Gentile and Larose, 1986); The When Bad Things Happen Scale (WBTH) (Fletcher, 1991); and The Trauma Symptom Checklist for Children (TSCC) (Briere, 1996) and The Child and Adolescent Trauma Survey (CATS) (March, 1999).

Parent/teacher reports and interviews

Children may be traumatised yet not report the full range of symptoms that they are experiencing (Nader, 1997). Parents or teachers may be more efficient in their reporting of externalising symptoms in particular (Perrin et al., 2000). However, parents and teachers often overemphasise behavioural symptoms while remaining unaware of subjective symptoms, such as fears and negative emotions (Marsella, 1996; Perrin et al., 2000). A number of studies have demonstrated that parents do not accurately estimate the levels of distress of their children (Pfefferbaum, 1997). For example, in a study by Martinez and Richters (1993) children reported higher distress than their parents.

Cooley-Quille et al. (1995) and Pfefferbaum (1997) claim that parents consistently underestimate their children's violence exposure too. This is significant as lack of parental awareness may place parents at a disadvantage in their efforts to monitor and effectively supervise their children's activities, and thus reduce their effectiveness in protecting their children from subsequent violence exposure; and children may not be reporting more common forms of violence to their parents suggesting that they may be becoming desensitised (Richters and Martinez, 1993).

Psychophysiological assessments

Trauma can produce lasting physiological disturbances (Martinez and Richters, 1993). Physiological measures of arousal, such as heart rate and the startle response, may help validate self-reports and provide useful information in non-verbal children (Perrin et al., 2000). However, they have not been validated for clinical purposes, are expensive to use and are not widely available (Perrin et al., 2000).

A number of issues, other than the method of assessment used, can affect the accuracy of measurement with child and adolescent samples. These include the experience and style of the interviewer, the child/adolescent's understanding and perception of the interviewer and the questions asked, the wording and placement of questions, and the corroboration of the data (Nader, 1997).

Several researchers recommend using multiple sources of information (March and Amaya-Jackson, 1993; Nader, 1997; Newman et al., 1996). However, if only one method can be used, it has been suggested that interviewing children and adolescents regarding their psychological reactions is the most reliable method of eliciting symptoms and experiences (Nader, 1997).

1.3.2 Difficulties with PTSD Research

There are a number of difficulties with regards to researching PTSD.

Several researchers have shown that reporting on the occurrence of a traumatic event is not as straightforward as reporting demographic information (Goodman et al., 1998; Silver and Salamone-Genovese, 1991). Measures of lifetime traumatic exposure differ with regard to their goals, whether they are administered in self-report or interview format, how narrowly they define traumatic events, the time necessary for administration, and the extent to which objective and subjective descriptive information is obtained (Goodman et al., 1998). For example, different definitions of what constitutes a trauma are likely to result in the differences in rates of prevalence found using different instruments. Psychometric evaluation of traumatic event exposure measures have shown that it is a complex issue, involving issues of definition, assessment methodology, consistency of reporting and validity of reports (Goodman et al., 1998).

Surveys directly evaluate the prevalence of disorders and the intensity of symptoms. Potential threats to their validity, however, stem from sampling problems (the sample may not be representative) and instrument validity (Shalev and Yehuda, 1998). The diagnostic utility of PTSD measures appears to vary across populations. For example, some studies indicate that PTSD structured interviews may demonstrate good psychometric performance with clinical populations but not always for community populations, and others that structured interviews perform better with community populations than they do with clinical populations (Newman et al., 1996).

To truly study the effects of traumatic stress and control for all the variables systematically would require an ability to manipulate the presence and dosage of

stressors and study their impact (Margolin and Gordis, 2000). Since experimentation in the area of human trauma is ethically unacceptable, it is necessary to study real life events, with the ensuing problems of sampling and controlling for confounding variables (Shalev and Yehuda, 1998). As a result, studies of PTSD are imperfect.

Data collection is impossible during the impact phase of most traumatic events, forcing an indirect assessment of the stressor. Retrospective evaluation is subject to reporting bias as the evaluation of stressful events and the subsequent states of mind is clearly affected by current disorders such that those currently affected are more likely to report higher intensity and dangerousness of the exposure (Southwick et al., 1997, in Shalev and Yehuda, 1998). The reliability of remembering successive states of mind (for example, whether sadness appeared before or after intrusive memories) is particularly vulnerable to memory bias (Shalev and Yehuda, 1998).

As noted earlier, a problem with diagnosing PTSD lies in its frequent co-morbidity with other disorders and symptom overlap with anxiety and depressive disorders, as well as its heterogeneous presentation (Bleich et al., 1997). A recent trend has been to include assessment of symptoms from a wider spectrum of diagnoses and to examine their different aetiologies and interactions (Newman et al, 1996) as it could be that traumatised individuals develop a broad range of symptoms (Keane and Wolfe, 1990).

Many PTSD assessment devices are available. Since most of these, however, have been developed overseas and been based on overseas samples, they will need to be adapted to the South African context and population. A challenge in South Africa is to find culturally appropriate measures of PTSD assessment, and ones that are best suited to our resource-scarce environment.

1.4 Prevalence of Trauma and PTSD in Child and Adolescent Populations

1.4.1 International Studies

While most early prevalence studies of PTSD were limited to adult populations (Giaconia, et al., 1995; Herbert, 1996), in recent years there has been a growth of scientific, clinical and social interest in PTSD in children and adolescents (Boney-McCoy and Finkelhor, 1995; Cooley-Quille et al., 1995; Nader and Pynoos, 1993; Pynoos, Goenjian, Tashjian, Karakashian, Manjikian, Manoukian, Steinberg and Fairbanks, 1993). It is important to bear in mind the limitations of assessment techniques of childhood and adolescent PTSD, and of assessing PTSD in general, when considering this literature.

Many investigations of PTSD and the effects of trauma have focused on children and adolescents exposed to particular types of trauma (Yule, Bolton, Udwin, Boyle, O'Ryan and Nurrish, 2000), such as war (Nader and Pynoos, 1993; Thabet and Vostanis, 2000), natural disasters (Miller, Kraus, Tatevosyan and Kamenchenko, 1993; Pynoos et al., 1993; Yule et al., 2000) and violent crime (Trappler and Friedman, 1996). All these studies show that children and adolescents can develop PTSD following such traumatic events (Yule et al., 2000).

For example, a study of Kuwaiti children following the Gulf crisis, found that more than 70% reported moderate to severe PTSD reactions, and reported a significant positive correlation between overall levels of exposure and severity of PTSD reactions (Nader and Pynoos, 1993). In a study of PTSD after an earthquake, approximately 70% of children were given the diagnosis (Pynoos et al., 1993), and Yule et al. (2000) found that 51.5% of those that survived a shipping disaster developed PTSD at some point after the disaster. These studies all used clinical interviews as the diagnostic tool. Thirty six percent of the survivors of the Brooklyn Bridge shooting were diagnosed with PTSD via the use of self-report scales (Trappler and Friedman, 1996).

Recent community studies of young adults in the United States report rates of trauma exposure ranging widely, from 36% to 97% (Cooley-Quille et al., 1995; Horowitz, Weine and Jekel, 1995; Thabet and Vostanis, 2000); and rates of PTSD ranging from six percent to 67% (Fitzpatrick and Boldizar, 1993; Horowitz et al, 1995).

Margolin and Gordis (2000) and Farrell and Bruce (1997) point out that the vastly discrepant statistics estimating the rates of violence exposure are probably due to different definitions of exposure as well as different methods of data collection. For example, some children or adolescents may feel inhibited in group-situations and thus not reveal certain experiences. It is also possible that these findings may under-represent the levels of trauma exposure and PTSD as, for example, seriously traumatised individuals may resist participating in studies of trauma and therefore lower the PTSD prevalence rate (Cuffe et al., 1998).

The United States community studies of childhood PTSD are reviewed below, according to type of assessment measure used. (See Table 1.2 for a summary). Findings on the co-morbidity of PTSD and depression are also presented.

Community PTSD studies using interviews

A national crime survey reported rates of victimisation for 12 to 19 year olds to be between two and three times that of adults; a quarter of the sample reported having experienced a completed victimisation in the past year and over half reported having experienced a completed or attempted victimisation at some time in their lives (Finkelhor and Dzuiba-Leatherman, 1994). Children who experienced one form of victimisation, particularly sexual abuse, were more likely to have experienced another form (Finkelhor and Dzuiba-Leatherman, 1994). The information in this study was obtained via clinician administered telephonic interviews. A study of a national youth sample in the U.S.A., also using structured telephone interviews, found that 40.5% of the sample had been victimized (Boney-McCoy and Finkelhor, 1995). Victimisation types varied widely but all were associated with an increase in PTSD symptomatology.

Giaconia and colleagues (1995) administered structured clinical interviews and found that 40% of the adolescents in their community sample had experienced traumas by age 18 and six percent met criteria for a lifetime diagnosis of PTSD (14.5% of those who had experienced a trauma). In Cuffe et al.'s (1998) study more than 16% of adolescents reported exposure to at least one violent event. Approximately three percent of females and less than one percent of males in the study received the PTSD diagnosis according to a semi-structured interview. Cooley-Quille et al. (1995) found that 37% of their sample fell into the high exposure group and that there was an adverse relationship between high exposure and emotional and conduct problems, also assessed by a semi-structured interview.

Community PTSD studies using self-report questionnaires

According to the self-report questionnaires used by Fitzpatrick and Boldizar (1993) 70% of their sample were victims of at least one violent event and almost 85% witnessed at least one violent act. Twenty-seven point one percent of the sample received a PTSD diagnosis. Also using self-report scales, 29% of participating high school students (63% of those victimized) in Wright-Berton and Stabb's (1996) study achieved scores indicative of clinical levels of PTSD. Using self-report scales, Schwab-Stone et al. (1995, 1999), found that 36% of adolescents experienced at least one type of violent act and witnessed an average of three types. The rates of PTSD were not reported.

In another study that used self-report scales, 93% of inner-city adolescents were found to have experienced at least one violent event in the preceding year, with an average of five, and severity of symptoms was found to be positively correlated with rate of exposure (Mazza and Reynolds, 1999). Horowitz et al. (1995), using a clinician administered self-report questionnaire, found that urban adolescent girls reported a lifetime exposure rate of between eight and 55 violent events, with an average of 27. Sixty seven percent met DSM IIIR criteria for PTSD.

Richters and Martinez (1993), using parent and teacher reports as well as self-reports for the older children and structured interviews for the younger children, found

overall rates of exposure to violence in their community sample of children and young adolescents to be 72% and rates of experiences of violence to be 32%. The rates reported by the older children were higher with 97% claiming to have witnessed violence and 59% claiming to have experienced violence (Richters and Martinez, 1993). They found that self-reported exposure to violence, both victimisation and witnessing, was associated with distress symptoms in younger and older children (Martinez and Richters, 1993).

Sheehan, DiCara, LeBailly and Christoffel (1997) found that 37% of their sample had experienced at least one traumatic event, and O'Keefe (1997) found that at least 90% of males and 88.5% of females in her sample of high school students had witnessed one or more violent events. O'Keefe also found a positive relationship between negative behaviour and number of traumas witnessed. Farrel and Bruce (1997) found that their sample of sixth graders had experienced an average of two to three exposures to violent events. The exposure to violence was not related to subsequent changes in emotional distress, however (Farrel and Bruce, 1997).

There is a general trend for rates of trauma exposure and PTSD to be significantly higher in studies using self-report scales. Trauma exposure is defined very differently across studies, but PTSD is generally diagnosed according to DSM criteria. The difference in PTSD rates between interview and self-report studies thus bears further investigation.

Table 1.2: Community studies of PTSD in children and adolescents in the US

Community studies of trauma and PTSD in children and adolescents in the US						
Author(s)	**Sample**	**Age (years)**	**Measure of exposure**	**Trauma Exposure**	**Diagnostic Measure**	**PTSD rate**
Boney-Mcoy and Finkelhor (1995)	Youth (N = 2000)	10 - 16	Structured telephone Interview - Modified version of the Symptom Checklist-90-R (SCL-90-R	40.5% experienced at least one	Not reported	Not reported
Cooley-Quill et al. (1995)	Schoolchildren (N = 37)	7 - 12	Children's Report of Exposure to Violence (CREV)	37% fell into the high exposure group	Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS)	Adverse relationship between high exposure and emotional and behavioral problems
Cuffe et al. (1998)	Adolescent school sample (N = 490)	16 - 22	CGAS (developed for the study)	16% experienced at least one	Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS)	approximatly 3% in female ; less than 1% in males
Finkelhor and Dzuiba-Leatherman (1994)	Adolescents (N = 2000)	10 - 16	Clinician administered telephone interview (devised for the survey)	51.3% experienced an attempted or completed victimisation	Not reported	Not reported
Giaconia et al. (1995)	Public school sample (N = 384)	Average = 17.9	NIMH Diagnostic Interview Schedule (DIS-IIIR)	43% experienced one or more	NIMH Diagnostic Interview Schedule (DIS-IIIR)	6% of whole sample; 14.5% 0f those who experienced a trauma
Horowitz et al. (1995)	Adolescent girls (N = 74	12 - 21	Adolescent Self-Report Trauma Questionaire	Average: 27; trauma range: 8 - 55	PTSD Symptom Scale (PSS)	67%
Farrel and Bruce (1997)	Public school sample (N = 436)	6th Grade	Adaptation of Things I've Seen and Heard	Average: 2.44 exposures	Weinberger Adjustment Inventory (WAI)	Exposure not related to emotional distress

Community studies of trauma and PTSD in children and adolescents in the US (cont.)						
Author(s)	**Sample**	**Age (years)**	**Measure of exposure**	**Trauma Exposure**	**Diagnostic Measure**	**PTSD rate**
Fitzpatrick and Boldizar (1993)	Low-income youth (N = 221)	7 - 18	Traumatic Events Questionaire- Adolescent Version (TEQ-A) Adaptation of Survey of Exposure to Community Violence (SCECV)	70% experienced at least one violent act; 80% witnessed at least one violent act	Diagnostic Interview for Children and Aolescents-Revised (DICA-R); Adaptation of Purdue Post-Traumatic Stress Scale	27.10%
Mazza and Reynolds (1999)	Inner city youth (N = 94)	11 - 15	Exposure to Violence Questionaire (EVQ)	93% were exposed to at least one violent act in the past year	Adolescent Psychopathology Scale- PTSD subscale	Positive correlation between exposure rate and PTSD
Richters and Martinez (1993)	Schoolchildren (N = 165)	6 - 10	Things I have Seen and Heard; Survey of children's Exposure to Community Violence (SCECV)	72% witnessed violence; 32% experienced violence	None	Not reported
Martinez and Richters (1993)	Schoolchildren (N = 165)	6 - 10	None	Not reported	Checklist of Child Distress Symptoms (CCDS); Levonn	Positively related to exposure
O'Keefe (1997)	High school students (N = 935)	14 - 20	Adaptation of Conflict Tactic Scale (CTS)	90% of males and 89% of females witnessed at least one traumatic event	Youth Self-Report	positive correlation between exposure rate and negative behaviour
Sheehan et al. (1997)	Youth (N = 146)	7 - 13	Determining Our Viewpoint of Violent Events (DOVVE)	31% experienced at least one	Not reported	Not reported
Shwab-Stone et al. (1995)	Public school sample (N = 2248)	Grades 6, 8 and 10	Social and Health Asssessment Scale	36% experienced at least one and witnessed an average of three	Not reported	Not reported
Shwab-Stone et al. (1999)	Public school sample (N = 2748	Grades 6, 8 and 10	Adaptation of Things I Have Seen and Heard	36% experienced at least one and witnessed an average of three	Behavioural Assessment system for Children (BASC)	Not reported

Prevalence of co-morbid depression

Children's reaction to stress is hypothesised to include depression (Barreto and McManus, 1997). Studies with adolescents have found that depression is in fact a significant variable in the relationship between exposure to violence and psychological trauma symptoms (Mazza and Reynolds, 1999). Concurrent anxiety and depressive symptoms in children and adolescents have frequently been reported in the general population, especially older children (Bernstein and Borchardt, 1990). Pynoos and Nader (1992) found in their study of catastrophic community violence that PTSD was the most frequent diagnosis correlated with degree of exposure, closely followed by depression. Boney-McCoy and Finkelhor (1995) found that victimisation lead to an increased vulnerability to related distress, such as sadness.

Breslau, Davis, Andreski and Peterson's (1991) study using diagnostic interviews found major depression to be the most prevalent co-morbid disorder in young adults with PTSD. Of those diagnosed with PTSD, 36.6% were also diagnosed with major depression. Giaconia et al. (1995), using clinical interviews, found a similar relationship between PTSD and major depression. More than 40% of adolescents with PTSD in their study met criteria for depression. The onset of PTSD preceded or co-occurred with the onset of depression, or other co-morbid disorders, suggesting that PTSD triggered their occurrence (March et al., 2000). A study by Freeman, Mokros and Poznanski (1993), using a clinician-rating instrument, found that a higher percentage of children who reported themselves to be exposed to violent/traumatic events fell into suspected depression categories, than those who had not experienced any form of violence or trauma.

Several explanations for this co-morbidity have been offered: the first is that having one disorder serves as a risk factor for other disorders; the second is that different disorders have the same underlying risk factors or pathogenesis; and the third is that the symptoms of different disorders overlap (Bleich et al., 1997; Kashani and Orvaschel, 1990, in Bernstein and Borchardt, 1990; March, Amaya-Jackson, Terry and Costanzo, 1997).

The high rates of co-morbid PTSD and depression suggests that assessing PTSD in isolation ignores the complexity of the post-traumatic response in children and adolescents. Thus, there is a need to investigate the presence or absence of co-morbid conditions, especially depression, in children and adolescents who have experienced a trauma, in order to be able to treat the disorder more appropriately. It should also be remembered that even if the criteria for PTSD or depression are not met, the child or adolescent might still have been affected by the trauma.

1.4.2 South African Studies

Trauma in the South African context

All of South Africa has been traumatised to some degree (Hamber, 2000). Apartheid had far-ranging and often devastating consequences for South African children, especially black children. There were high levels of poverty, with malnutrition becoming the largest killer of black children (Dawes and Donald, 1994). The unequal distribution of basic health services ensured that black children suffered higher rates of physical illness (Lockhat and Van Niekerk, 2000).

Most children only saw their parents over weekends as they worked away from home. This had a devastating effect on parent-child relationships. In addition to this, Dowdall, (1990) (as cited in Lockhat and Van Niekerk, 2000) points out that the townships were usually overcrowded, under-serviced and crime ridden, often creating extremely high tensions within family members, which lead to violence and abuse of children.

Black schools were usually overcrowded, under-equipped, poorly maintained and under-staffed. During the 1980's schools became sites of violence and conflict (Dawes and Donald, 1994). In addition to this, the communities were unstable and unsafe due to the forceful repression of the state, counter-violence of the communities, as well as interpersonal violence and intra-personnel violence (Lockhat and Van Niekerk, 2000).

Duncan and Rock (1997) point out that political violence has a negative effect on, or undermines the optimal development and psychological well being of, children. Even those who escape from physical harm are highly predisposed to becoming emotionally traumatised. In a study of Sowetan children, Allwood (1987; in Duncan and Rock, 1997) found that being exposed to high levels of violence led many of them to display symptoms such as emotional detachment, mental distress, depression, enuresis, selective amnesia, psychosomatic problems and developmental disorders. Dawes and Tredoux (1990) and Duncan and Rock (1997) also highlight the fact that the more frequently children are exposed to acts of violence, the more likely it becomes for them to begin perpetrating acts of violence.

The ideology of apartheid had the potential to induce a number of racism-related disorders among black children and their care-givers, including: the development of anger towards their own group, a marked inability to defer gratification, a pathological striving for assimilation into the dominant group and an extremely distorted and negative sense of self (Steere, 1984; in Duncan and Rock, 1997). A number of authors have recorded the devastating consequences of a predominantly negative sense of self on the emotional well being and later development of children and communities at large (Duncan and Rock, 1997).

Despite the political changes that have taken place, South African children are still faced with many problems impacting upon and impeding their physical, psychological and mental development (Lockhat and Van Niekerk, 2000). Spiralling criminal and domestic violence has resulted in large numbers of children and adolescents being exposed to and directly involved in brutal acts of violence (Smith and Holford, 1993). The revelation of the high incidence of physical and sexual abuse of children in South Africa led to the establishment of the Child Protection Unit of the South African Police Service (Schurink et al. 1992).

According to the Crime Information Analysis Centre (2001) a total of 13673 crimes against children by adults, in the Western Cape, were reported to the South African Police Service from January to December 2000. A breakdown of these crimes is given in Table 1.3. It is important to bear in mind that these statistics deal only with

crimes alleged to be committed against children and which were reported to the police for further investigation. These figures indicate that the experience of being victimized appears to have become a normal feature of everyday life in South Africa (Hamber, 2000), especially for children.

A report on crime in Cape Town, which broke down crimes by race, found that coloured people are more likely than whites or blacks to be murdered, robbed or mugged in the streets of residential areas (Camerer, Louw, Shaw, Artz and Scharf, 1998). Coloured children and adolescents in Cape Town are thus more likely to witness these crimes in the areas they live in than white or black children.

Table 1.3: Crimes against children: Western Cape

January to December 2000

Murder	0 - 11 Years	69
	12 - 17 Years	159
	Total 0 - 17 Years	**228**
Attempted murder	0 - 11 Years	125
	12 - 17 Years	252
	Total 0 - 17 Years	**377**
Assault with the intent	0 - 11 Years	529
to inflict grievous	12 - 17 Years	2285
bodily harm	**Total 0 - 17 Years**	**2814**
Common assault	0 - 11 Years	1028
	12 - 17 Years	4341
	Total 0 - 17 Years	**5369**
Rape and attempted	0 - 11 Years	893
rape	12 - 17 Years	1829
	Total 0 - 17 Years	**2722**
Indecent assault:	0 - 11 Years	549
Female victim	12 - 17 Years	327
	Total 0 - 17 Years	**876**
Indecent assault:	0 - 11 Years	322
Male victim	12 - 17 Years	273
	Total 0 - 17 Years	**595**
Incest	0 - 11 Years	6
	12 - 17 Years	11
	Total 0 - 17 Years	**17**
Kidnapping	0 - 11 Years	102
	12 - 17 Years	106
	Total 0 - 17 Years	**208**
Abduction	0 - 11 Years	142
	12 - 17 Years	194
	Total 0 - 17 Years	**336**
Intercourse with a girl under		
the prescribed age and/ or		
female imbecile	**0 - 15 Years**	**113**
Indecent deeds with boys	**0 - 19 Years**	**18**

Studies on trauma and PTSD in South African children

Smith and Holford (1993) note that there has been a marked lack of awareness of the fact that children and adolescents can be adversely affected, both in the short and longer terms, by the violence they experience daily. This has resulted in a lack of systematic data on children and adolescents suffering from trauma exposure and PTSD in South Africa.

Most research has focused on the impact of political violence in the 1980's (Dawes and Tredoux, 1989; Dawes, Tredoux and Feinstein, 1989). For example, Dawes et al. (1989) found that 40% of a sample of township children exposed to political violence had symptoms of emotional stress, 9.2% of which were serious enough to diagnose PTSD. The most frequent symptoms in the older age group (12 to 17 year olds) were fears, especially of the event recurring, sleeping problems, changes in emotional expression and somatisation. This was assessed largely through parental reports rather than detailed mental state examinations (Dawes and Tredoux, 1989).

Magwaza, Killian, Peterson and Pillay (1993) researched the psychological sequelae of civil conflict and violence on preschool children living in a South African township, using teacher reports (a semi-structured symptom checklist) and drawings done by the children. About 61% of the children fell into the mild PTSD range and 12.2% fell into the severe PTSD range. The researchers concluded that preschool children exposed to violence are likely to suffer from PTSD; and increased frequency of exposure and greater the intensity of violence, the more likely it is that the child will be traumatised and display PTSD.

Pillay, Naidoo and Lockhat (1999) found PTSD in 11.5% of a sample of rural and peri-urban South African children (under eighteen years of age), which appeared to be related to the political violence in their areas. The data in this study were collected from clinical files as well as interviews with patients and family members, but strict diagnostic criteria were not adhered to (Pillay et al., 1999). A study of civil conflict by Pillay, Magwaza and Peterson (1992) showed similar findings and noted the

higher levels of distress among boys than girls, possibly related to the greater involvement of males in combat situations.

While politically inspired violence may be in decline, it appears that criminal and domestic violence continues to prevail in local communities (Lockhat and Van Niekerk, 2000; Hamber, 2000). Peltzer's (1999) recent study on rural children in South Africa found that 67% had directly or vicariously experienced a traumatic event that was delineated in the interviews or parent report scales, another 28% had had a bad experience that was not specified in the measures used, and about eight percent fulfilled criteria for PTSD. A significant positive correlation was found between scores on exposure to bad experiences and PTSD scores. The children were interviewed and the Child Post Traumatic Stress Disorder Inventory administered to them. Parents or guardians completed the 10-item Reporting Questionnaire for Children and revealed that 71% of the children experienced more than one symptom and 53% more than four symptoms (Peltzer, 1999).

Studies in the Western Cape have also indicated a high rate of traumatisation and PTSD among youth. In Cape Town, an archival study found PTSD to be one of the most common disorders in the Child and Adolescent Psychiatry Unit at Tygerberg Hospital (Traut, Bosshoff and Hawkridge, 1998). In a community study, Ensink, Robertson, Zissis and Leger (1997) used self-report measures to determine exposure to violence, and structured questionnaires and unstandardised clinical assessments to elicit symptoms and make psychiatric diagnoses, in children (age six to sixteen years) from Khayelitsha. All subjects reported exposure to indirect violence. Ninety-five percent had witnessed violent events, 56% had experienced violence themselves and 40% met the criteria for one or more DSM III-R diagnoses. About 22% met criteria for a diagnosis of PTSD and the most commonly reported symptoms were: avoidance of thoughts and activities associated with the trauma, difficulties in sleeping and hyper vigilance. Almost all the children with PTSD had co-morbid disorders, mostly dysthymic disorder and Major Depression (Ensink et al., 1997).

A recent school survey of 307 Grade Ten pupils in the Western Cape, which used self-rating scales, found that adolescents reported an average of 3.5 childhood

traumatic experiences, and 12.1% of adolescents met DSM IV criteria for PTSD (Seedat, van Nood, Vythilingum, Stein and Kaminer, 2000). The most common symptoms reported were: avoiding thoughts about the event (34.4%), irritability (28.2%), difficulty showing emotion (26.5%), emotional upset at being reminded of the trauma (24.9%), and intrusive recollections of the event (19.4%). A significant correlation between multiple traumas and PTSD symptoms was also found.

Table 1.4 lists the studies of trauma and PTSD that have been done in South Africa. However, it is difficult to compare these studies to each other, in terms of rates of exposure and PTSD, due to the different sampling procedures, diagnostic criteria and assessment instruments used in the studies. All studies indicate, however, that children in the Western Cape and South Africa as a whole are exposed to high levels of trauma, and that a significant percentage have PTSD.

A plethora of recent work has argued for both epidemiological and more qualitative information describing the experiences of children in South Africa (Hamber, 2000; Lockhat and Van Niekerk, 2000; Seedat et al, 2000; Traut et al., 1998). This information is important for early and accurate identification of problems in South African youth, prompt intervention, and allocation of scarce resources. Accurate information could identify risk factors for violence as well as high-risk areas and in doing so contribute to targeted and directed intervention strategies (Hamber, 2000).

Table 1.4: Community studies of trauma and PTSD in children and adolescents in SA

Community studies of trauma and PTSD in South African childen and adolescents						
Author(s)	**Sample**	**Age (years)**	**Measure of exposure**	**Rate of Trauma Exposure**	**Diagnostic Measure**	**PTSD rate**
Dawes et al. (1989); Dawes and Tredeux (1989)	Township children in Cape Town (N =65)	7 - 17	Parental reports	40%	Parental reports	9.20%
Magwaza et al. (1993)	Township children in Kwazulu-Natal (N = 148)	pre-school	None	Not reported	Semi-structured teacher reports; Children's drawings	Mild: 60.8%; Severe: 12.7%
Ensink et al. (1997)	Xhosa-speaking children from Khayelitsha, Cape Town (N = 60)	6 - 16	Shortened version of Survey of Exposure to Community Violence (SECV)	100% experienced indirect violence; 95% witnessed violence; 56% experienced violence	Structured questionaires; Unstandardised clinical assessment	21.70%
Peltzer (1999)	Rural children from the Northern Province (N = 148)	6 - 16	Child Posttraumatic Stress Disorder Inventory; 10-item Reporting Questionaire for Children	67% vicariously; 28% experienced	Child Posttraumatic Stress Disorder Inventory; 10-item Reporting Questionaire for Children	8.40%
Pillay et al. (1999)	Rural and peri-urban children (N = 789)	under 18	None	Not reported	Clinical files; Interviews	11.50%
Seedat et al. (2000)	Adolescents in Cape Town (N = 307)	Grade Ten; Average age: 16.43	Things I have Seen and Heard; Childhoos Trauma Questionaire (CTQ); Trauma checklist	Average: 3.5	The PTSD Checklist	12.10%

Chapter 2: RATIONALE AND METHODOLOGY

2.1 Rationale and Aims

The studies reviewed in Chapter One demonstrate the high rates of trauma exposure and PTSD among youth, and South African youth in particular. It appears that post-traumatic responses may be more complex than the PTSD diagnosis allows, and often includes depression. It also appears that many children have PTSD symptoms that do not meet criteria for a diagnosis of PTSD (sub-threshold symptoms) but do cause impairment. Freeman (1999) states that because someone does not meet the criteria for PTSD does not mean that they have been unharmed, as there are many clinically significant consequences that do not meet strict clinical criteria. It is thus important to screen for co-morbid disorders, especially depression, as well as impairment in any area of functioning when screening for PTSD. Additionally, relatively unstructured open-ended interviewing may elicit useful information regarding the impact of trauma that is not captured by the limited dimensions of the DSM criteria.

It is important to identify PTSD and post-traumatic responses early and accurately in order to provide prompt intervention and avoid serious developmental consequences. Since resources for assessment are very limited in South Africa this is a difficult task. A method of cheaply and accurately assessing as many young people as possible needs to be found.

The present study aims to compare the use of standardised diagnostic clinical interviews, self-report scales and unstructured qualitative interviews, to determine if these different assessment methods elicit the same or similar information with regards to trauma exposure, PTSD and depression in adolescents.

2.2 Research Questions

1. Are diagnostic clinical interviews and self-report scales equally useful in determining rates of trauma exposure and PTSD, as well as individual PTSD symptoms in a sample of South African adolescents?

2. Are diagnostic clinical interviews and self-report scales equally useful in determining rates of depression, as well as individual depressive symptoms in a sample of South African adolescents?

3. Do unstructured qualitative interviews provide any useful information with regards to adolescents' reactions to traumatic events?

2.3 Methodology

2.3.1 Study Design

This was a cross-sectional, randomised survey of trauma exposure and rates of PTSD in a sample of Grade 11 learners at two schools in the Cape Metropole. Participants were each required to complete a demographic questionnaire, a clinical diagnostic interview, two self-report scales, and a qualitative interview.

2.3.2 Sample

Using a stratified random sampling method in Excel, a random sample of Grade 11 learners (n = 67), both male and female, were selected from two Cape Metropolitan schools. Both schools are situated in the Northern Suburbs of Cape Town. The schools that were selected had both participated in the earlier school survey by Seedat et al. (2000), which comprised of anonymous self-report questionnaires of trauma exposure and PTSD symptoms in youth. These schools were approached as it was felt that contact had already been established and thus they would be more willing to participate. Also, the previous study had indicated that these schools had high rates of trauma exposure and PTSD, and it was felt that this would help in maximising the potential yield of subjects with PTSD.

Learners who were absent at the time of the interviews, who did not want to participate, or whose parents/guardians did not want them to participate were excluded from the sample, thus the total number of participants was 58 (17 males and 41 females). All participants spoke English as a first language. The age of participants ranged from 16 to 18 years with a mean age of 16 years and 8 months. Most participants were coloured (n = 39) with the remainder being white (n = 18) and oriental (n = 1). Criminal victimization does not affect people equally – age, race and gender may all play a role in determining who is most at risk of victimization by crime and particular crime types (Camerer et al., 1998). In their report Camerer and colleagues (1998) state that in Cape Town, black and coloured residents are disproportionately affected by violent crime.

2.3.3 Instrumentation

Demographic Questionnaire

This was clinician-administered and devised for the present study. It includes information on age, sex, area lived in and parents marital situation, although not all of this information was used in the analysis. Since these are generally easy things for people to talk about this was administered first to help establish rapport. According to Barker (1990), rapport is more than trust, it is a state of understanding, harmony and accord, and is necessary for the success of interviews.

Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime Version (K-SADS-PL) (Kaufman et al., 1996)

This is a standardised, DSM-IV based, clinician administered, diagnostic interview, designed to provide a diagnostic overview of lifetime psychopathology, promote more targeted probing of symptoms, and facilitate differential diagnoses (Kaufman, Birmaher, Brent, Rao, Flynn, Moreci, Williamson and Ryan, 2000).

Based on DSM-III-R and DSM-IV criteria, the K-SADS-PL has an initial 82 item screen interview that surveys key symptoms for current and past episodes of twenty

different diagnostic areas, some of which screen for multiple disorders. Symptoms that have been present in the previous two months are recorded as current. However, in this study, in order to make the K-SADS comparable to the CATS, PTSD symptoms that have been judged to be present in within the past month were recorded as current. Specific probes and scoring criteria are provided to assess each symptom, but Kaufman et al. (1996) note that the rater is not obliged to recite the probes verbatim, or use all the probes provided, just as many as is necessary to score each item. If in the screen interview, the child does not receive a threshold score in a given diagnostic area, the interviewer can skip out the supplement for that area (Kaufman, Birmaher, Brent, Rao, Flynn, Moreci, Williamson and Ryan, 1997).

Ambrosini (2000) notes that the screen interview and skip out criteria shortens administration time. The screen interview and diagnostic supplement format is unique to the K-SADS-PL and it greatly facilitates administration of the instrument with normal controls and patient populations (Kaufman et al., 2000). The usual "gold standard" clinical interview for childhood PTSD, the CAPS-C, does not have screening questions and is lengthy to administer. It was therefore not the instrument of choice for this study.

Most items are rated on a zero to three point scale with a score of zero indicating no information is available; one suggesting the symptom is not present; two indicating sub-threshold levels of symptomatology; and three representing threshold criteria (Kaufman et al., 1996). The remaining items are rated on a zero to two point rating scale on which zero implies no information; one implies the symptom is not present; and two implies the symptom is present (Kaufman et al., 1996).

There are many semi-structured interviews available, but most have no published reliability and validity data. The K-SADS, however, has demonstrated reliability and validity (Perrin et al., 2000). Abrosini (2000) reports inter-rater reliability of 0.67 and 0.60 for current and lifetime PTSD, respectively and 0.90 and 1.00 for current and lifetime depression respectively. The construct validity of K-SADS diagnosing has been shown using the Robins/Guze technique initially implemented by Puig-Antich (Ambrosini, 2000), and Kaufman et al. (1997) show criterion validity.

The PTSD section, which uses a zero to two point rating scale, and the depression section, which uses a zero to three point rating scale, of the K-SADS-PL were used to establish current symptoms of the sample for the present study. The researcher was trained in the use of this instrument by a clinician who uses it routinely.

Although this instrument is designed to be administered to both the parent and the child or adolescent it was only administered to the adolescent in this study. The reasons for this are fourfold. Firstly, it was felt that parents would not be willing to be interviewed for practical reasons, such as time and the fact that it is a community sample so there is a reduced risk of their child having some sort of disorder. Secondly, the sample comprised of older adolescents, between 16 and 18 years of age, thus they are old enough to give reliable information. Thirdly, it has been noted earlier that parents are often not aware of what their children are experiencing and therefore do not always give accurate information (see Section 1.3.1). Fourth, this study will attempt to compare the results obtained from the K-SADS interviews with that obtained from a self-report measure, the CATS. Since only the child/ adolescent completes this self-report measure, it was felt that it was not necessary for the K-SADS to be administered to the participants' parents.

The PTSD screening section includes a list of traumatic events, such as having been in an accident, a fire or having witnessed a violent crime. Only if the respondent endorses having experienced one or more of the events in his or her lifetime should the rater continue to screen for the disorder. The PTSD screen items include questions on recurrent thoughts or images of the event, nightmares and insomnia, and the supplemental questions include dissociative episodes, illusions, hallucinations, as well as restricted affect and difficulties with concentration. All items were recorded as current if they were present in the past month.

The Depressive disorders screening section includes questions regarding depressed mood, anhedonia and suicidal thoughts. The supplemental questions include items on sleep disturbances and changes in appetite and weight.

Child and Adolescent Trauma Survey (CATS) (March, 1999)

This is a self-report index of PTSD qualifying stressors, non-PTSD life events, and PTSD symptoms. It is a self-report measure of PTSD, modelled on the Multidimensional Anxiety Scale for Children (MASC) (March et al., 1997), and the DSM-IV PTSD criteria set. The CATS includes stable indices of non-PTSD life events and provides a reliable and valid survey of secondary adversities, PTSD qualifying stressors and a psychometrically sound symptom scale (March, 1999).

Unlike other self-rating scales the CATS includes both a trauma exposure list and a PTSD inventory. Most self-rating scales focus on either one or the other. The trauma list includes both direct (happened to me) and vicarious (happened to someone I know well) lifetime exposure. For example, the participant is required to indicate if s/he or someone s/he knows well has been badly beaten, or has been kidnapped during the participant's lifetime. In the PTSD section, participants are asked to rate how often in the past month they have experienced individual items that inventory the major domains of PTSD – reexperiencing, avoidance and hyper arousal – on a four-point Likert scale. For example, participants are asked to indicate how often they are jumpy and nervous, or how often they sleep poorly – never, rarely, sometimes or often. Each of the DSM III-R and DSM IV PTSD criterion variables is represented by at least two questions (March et al., 1997).

According to March (Personal communication, 2001) a score of 27 and above on the PTSD scale should be taken to indicate that a child is at risk of clinically significant levels of PTSD. The CATS shows excellent internal (March et al., 1997a) and test-retest reliability (March and Amaya-Jackson, unpublished data, 1997; in March, Amaya-Jackson, Murray and Shulte, 1998).

Children's Depression Inventory (CDI) (Kovacs, 1985)

This is the most commonly used self-report measure for assessing childhood and adolescent depression (Crowley, Thompson, and Worchel, 1994; Fristad, Emery and Beck, 1997; Barreto and McManus, 1997; Craighead, Craighead, Smucker and Ilardi, 1998). The CDI is essentially a downward extension of the Beck Depression

inventory (Smucker, Craighead, Craighead and Green, 1986). However, its phrasing and format are more suitable for school children and adolescents between the ages of 7 and 17 years and Kovacs inserted additional items that attempt to assess areas of school, aggression and other social/peer relations (Craighead et al., 1998). The factors of the CDI are negative mood, interpersonal problems, ineffectiveness, anhedonia and negative self-esteem, (Kovacs, 1992).

The CDI has 27 items, each of which consists of three choices graded in severity and are assigned numerical values from zero to two giving a total score range of zero to 54 (Craighead et al., 1998). The child or adolescent is instructed to select one sentence for each item that best describes him/her for the past two weeks. There is no time limit and the CDI can be administered individually or in groups (Craighead et al., 1998). Crowley et al. (1994) note that a total score of above 11 has been taken to suggest at least mild depression and a score of above 19 to suggest severe depression. Kovacs (1992) notes that a lower cut-point of 12 or 13 may be more suitable with regards to suggesting severe depression in samples in which a higher incidence of depression is expected.

According to Craighead et al. (1998) the scale has demonstrated excellent internal consistency and adequate test-retest reliability. Reliability studies using classical test theory have reported alpha coefficients for CDI scores in the .70's and .80's, thus Kazdin (1990) characterized the CDI as having reasonable internal consistency, and test-retest correlation coefficients of between .41 and .84 have been reported (Crowley et al., 1994). Several studies have demonstrated its criterion related validity and sensitivity to depression (Craighead et al., 1998).

Fristad et al. (1997) points out that although it is a good indicator of self-reported distress in children, some studies have demonstrated that it does not have adequate sensitivity and specificity to diagnose depression. It was not designed to diagnose, as Kovacs (1980 – 1981; p.313) (in Fristad et al., 1997) states that "rating scales should be utilized with the awareness that they are severity measures and not diagnostic tools". Hodges (1990) (in Barreto and McManus, 1997) suggests that the CDI may be useful as a monitor of change in severity of symptoms among children who are

already diagnosed as depressed. A score of 19 or above has no diagnostic utility, however, unless one is attempting to screen for DSM depression and intends to follow up with diagnostic interviews (Kovacs, 1992, 1997).

It is important to note that findings suggest that diagnostic precision is more likely among psychiatric populations in comparison with community or school based samples (Barreto and McManus, 1997). Also, the CDI is notable in requiring the public admission of negative characteristics that imply social maladaption; therefore children and adolescents may be inclined to deny their own distress (Barreto and McManus, 1997). Despite these limitations, the CDI remains the most commonly used and established of child depression scales.

The actual instruments described above are not reproduced in this dissertation due to copyright laws.

Unstructured Qualitative Interview

A brief open-ended interview was conducted to elicit aspects of PTSD that may not have been covered by the DSM IV criteria. This was done before the clinical interview and self-report scales in order to avoid "priming" the participants. The interviewer did not probe participants in order to avoid "leading" them into responding in any particular way. The following questions were asked:

(With reference to the incident identified by the participant as most traumatic)

- How did you feel while it was happening?

- How did you feel after it happened?

- In what ways do you feel that you gave been affected by this?

Participant evaluations of the different measures

A sub-sample of participants (n = 8) were asked whether they preferred the structured clinical interview or the questionnaire and to give their reasons.

2.3.4 Procedures

Permission to carry out the study was obtained from the Western Cape Department of Education and the University of Cape Town Psychology Department ethics committee. An ethics protocol (See Appendix III) that was in accordance with the ethical procedures stipulated by the American Psychological Association (APA, 1992) was drawn up and followed.

Consent from the head of the schools, parent bodies, parents and learners was obtained. Learners and their parents/guardians were informed that participation is entirely voluntary and consent forms were given to parents/guardians of those learners who were randomly selected from the class lists for signing prior to the assessments. Learners who opposed participation, or whose parents/guardians opposed participation, were excluded. Parents were also informed that the interview is confidential, but if evidence of clinical impairment is found the researcher will inform the parents, with the participants' permission.

All research participants were informed that they may terminate the interview at any point. They were all debriefed (i.e. told that they may experience some distress in the days following the interview, which is normal, but if it continues they should contact the researcher who will refer them appropriately) at the end of the interview. The researcher discussed the possibility of referral with participants who received a diagnosis of PTSD or depression or whose functioning was impaired by sub-clinical symptoms, and made referrals where appropriate.

The importance of obtaining honest responses and the fact that all information will remain confidential was stressed to participants, and care was taken to conduct the interviews in a sensitive manner. All evaluations were conducted by the researcher, in

private and without disturbance in rooms allocated to the researcher by the school staff.

The order of administration of the CATS and K-SADS was counterbalanced to control for practice effects. After having completed the unstructured qualitative interview, half the sample was required to complete the CATS before the K-SADS and the other half after the K-SADS. The evaluation per participant took approximately 45 minutes. The data were collected during school hours at times that were specified as convenient by the staff.

2.3.5 Data Analysis

Statistical data analysis

The Statistica software package and Microsoft Excel were utilised in the analysis of the data.

Levels of trauma exposure

Descriptive statistics were used to calculate the frequency of trauma exposure on the K-SADS and CATS. The difference of two proportions and t-tests were used to indicate if any of these differences were significant, and Cohen's Kappas (Cohen, 1960) were used to measure the agreement between the traumatic events reported on each measure.

PTSD diagnosis

The rates of PTSD on the interview and self-report scale were determined, and McNemar's chi-square test was used to see if there was a significant difference between the two measures. To control for effect size, given the small sample, Kappa coefficients were used to assess agreement between the measures. As a result of the significant difference and low agreement between the measures, a more sensitive cut-

off point for the CATS was established using a Receiver Operator Characteristic (ROC) Analysis.

It was decided that since a ROC analysis is a more sophisticated technique it would be used, instead of T-scores, to determine the optimal cut-off score. While T-scores would determine the cut-off score that separates those participants with the disorder and those participants without the disorder probabilistically, a ROC analysis allows one to trade false positives against false negatives to find the optimal cut-off score. An ROC curve is a line graph that plots the probability of a true positive result against the probability of a false positive result, for a range of different cut-off points. The cut-off chosen as indicating those at risk thus depends entirely on the "gold" standard or test being used used as the "true" measure.

According to Baldessarini, Finkelstein and Arana (1983) a ROC analysis estimates the overall performance of an instrument in detecting an object, which in this case will be the disorder, PTSD. A ROC analysis uses all possible values of a questionnaire, plotting for each value the rate of true and false positive discrimination of those with or without the predicted disorder (Shalev and Yehuda, 1998). The resulting line is referred to as the ROC curve. The area under the curve can be calculated and expresses the overall performance of the test (Shalev and Yehuda, 1998).

The sensitivity, specificity and predictive value of the CATS was established for each cut-off and the most appropriate cut-off was used to indicate a positive "diagnosis" (i.e. that the child is at high risk for PTSD and should be evaluated further).

Graphs of the PTSD diagnoses and the CATS scalar scores were also plotted. T-tests were done to see if there is a significant difference in the mean CATS scalar scores of participants who receive a diagnosis of PTSD on the K-SADS and those who do not.

PTSD symptom clusters

T-tests were also conducted to see if there is a significant difference in the mean CATS scalar scores of each symptom cluster between participants who meet DSM IV criteria for each respective cluster on the K-SADS with participants who do not. This should indicate if those participants with a high scalar score on any factor are more likely to meet criteria for that factor on the K-SADS. A graph comparing the CATS scores with numbers of participants diagnosed with PTSD on the K-SADS was plotted.

Alphas were obtained for each PTSD factor on the K-SADS, as well as those on the CATS, to determine the internal consistency of the factors on each measure. The total internal consistency was also determined for each measure. Alphas after the removal of any "bad" items were obtained to see if there would be any improvement in the internal consistency of the factors and measures.

PTSD symptoms

A t-test was performed to determine if there is a significant difference in the average number of symptoms reported by participants in the K-SADS and in the CATS. Kappas were used to assess the levels of agreement across the two measures for participants with PTSD and to assess the levels of agreement across the two measures for participants without PTSD. The difference of two proportions test was used to compare the responses to each CATS symptom of participants with PTSD and those without PTSD.

Depression

The same analyses were conducted as for PTSD diagnosis and symptoms.

Qualitative analysis

A content analysis of the open-ended interviews and count-frequencies of each type of post-traumatic response were done.

2.3.6 Practical and Methodological Limitations

There are a number of limitations specific to this study. PTSD will be assessed according to the DSM IV criteria. As discussed in Chapter One, some authors find this problematic, as, for example, developmental considerations are not taken into account, nor are cross-cultural variations in the expression of Post-traumatic reactions. Culture influences norms, beliefs, and values surrounding the use of violence, expectations and reactions by caretakers, and the way children understand and label their own experiences (Margolin and Gordis, 2000). The open-ended interview attempts to compensate for this to some degree.

It is important to keep in mind that the instruments were developed and tested overseas, have not been standardised on South African samples and little attempt has been made to establish norms specific to various socio-economic, cultural ecological or gender subgroups. Parental permission is required for the children to be interviewed therefore children from severely dysfunctional homes may be excluded (O'Keefe, 1997).

Additionally, the selection of the schools entailed convenience sampling, based on the schools' prior participation and willingness to participate. Although the students were selected through a random sampling procedure, they may not be representative of the broader population in terms of ethnicity, social class, exposure to violence, and other factors. Thus the degree to which the findings of the present study can be generalized is limited.

Chapter 3: RESULTS

3.1 Demographics

As noted earlier, the total number of participants was 58 (17 males and 41 females). The age of participants ranged from 16 to 18 years with a mean age of 16 years and 8 months. Most participants were coloured (n = 39) with the remainder being white (n = 18) and oriental (n = 1). All the participants' mothers were still alive but two of the female participants' fathers were not. Just over two thirds of the participants came from homes in which their parents were still married or living together (n = 40); just under one third from homes in which their parents were divorced or separated (n = 14); and the remainder came from homes in which the parents were never married (n = 2) or mothers were widowers (n = 2).

3.2 Exposure to Traumatic Events

Both PTSD measures contained sections that measured types and levels of trauma exposure.

In the interview (n = 58) 50 participants reported being exposed to at least 1 traumatic event, with an average of 2.3 (sd = 1.7) and a range of 0 to 10. The most common traumatic events were found to be: being confronted with traumatic news (57%), witnessing domestic violence (31%), and witnessing a violent crime (24%). (See Table 3.1)

Table 3.1: Frequencies of reported traumas on the K-SADS

Event	Number	%
Car accident	4	6.9
Other accident	9	15.5
Fire	2	3.4
Witness of a disaster	4	6.9
Witness of a violent crime	14	24.1
Victim of a violent crime	6	10.3
Confronted with traumatic news	33	56.9
Witness to domestic violence	18	31
Physical abuse	2	3.4
Sexual abuse	5	8.6
Other	11	19

(n = 58)

In the self-report questionnaire (n = 58) 53 participants reported being directly or indirectly exposed to at least 1 traumatic event, with an average of 3.7 (sd = 3.2) per participant, and a range of 0 to 14. The most common traumatic events were having gotten sick and almost died, or knowing someone who got sick and died/ almost died (57%), being badly bitten or knowing someone who was (48%), and having attempted suicide or knowing someone who attempted or completed a suicide (48%). (See Table 3.2).

Table 3.2: Frequencies of reported traumas on the CATS

Event	Me		Someone I know well	
	Number	%	Number	%
Badly bitten by a dog or another animal	8	13.8	15	25.9
Badly scared or hurt by a gang or criminal	4	6.9	17	29.3
Badly beaten	1	1.7	14	24.1
Shot or stabbed	0	0	16	27.6
Terrible fire or explosion	0	0	7	12.1
Chemical or other deadly poisoning	1	1.7	4	6.9
Bad storm, flood, tornado, hurricane or earthquake	2	3.4	6	10.3
Bad car, boat, bike, train, or plane accident	3	5.2	18	31
Other very bad accident	5	8.6	9	15.5
Got sick and almost died or died	5	8.6	28	48.3
Kidnapped or held captive	0	0	5	8.6
Suicide attempt or died from suicide	4	6.9	19	32.8
I was taken away from my family	1	1.7		
I saw something terrible happen to a stranger	16	27.6		
Other shocking or terrifying event	5	8.6	2	3.4

(n = 58)

The difference of two proportions test revealed that the number of participants reporting the experience of a traumatic event on each measure was not significantly different (p = 0.36). The level of agreement between the measures (K) is 0.74 (standard error: 0.15; confidence interval: 0.46 to 1.0).

3.2.1 Differences in Reporting of Trauma Exposure Between Measures

When both direct ("Happened to me") and vicarious ("Happened to someone I know well") trauma exposure on the CATS was included a difference in the number of traumas reported in the interviews and the number reported on the self-report questionnaires was found. Significantly more traumas were reported on the CATS (mean = 3.7) than the K-SADS (mean = 2.3), (t = -3.94; p = <0.01). However, when vicarious exposure was excluded from the CATS the number of traumas reported on

the K-SADS was significantly higher than that reported on the CATS (t = 5.68; p = <0.01).

An attempt was made to compare the level of agreement of specific traumas across the 2 measures. This was difficult as most traumatic events on the measures are not directly comparable. Eventually, the K-SADS categories of "Car accident" and "Other accident" were combined into one and compared to the CATS categories of "Bad car, boat, bike, train, or plane accident" and "Other very bad accident", which were also combined into one. Other comparisons made were between "Fire" on the K-SADS and "Terrible fire or explosion" on the CATS, and "Witness of a disaster" on the K-SADS and "Bad storm, flood, tornado, hurricane or earthquake" on the CATS. The levels of agreement are displayed in Table 3.3.

Table 3.3: Levels of agreement between comparable traumatic events

Traumatic event	% on K- SADS	% on CATS	Observed Kappa	Standard Error	95% Confidence Interval	
					Lower Limit	Upper Limit
Accident	22.4	43.1	0.03	0.14	-0.25	0.31
Fire	3.4	12.1	0.18	0.29	-0.39	0.75
Natural disaster	6.9	13.8	0.45	0.21	0.03	0.87

3.3 PTSD Diagnoses

On the K-SADS 11 participants (19%) (male = 3; female = 8) received a diagnosis of PTSD and only one participant (1.7%) (female) received a diagnosis of PTSD on the CATS, using the cut-off of 27 suggested by March (2001). Using McNemar's chi-square this difference was found to be significant at the 0.01 level (chi square = 50.3; p < 0.01). The level of agreement between the measures, Kappa (K), was 0.14 (standard error: 0.25; confidence interval: -0.35 to 0.62).

3.3.1 ROC Analysis

Given the low level of agreement found using the cut-off of 27 on the CATS, a ROC analysis was done in order to establish a CATS cut-off score that would be more appropriate for the present sample. Firstly, using the K-SADS as the "gold" standard (a measure that identifies those individuals who definitely have or do not have a disorder), the sensitivity and specificity for a number of CATS cut-off scores were established. Sensitivity is a proportion of true positives who are test positives (the true positive probability) and specificity is the proportion of true negatives who are test negatives (the true negative probability). 1 – specificity (the false positive probability), the gradients between each point and the positive and negative predictor values were also calculated. The predictive value of a positive test is the proportion of those with a positive test result who actually have the disorder and the predictive value of a negative test is the proportion of those with a negative test result who actually do not have the disorder. (See Table 3.4).

A graph of the sensitivity and 1 – specificity, the ROC curve, was also plotted (see Table 3.4). The area under the curve (the sensitivity of the scale) was found to be 0.805. The cut-off that gives the gradient closest to one is usually chosen as the most appropriate as it maximises both sensitivity and specificity. In this case this was 15.

Table 3.4: ROC and Predictive values

Cut-off	Sensitivity	Specificity	1-specificity	Gradient	Predictive Values	
					Positive	Negative
0	100	0	100			
1	100	2	98	0	22	100
3	100	17	83	0	22	100
4	91	21	79	2.25	21	91
5	91	23	77	0	22	92
7	91	28	72	0	23	93
8	91	32	68	0	24	94
9	91	36	64	0	25	94
10	82	36	64	∞	23	90
11	82	40	60	0	24	91
12	82	47	53	0	27	92
13	82	53	47	0	29	93
14	82	62	38	0	33	94
15	73	70	30	1.12	36	92
16	64	81	19	0.82	44	91
17	64	87	13	0	44	91
18	55	87	13	∞	50	89
19	55	92	8	0	60	90
20	55	94	6	0	67	90
21	55	98	2	0	86	90
22	55	100	0	0	100	90
23	36	100	0	∞	100	87
25	18	100	0	∞	100	84
27	9	100	0	∞	100	83

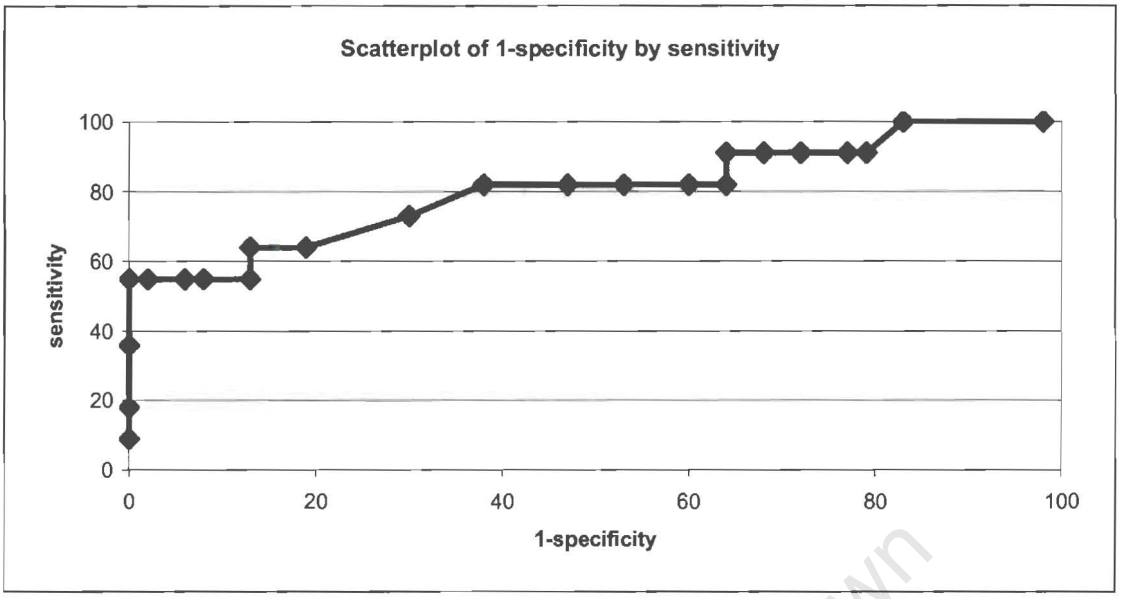

Figure 3.1: ROC Curve

Using a cut-off of 15, 22 participants got scores that were indicative of PTSD on the CATS. Using the McNemar chi-square test the difference between this and the number of participants diagnosed with PTSD on the interview remained significant, at the 0.01 level (chi-square = 19.9; $p < 0.01$). However, this time the significance was in the expected direction (i.e. the prevalence on the screening instrument is higher than on the clinical instrument). and the level of agreement was doubled (K = 0.31; standard error: 0.14; confidence interval: 0.03 to 0.59).

One would expect the total CATS scores of participants with PTSD on the K-SADS to be higher than the scores of participants without PTSD on the K-SADS. A t-test comparing the scalar scores of the participants who received a PTSD diagnosis on the K-SADS (with a mean of 18.5 and standard deviation of 7.8) and the participants who did not receive the diagnosis (with a mean of 10.4 and standard deviation of 6.4) revealed that the difference between the two was significant ($t = 3.64$; $p < 0.01$) at the 0.01 level. This confirms that the CATS total scores discriminate between participants with and without a PTSD diagnosis.

A graph was plotted (Figure 3.2), which compares the number of participants diagnosed with PTSD on the K-SADS with the scalar scores on the CATS. The participants were arranged in ascending order in terms of their scalar scores on the self-report scales and divided into six groups. For example, on the graph, Group One will be the one with the ten lowest scores on the self-report scale and Group Six will be the one with the eight highest scores on the CATS. The number of participants who received a diagnosis of PTSD on the K-SADS was plotted for each group. The range of the CATS scores in Group One is 0 to 3; the Group Two range is 3 to 10; Group Three scores range from 10 to 13; Group Four from 13 to 15; Group Five from 15 to 20; and Group Six from 20 to 30. It is expected that the number of participants with the diagnosis should be greater in each consecutive group. This was true of Group Four to Group Six.

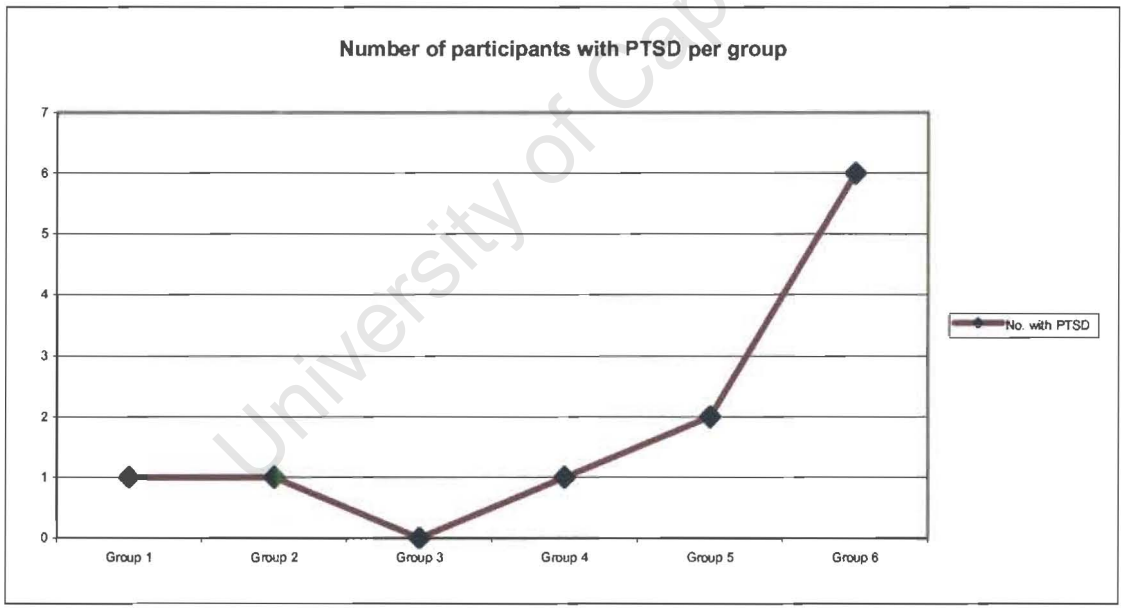

Figure 3.2: Number of participants with PTSD per group

3.4 PTSD Symptom Clusters

On the K-SADS, 18 participants met DSM IV criteria for Criterion B (re-experiencing symptoms), 15 participants met DSM IV criteria for Criterion C (avoidance symptoms) and 18 participants met DSM IV criteria for Criterion D (hyper-arousal symptoms). Since the CATS is not a DSM score scale, but rather derived using Item Response Theory (IRT), the number of participants meeting each DSM IV criterion could not be established. The CATS does, however, include six items for Criterion B, two for Criterion C, and four for Criterion D, so a scalar score for each factor can be derived.

T-tests comparing the mean Criterion B, C and D CATS scalar scores of participants who meet DSM IV criteria for Criterion B, C, and D, respectively, on the K-SADS, with those who do not, revealed significant differences for all three symptom clusters at the 0.05 level. The Criterion B mean scalar score for participants who meet Criterion B on the K-SADS is 7.3 (sd = 4.3) and for those who do not is 4.8 (sd = 3.1) ($t = -2.45$; $p = 0.02$). Those meeting Criterion C on the K-SADS have a mean scalar score of 3.9 (sd = 1.8), and those not meeting Criterion C a mean score of 2.2 (sd = 2.0) ($t = -3.12$; $p = 0.03$). The mean scalar score of participants who meet Criterion D is 5.1 (sd = 3.3) and the mean for those who do not is 3.1 (2.5) ($t = -2.50$; $p = 0.02$). A graph comparing the scalar score for each criterion with the number of participants meeting each criterion on the K-SADS is shown below (Figure 3.3).

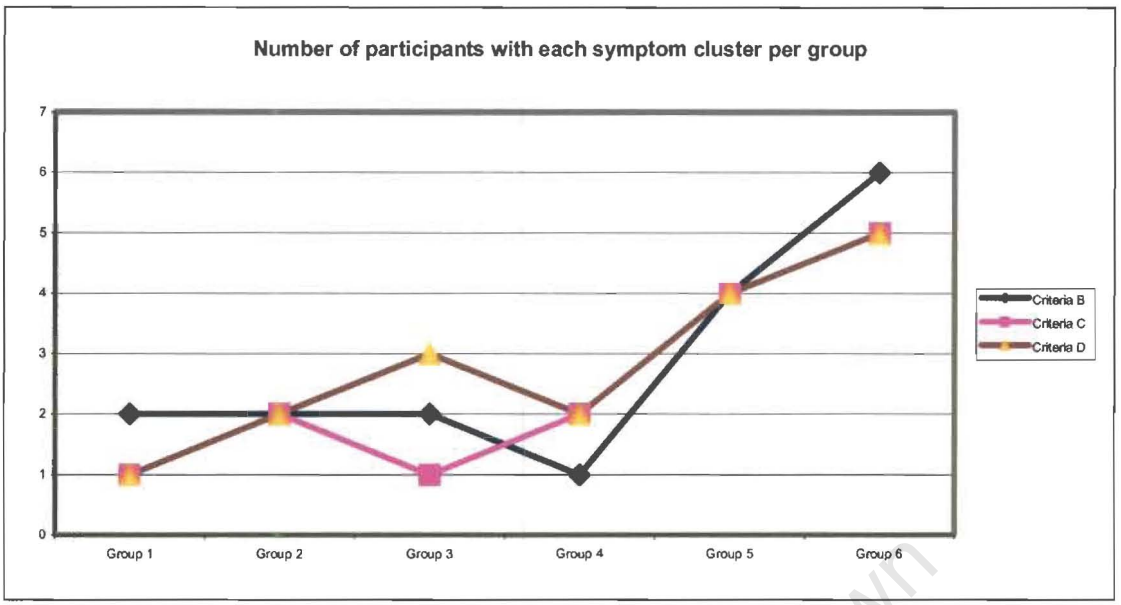

Figure 3.3: Number of participants with each symptom cluster per group

3.4.1 Internal Consistency

Alphas of 0.96, 0.97 and 0.93 were obtained for the K-SADS PTSD Criterion B, C, and D respectively. These were not improved by the removal of any item in any criterion.

Alphas of 0.79 and 0.67 were obtained for Factors B and D in the CATS, which were not improved by the removal of any items. An Alpha could not be calculated for Factor C, as there are only two variables in that factor.

A total internal consistency of 0.99 was obtained for the PTSD section of the K-SADS and a total internal consistency of 0.86 was obtained for the CATS.

3.5 PTSD Symptoms

A dependent t-test was used to compare the number of symptoms reported on the K-SADS (3.3; sd = 5.0) with the number of symptoms reported on the CATS (3.7; sd = 2.8). For the CATS symptoms, endorsing a symptom with "sometimes" or "often"

was taken to mean that the symptom was present. The difference was not significant ($t = -0.83$; $p = 0.41$). With regards to gender, dependent t-tests showed no difference in the number of symptoms reported by males on each instrument (K-SADS mean: 3.1, sd = 4.9; CATS mean: 3.7, sd = 2.3; $t = -0.5$; $p = 0.62$) and no difference in the number of symptoms reported by females on each instrument (K-SADS mean: 3.3, sd = 5.2; CATS mean: 3.8, sd = 3.0; $t = -0.65$; $p = 0.52$).

Table 3.5 gives the percentage of participants who experienced each symptom on the K-SADS and the CATS. The most commonly reported symptoms on the K-SADS were having recurrent thoughts or images of the event, trying to avoid thoughts or feelings associated with the trauma and restricted affect. The symptoms reported most often on the CATS were worrying that the event will happen again, trying not to think about the event and recurrent thoughts about the event.

Kappas were done to measure the levels of agreement on the symptoms that could be directly compared on each measure, for the whole sample, for the participants with PTSD on the K-SADS and for the participants without PTSD on the K-SADS. These are reported in Table 3.6. There was greater agreement between symptoms in participants with PTSD on the K-SADS than there was among participants without PTSD on the K-SADS. Thus those with PTSD were more consistent in their reporting of symptoms.

Table 3.5: Comparison of PTSD symptoms

Rate of PTSD symptoms on the K-SADS		Rate of PTSD symptoms on the CATS	
Symptom	%	Symptom	%
Comparable Symptoms			
Recurrent thoughts or images of events	28	I go over and over what happened in my mind	40
Efforts to avoid thoughts or feelings associated with the trauma	28	I try not to think about what happened	47
Insomnia	22	I sleep poorly	26
Irritability or outbursts of anger	24	I am grouchy or irritable	36
Distress at reminders of event	16	When something reminds me of what happened I get tense and upset	21
Exaggerated startle response	17	I am jumpy and nervous	29
Nightmares	16	I have bad dreams about what happened	9
Difficulty concentrating	19	I have trouble keeping my mind on things	28
Efforts to avoid activities or situations that arouse recollections of the trauma	21	I try to stay away from things that remind me of what happened	21
Non-comparable Symptoms			
Sense of forshortened future	3	I worry that what happened will happen again	57
Feelings of detachment or estrangement	21	I get scared when I think about what happened	38
Inability to recall important aspects of the trauma	10	I have unwanted thoughts about what happened	21
Restricted affect	28		
Hypervigilance	17		
Physiological reactivity upon exposure to reminders	9		
Dissociative episodes, illusions, or hallucinations	21		
Diminished interest in activities	22		
Repetitive play related to event / reenactment	2		

Table 3.6: Levels of agreement for comparable PTSD symptoms

Symptom		Observed Kappa	Standard Error	95% Confidence Interval	
				Lower Limit	Upper Limit
Recurrent thoughts or images of event	(i)	0.02	0.14	-0.31	0.26
	(ii)	-0.57	0.22	-1.01	-0.13
	(iii)	0.01	0.18	-0.33	0.35
Trying not to think about the event	(i)	0.25	0.13	-0.003	0.51
	(ii)	-0.14	0.56	-1.24	0.96
	(iii)	0.07	0.17	-0.26	0.41
Sleep problems	(i)	0.44	0.15	0.15	0.72
	(ii)	0.61	0.25	0.11	1
	(iii)	0.16	0.23	-0.3	0.62
Anger and irritability	(i)	0.24	0.14	-0.05	0.52
	(ii)	0.24	0.3	-0.35	0.83
	(iii)	0.13	0.19	-0.24	0.49
Distress at reminders of event	(i)	0.48	0.16	0.17	0.79
	(ii)	0.44	0.28	-0.1	0.98
	(iii)	0.17	0.29	-0.4	0.74
Exaggerated startle response	(i)	0.39	0.15	0.09	0.68
	(ii)	0.3	0.35	-0.38	0.98
	(iii)	0	0.3	-0.59	0.59
Nightmares	(i)	0.2	0.23	-0.26	0.65
	(ii)	0.23	0.26	-0.28	0.73
	(iii)	-0.05	0.45	-0.93	0.82
Difficulty concentrating	(i)	0.19	0.17	-0.04	0.51
	(ii)	0.35	0.26	-0.15	0.86
	(iii)	0.03	0.23	-0.41	0.48
Efforts to avoid reminders of event	(i)	0.27	0.15	-0.03	0.56
	(ii)	-0.31	0.3	-0.89	0.28
	(iii)	0.34	0.18	-0.02	0.7

(i) Total sample (N =58); (ii) Participants with PTSD on the K-SADS (N = 11);

(iii) Participants without PTSD on the K-SADS (N = 47).

The number of participants with PTSD (according to the K-SADS) endorsing each CATS symptom was compared to the number of participants without PTSD on the K-SADS endorsing the same symptom (see Table 3.7). Significant differences for all symptoms were expected (participants with PTSD should always endorse a symptom more often than those without PTSD). The difference of two proportions test showed a significant difference in only five of the twelve symptoms. The rest of the symptoms do not appear to be discriminating well between participants who have PTSD and those who do not have PTSD.

Table 3.7: Endorsement of CATS symptoms by participants with and without PTSD

CATS Symptom	Participants with PTSD (%)	Participants without PTSD (%)
I worry that what happened will happen again	45.5	36.2
I try not to think about what happened	63.6	31.9
I go over and over what happened in my mind*	45.5	12.8
I get scared when I think about what happened	18.2	6.4
I am grouchy or irritable	63.6	48.9
I am jumpy and nervous**	54.5	14.9
I have trouble keeping my mind on things**	81.8	38.3
I sleep poorly	54.5	27.7
I have unwanted thoughts about what happened	54.5	31.9
I try to stay away from things that remind me of what happened**	63.6	19.1
When something reminds me of what happened I get tense and upset	36.4	25.5
I have bad dreams about what happened**	63.6	17.0

* Significant at 0.05 level;

** Significant at 0.01 level.

3.6 Depression Diagnosis

Five participants (male = 1; female = 4) received a diagnosis of depression on the K-SADS and eight (male = 2; female = 6) received a diagnosis of depression on the CDI (using the cut-off of 19). This difference was found to be significant using the McNemar Chi-square test (chi-square = 38.5; $p < 0.01$). A Kappa of 0.40 was found (standard error: 0.21; confidence interval: -0.02 to 0.82).

An independent t-test comparing the CDI scores of participants who received a diagnosis of depression on the K-SADS (mean = 20.6; sd = 6.6) with those who did not (mean = 10.6; sd = 5.9) revealed a significant difference between the two ($t = -3.58$; $p < 0.01$) at the 0.01 level. A graph plotting the CDI scalar scores with the number of participants receiving a positive depression diagnosis is shown in Figure 3.4.

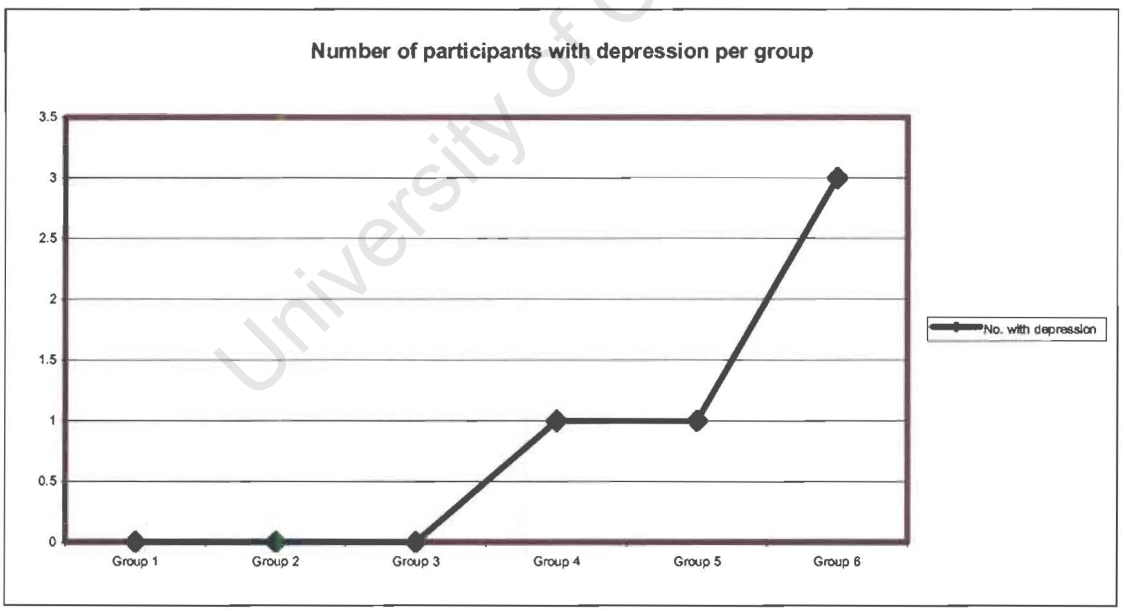

Figure 3.4: Number of participants with depression per group

3.7 Depression Symptoms

Endorsing a symptom with a "three" was taken to mean that the symptom was present in the depression section of the K-SADS and endorsing a symptom with "two" was taken to mean that the symptom was present in the CDI. A mean of 1.3 (sd = 3.7) symptoms was reported by participants in the interview and a mean of 1.6 (sd = 2.0) symptoms was reported by participants in the questionnaire. This is not a significant difference (t = -0.65; p = 0.52). The percentages of participants endorsing each symptom are displayed in Table 3.8 and Table 3.9.

Table 3.8: Frequency of K-SADS Symptoms

Symptoms	%
Irritability and anger	9
Anhedonia, lack of interest, apathy, low motivation, boredom	9
Quality of dysphoric mood different to grief	9
Sleep disturbances	9
Agitation	9
Excessive/ inappropriate guilt	9
Depressed mood	7
Recurrent thoughts of death	5
Suicidal acts - seriousness	5
Diurnal mood variation	5
Concentration, inattention or slowed thinking	5
Indecision	5
Decreased appetite/ weight loss	5
Rejection sensitivity	5
Suicide ideation	3
Non-suicidal physical self-damaging acts	3
Fatigue, lack of energy, tiredness	3
Worthlessness/ negative self-image	3
Suicidal acts - medical lethality	2
Lack of reactivity of depressed/irritable mood to positive stimuli	2
Increased appetite/ weight gain	2
Psychomotor retardation	2
Hopelessness, helplessness, discouragement, pessimism	2

Table 3.9: Frequency of CDI Symptoms

Symptoms	%
I cannot make up my mind about things	24
I have to push myself all the time to do my schoolwork	19
I do very badly in subjects I used to be good in	14
Things bother me all the time	10
I am tired all the time	10
I worry about aches and pains all the time	10
I can never be as good as other kids	9
I have trouble sleeping every night	7
Most days I do not feel like eating	7
I feel like crying every day	5
I look ugly	5
I never do what I am told	5
I am sad all the time	3
Nothing will ever work out for me	3
I do everything wrong	3
I feel alone all the time	3
I never have fun at school	3
I do not have any friends	3
Nothing is fun at all	2
I am bad all the time	2
I am sure that terrible things will happen to me	2
I hate myself	2
I want to kill myself	2
I do not want to be with people at all	2
I get into fights all the time	2
All bad things are my fault	0
Nobody really loves me	0

Males reported an average of 0.65 (sd = 2.4) symptoms in the interview and an average of 1.53 (sd = 2.4) symptoms in the self-report questionnaire. This difference is not significant ($t = -1.85$; $p = 0.083$). The mean number of symptoms reported by

females in the interview was 1.59 (sd = 4.1) and in the questionnaire was 1.61 (sd = 1.8). This difference is also not significant (t = -0.43; p = 0.97).

The most commonly occurring symptoms of depression on the K-SADS were anger and irritability, anhedonia, agitation and feelings of excessive and inappropriate guilt. The most common depressive symptoms in the CDI were indecisiveness, lack of motivation with regard to schoolwork and a drop in standard of schoolwork. The symptoms that were endorsed most often on the CDI fell into the anhedonia symptom cluster. Only three symptoms were directly comparable across measures. Their rates of agreement are displayed in Table 3.10.

Table 3.10: Comparison and levels of agreement for depressive symptoms

Symptom	% on K-SADS	% on CATS	Observed Kappa	Standard Error	95% Confidence Interval	
					Lower Limit	Upper Limit
Sadness/ depressed mood	7	3	0.3	0.34	0.36	0.96
Suicide ideation	5	2	0.66	0.34	0.004	1
Fatigue/ tiredness	3	10	0.21	0.31	0.39	0.81

3.8 Co-morbidity

Four participants (male = 1; female = 3) received a diagnosis of both PTSD and depression on the K-SADS. No participant received both diagnoses on the self-report questionnaires when the CATS cut-off of 27 was used. Using the new cut-off, seven participants received scores indicating that they were suffering from both depression and PTSD on the self-report measures. The level of agreement between the types of measures was found to be 0.50 (standard error: 0.21; confidence interval: 0.08 to 0.92).

3.9 Unstructured Interviews

The most common peri-traumatic responses of the exposed participants who responded to this questionnaire (N = 37) are displayed in Table 7.11.

Table 3.11: Most common responses during trauma

Response	Number	%
Fear	16	43.2
Distress	7	18.9
Confusion	6	16.2
Anger/Frustration	5	13.5
Helplessness	4	10.8
Shock/Horror	3	8.1

Their responses after the events were much the same as during the event, with 13 (male = 3; female = 10) reporting feelings of fear, 12 (male = 3; female = 9) reporting feelings of distress, such as sadness, and five (male = 3; female = 2) reporting feelings of anger and frustration.

Of those that responded to the unstructured interview 64.9% (male = 6; female = 18) felt that they had been affected by the traumatic events that they have experienced, four (male = 2; female = 2) in a positive manner, and 20 (male = 4; female = 16) in a negative manner.

All the participants who received a positive diagnosis on the K-SADS PTSD or depressive sections, the CATS, using the diagnostic threshold of 15, or the CDI, using the threshold of 19, (N = 27) felt that they had been affected in some way by the traumatic event they had experienced. Most (N = 20, male = 5; female = 15) felt that they had become more fearful, anxious, agitated and nervous. In addition to this, nine (male = 2; female = 7) who did not receive any diagnoses felt that they had been negatively affected by their experiences.

The most common themes regarding the way in which the participants felt they have been affected are displayed in Table 3.12.

Table 3.12: Unstructured Interview: Effects of trauma

Theme	Number	%
Change in worldview	10	27
Increased awareness	9	24
Sadness/ tearfulness/ depression	7	19
Not been affected	5	14
Guilt	4	11
Not sure how affected	4	11

Twenty-seven percent of the participants reported a change in the way that they looked at the world. A girl who had witnessed the shooting of a neighbour said " I realised that it could happen to me or someone that I love. I never thought of that before". Another who was raped claimed " I am scared of people now. So many people are bad".

Twenty-four percent reported an increased awareness of their surroundings and being more careful after the experience of a trauma. Both males and females expressed a fear of doing things on their own: " I don't go anywhere alone", and being alone "I am afraid when I am alone". A number of participants (19%), all female, reported being "upset" and wanting to cry a lot of the time since their traumatic experiences. Eleven percent have a sense of guilt surrounding the events. A participant who had been date-raped felt "It was my fault 'coz I kissed him first", another whose father beats her mother, feels " I do things that make him mad".

A large number of participants (14%) claimed that they had not been affected by the incident/s that they had experienced: "It's a part of life", and an additional 11% were unsure about how they had been affected.

3.10 Participant Evaluation of Different Measures

A sub-sample of participants (n = 8) were asked if they preferred the interview format or the self-report format. Of these, 50% preferred the interview as they felt it was more straightforward, easier to understand as they could clarify things, and they could explain their answers and thus give them more fully. Of the remaining sub-sample 25% preferred the questionnaire as the answers were there to choose from and it was quicker. The remaining 25% had no preference.

Chapter 4: Discussion

4.1 Traumatic Exposure

When looking at this data, it should be remembered that the K-SADS and CATS sections on traumatic exposure were developed for American samples, and may not encompass all types of trauma experienced by South African youth.

The rates of trauma exposure on both measures are amongst the highest found in the international studies of adolescents reviewed here. Traumatic exposure in these studies ranged from 16% (Cuffe et al., 1998) to 93% (Mazza and Reynolds, 1999). The majority of the sample (86% according to the KSADS and 91% according to the CATS) has been traumatized by at least one event. The rates are, however, similar to those found in other South African studies, such as the Seedat et al. (2000) study.

4.1.1 Differences in Reporting of Trauma Exposure Between Measures

It is difficult to directly compare across the two trauma lists as they assess different types of exposure. The K-SADS gives more information on direct violence while the CATS gives more information on vicarious exposure.

However, the analysis does suggest that both males and females in this sample reported more traumas in the questionnaire. While this could be because the participants felt more comfortable in admitting to traumatic experiences in the questionnaire due to the fact it is more private (Cuffe et al., 1998), it is more likely due to differences between the trauma lists. The number of questions asked in the CATS was greater than that asked in the K-SADS (11 versus 15), and the questions in the CATS were more inclusive, asking about traumatic events experienced by the respondent and by someone who s/he knows well. The majority of the traumatic experiences reported in the CATS, in fact, fall into the "Someone I know well" category. When the number of traumas reported on the K-SADS is compared to only the "happened to me" traumas on the CATS, the number of traumas on the K-SADS

is significantly higher, despite the fact that the CATS has more trauma items than the K-SADS. It thus seems that the inclusion of vicarious trauma items inflates scores,

There was poor agreement between the events that were compared between the two measures so participants were not consistent in their reporting of traumatic events. They were more likely to endorse a trauma on the CATS than on the K-SADS. Once again, this could be due to the relative privacy of the questionnaire format (Cuffe et al., 1998). Since the two measures yield different information about both level of exposure and type of traumatic exposure, researchers and clinicians should be cautious about substituting one for the other when assessing levels and types of trauma exposure, but can do so if simply screening for any trauma exposure.

4.2 PTSD

4.2.1 PTSD Diagnosis

Nineteen percent of this sample was diagnosed with PTSD by the interview. This is much higher than the findings of the study by Seedat et al. (2000), of which the present sample is a sub-sample. This increase in the rate of PTSD could be due to the facts that the method of assessment differed, and also that more than one year had passed between assessments, so more traumatic events may have been experienced by the participants. Authors such as Sheehan et al. (1997) and Cooley-Quille et al. (1995) have noted that exposure to violence increases with age. Most other South African community studies have found rates of PTSD lower than 19%, except for the study by Ensink et al. (1997), which used self-report scales, which usually tend to yield higher prevalences than interviews, to assess the disorder.

The difference that was found between the number of participants diagnosed with PTSD on the K-SADS and the number who got scores indicative of PTSD on the CATS using the cut-off of 27 may be due to the leniency of the K-SADS interview as opposed to the original criterion measure for the CATS (the CAPS), or due to the leniency of the interviewer. However, the stark difference between the two makes this explanation unlikely. The significant difference suggests that using a cut-off score of 27 on the CATS, which is new to South Africa, is not useful in screening for PTSD in

the South African population. A cut-off point appropriate for South African samples needs to be established for this measure to be a useful tool. Another reason that the threshold of 27 is not detecting individuals at risk of PTSD could be that the original sample that this threshold was based on had experienced more recent traumas than the present sample, and would therefore have had more severe symptoms. Most of this sample had had a traumatic experience over one year prior to the assessment, and their symptoms, while present, may have been less severe.

Kovacs (1992) suggests that for normal populations it is most important to minimize false positive diagnoses. If we want to minimize false positives in this sample a cut-off of 22 would be most appropriate as no participants are falsely identified as having PTSD on the CATS. However, the sensitivity is low so many participants with PTSD (45%) are not identified. On the other hand, if we want to maximize true positives a cut-off of three identifies all participants with PTSD, according to the "gold" standard. Using this cut-off there is an extremely high rate of false positives, however. One would have to decide how important it is to find all or most of the true positives, because more positives come at the cost of more false alarms. The threshold chosen should thus depend on the situation.

An attempt to establish a more useful cut-off score was made using a ROC analysis. This gave a score of 15 as being the most appropriate cut-off point. This would be the best cut-off point as it maximises both sensitivity and specificity. Using a lower cut-off point would be too expensive with regards to time and money and a higher cut-off point would not be of much use, as too many individuals with the disorder would be missed.

Using a cut-off score of 15 on the CATS, 22 participants (38%) received scores indicative of PTSD. The difference between this and the number of participants diagnosed with PTSD on the K-SADS was still found to be significant, although the level of diagnostic agreement between the two measures is higher than that when the cut-off of 27 is used. However, the difference was in the expected direction as most studies using self-report measures produce a higher yield of participants with a

disorder than studies using interviews measuring the same disorder, while with the cut-off of 27 it was not.

Even though only 36% of the 22 participants receiving scores indicating the presence of PTSD, on the CATS, using the cut-off point of 15, actually have the disorder according to the K-SADS, only eight percent of those with the disorder are not identified. This is a more acceptable situation than that when the CATS cut- off point of 27 is used. With this cut-off point all (100%) of those identified as having the disorder, did actually have it according to the K-SADS, but 17% with the disorder were incorrectly identified as not having the disorder when they did have it.

The significant difference in CATS severity scores, between participants with and without PTSD, suggests that the CATS is discriminating well between those with PTSD and those without. The CATS original cut-off of 27, however, is too high for screening out those participants without PTSD in this sample. For this sample the cut-off of 15 identified by the ROC analysis makes sense as it maximises both the number of true positives and true negatives, and it falls between the means of the PTSD and non-PTSD participants, while the original cut-off of 27 does not.

Support for the discriminatory ability of the CATS is also provided by the finding that, for the most part, the number of "true" (as per K-SADS) PTSD diagnoses increases as the CATS scores increase. Thus, the participants with the higher scalar scores on the CATS are more likely to receive the PTSD diagnosis on the interview. Some confusion is caused by the fact that two participants with CATS scores at the lower end of the spectrum were diagnosed with PTSD on the interview. Their low scores could be due to the fact that they did not feel comfortable admitting to their symptoms on the self-report questionnaire; perhaps as they felt that their symptoms were too mild to be endorsed. Alternatively, the interviewer may have felt that they fulfilled diagnostic criteria when their symptoms were only sub-threshold and thus misdiagnosed them. Thus it may be that the CATS discriminates better at the more severe end of the continuum, but is less able to discriminate when symptoms are present but milder.

4.2.2 PTSD Symptom Clusters

A significant difference was found between the mean Criterion B, C and D CATS scores, of participants who met criteria for those clusters on the K-SADS and those who did not. Thus the CATS appears to be differentiating between those who fulfil the requirements for a criterion and those who do not. However, this discrimination is again more pronounced at the severe end of the continuum. Those participants who fulfilled the requirements for the criterion on the K-SADS but got a low score for the criterion on the CATS may have been unwilling to admit to experiencing the symptoms in question. Alternatively, the interviewer may again have felt that the symptoms were present when they were sub-threshold. Again, the CATS appears to discriminate better when the symptoms are severe as opposed to mild, but it does appear to be equally sensitive to all three symptom clusters (re-experiencing, avoidance, and hyper arousal).

The internal consistencies of the K-SADS symptom clusters, as well as the total internal consistency of each measure were high. Thus if a participant scored "yes" on one item in Cluster B, for example, s/he was likely to have scored "yes" on the others. The internal consistencies of the CATS clusters and measure as a whole were not as high as that of the K-SADS. Thus the CATS is not as efficient as the K-SADS in identifying the presence or absence of PTSD symptom clusters.

4.2.3 PTSD Symptoms

While both males and females reported more symptoms on the CATS than on the K-SADS, the difference was not found to be significant. Two of the symptoms reported most often on both the K-SADS and CATS (recurrent thoughts and images of event and efforts to avoid thoughts of the event) were also among the symptoms reported most commonly in the studies by Ensink et al. (1997) and Seedat et al. (2000), indicating that they should always be looked out for.

The non-significant difference between the total number of symptoms reported on the K-SADS and that reported on the CATS suggests that the measures are equally useful in eliciting the average number of symptoms experienced after a trauma. However,

the levels of agreement between specific symptoms on each measure were not good. Overall, participants who reported particular symptoms on the K-SADS did not always report the same symptoms on the CATS. However, those participants with PTSD were more consistent than those without PTSD. Perhaps if the questions on the CATS could have been clarified by the participants asking the interviewer, for example, the levels of agreement would have been better.

Findings indicate that the CATS discriminates well, between those with PTSD and those without PTSD, on five of the twelve items (recurrent thoughts about the event, exaggerated startle response, difficulty concentrating, avoidance of physical reminders of the event and nightmares). It does not appear to discriminate well for the other seven symptoms. For these seven symptoms, those with PTSD and those without PTSD responded similarly, indicating that the other five symptoms are more sensitive indicators of PTSD. Perhaps these five items should be prioritised when deciding whether a child or adolescent with a CATS score over 15 should go on to be assessed further for PTSD.

4.3 Depression

The difference in the number of participants diagnosed with depression on the K-SADS and those getting scores indicative of depression on the CDI was found to be significant, with more participants getting scores indicationg the presence of depression on the CDI. This suggests that both measures are not equally useful in determining rates of depression. However, the CDI scalar scores of those diagnosed with depression on the interview and those without are significantly different and participants with the higher CDI scores are more likely to be diagnosed with depression on the interview. This indicates that the CDI is good at discriminating between those with depression and those without, but that once again, it is possible that the suggested cut-off point of 19 is too high for this sample.

In this sample a CDI diagnostic threshold of 14 and above identifies all those diagnosed with depression in the interview. Depending on whether it is more important for the assessors to limit or reduce the number of false positives or false

negatives, a suitable cut-point can be chosen. The CDI seems to be a useful tool to screen for depression in this sample.

As noted earlier, the symptoms endorsed most often on the CDI fell into the anhedonia symptom cluster. Anhedonia was also one of the most commonly reported symptoms on the K-SADS. The difference in the total number of symptoms reported on each measure was not found to be significant. This was true across both genders. Of the symptoms that were compared across measures, there was good agreement for suicide ideation but not for depressed mood, which was higher on the K-SADS and may be a symptom that requires more careful probing by a clinician rather than a self-report format; and fatigue, which was higher on the CDI and may have been over-reported on this instrument.

4.4 Co-morbidity

There is a link between PTSD and depression in this sample. Thirty six percent of those diagnosed with PTSD on the interview were also found to have depression on the interview and 32% of participants who were above the cut-off of 15 in the CATS were also above the cut-off indicating a high likelihood of depression on the CDI. This is in line with international findings of co-morbidity in youth (for example, Breslau et al., 1991; Giaconia et al., 1995). Depression should always be looked for in individuals with PTSD, as the response to trauma seems to include many depressive symptoms.

The percentage of adolescents who received co-morbid diagnoses was very similar in both the interview and self-report measures.

4.5 Sub-clinical Symptoms

Many participants in the sample reported symptoms of PTSD and depression but did not meet the full diagnostic criteria or achieve the cut-off point for a positive screening. This finding implies that researchers and clinicians also need to assess the degree to which functioning is impaired in these participants, as even though criteria for a disorder may not be met, functioning may still be impaired.

4.6 The Open-ended Interview

Barker (1990) states that in many cases it is better to start with an open-ended approach. Most participants in this study had difficulty with this, however. On the unstructured interview the majority said nothing or gave very brief responses. This suggested that some sort of structure was needed for the interview to have been more useful. Perhaps it would have been better to ask unstructured questions at a later stage when a relationship between the interviewer and participant had been established.

That it not to say that this qualitative interview was of no use. Some themes which are not addressed by the DSM IV criteria for PTSD, and were thus not assessed in the other two measures of PTSD, did emerge. These include issues around guilt, feelings of sadness, anger and frustration, and a change in the way in which one sees the world, which is similar to the concept of shattered assumptions (Janoff-Bulman, 1984; 1992). For example, participants who thought that nothing bad would happen to them, as long as they were good and decent, learned that this is not necessarily true.

On the basis of these findings it is recommended that the clinician first do a formal, standardized evaluation, and then explore in a more open-ended way other post-traumatic responses that do not fit the PTSD criteria.

4.7 Participant Evaluation of Different Measures

Half the sample, that was asked if they preferred the interview or questionnaire formats, showed a preference for the interview. This, and the fact that a number of participants needed clarification with regards to a number of issues on the questionnaire while completing it, suggests that being able to clarify both questions and answers is important for the participants in this sample. Additionally, the explanations given by those who preferred the self-report format (For example, "the answers are there to choose from" and "it is quicker") are not those that would contribute to the accurate assessment of symptoms.

4.8 General Implications of Findings

If screening for any trauma exposure, the K-SADS and the CATS are interchangeable. However, if the clinician or researcher is interested in assessing exposure to specific traumatic experiences, he or she should bear in mind that the K-SADS gives more information on witnessing traumatic events, the CATS gives more information on vicarious exposure, and participants tend to endorse a trauma more often on the CATS than on the K-SADS. With regards to the latter, further research is needed to evaluate which one (CATS or K-SADS) gives the 'true' or 'valid' information and to establish the reason(s) for this inconsistency in reporting.

Symptoms reported in the interview could be investigated further whereas in the questionnaire they could not. It is helpful to be able to probe further into participants' responses in order to be clearer as to what is being reported. For example, in the self-report questionnaire one participant reported having experienced no traumatic events, yet went on to indicate that he was experiencing symptoms of PTSD.

The significantly larger proportion of participants with scores indicative of PTSD on the CATS, using the new cut-off threshold, compared to that diagnosed with the disorder by the K-SADS indicates that the CATS may be better utilised as a PTSD screening device (as suggested by its author), but with a cut-off threshold of 15 instead of the original threshold of 27. This will identify over one third of all participants with PTSD while making few false positive identifications. For the actual diagnosis of PTSD a diagnostic interview may be more appropriate, even though it is more time consuming.

The findings have suggested that recurrent thoughts about the event, exaggerated startle response, difficulty concentrating, avoidance of physical reminders of the event and nightmares are the five items on the CATS that are most sensitive for identifying adolescents with PTSD and, after the CATS screening, could be used to identify those adolescents who most need to be further assessed with a clinical interview.

The CDI appears to be better at differentiating between those with depression and those without, than the CATS does with PTSD, as no participant with a score below 14 was diagnosed with depression. Once again, though, it is recommended that it would be better utilised as a screening device, and everyone above the chosen threshold should be interviewed, as not all of them will actually have the disorder.

Due to the high levels of violence, PTSD and associated disorders in South African youth, as many children and adolescents as possible need to be assessed in order to be able to provide appropriate interventions. Due to limited resources, administering clinical interviews to all the youth in the community is not feasible. Self-report scales, even though they cannot replace clinical interviews, can assist in reducing the numbers of interviews that need to be conducted by identifying those individuals most at risk. These individuals can then be interviewed by a clinician, thus facilitating more targeted and efficient interventions. In this way self-report questionnaires and structured diagnostic interviews can complement each other in the assessment of PTSD and depression in South African youth. In addition, open-ended interviews can be used to provide additional information on post-traumatic responses, but may be better utilized at the end of the assessment process.

4.9 Methodological Limitations

4.9.1 Measures of Assessment

The questions on each measure, even though they may have been trying to elicit similar information, were asked in different ways. Some questions on the CATS, for example, were more specific than the questions referring to the same topic on the K-SADS. This resulted in many questions not being directly comparable across measures. If the same instrument, such as the CATS, had been administered first as a self-report questionnaire and then administered by the clinician as a structured interview, rather than two completely different measures being used, the responses could have been cross checked and a better idea of which format is better would have been gained.

Additionally the time-frames for the presence of each symptom may not have been entirely clear, and thus the measures may not have been entirely comparable.

4.9.2 Use of the K-SADS

Since this instrument is designed to be administered to both the parent and the child or adolescent, but was only administered to the adolescent in this study, the findings may be somewhat distorted. The fact that the researcher is not clinically trained may have been an additional source of bias.

4.9.3 ROC Analysis

Problems arise with this analysis firstly because the results are dependent on the interviewer threshold for diagnosis, as the interviewer's judgement is always necessary in deciding whether a symptom is present or absent. Since the researcher conducted the assessments and was not blind to the purpose of the study, this judgement may have been biased. Secondly, the measure against which the instrument being analysed (in this case the CATS) is compared (in this case the K-SADS) is taken to be the true measure of the disorder, which may not be the case.

4.9.4 Generalisability of Findings

The sample was comprised predominantly of coloured, female adolescents. Even though the majority of adolescents in the Western Cape are coloured the sample size is small, and socio-demographic variables, such as social class, family income and race were not taken into account in any of the analysis. As such the findings cannot be generalised to the larger population.

4.9.5 Cross Sectional Design

This was a cross sectional study, thus traumas and the emergence of symptoms may not have been accurately recalled by the participants.

4.9.6 Unstructured Interview

In retrospect, only questions two and three of this interview were relevant to the study. The questionnaire should have been thought about more carefully in order for it to have been more useful.

Although this study has limitations, some tentative conclusions will never the less be drawn and recommendations presented.

4.10 Conclusion

The key findings of the present study confirm firstly that trauma exposure in South African children and adolescents is extremely high compared to international samples. Ways to come to terms with living in a violent society without accepting it as a way of life need to be developed. Preventative and therapeutic programmes for youth need to be urgently implemented.

Secondly, in this sample PTSD is a common outcome following a traumatic event, although the disorder as described in the DSM IV may not be the only outcome following trauma. Other responses, such as guilt and shattered assumptions, may also be prevalent and care should be taken to identify these. Unstructured, open-ended interviews, if utilized at the end of the assessment process, can assist in providing information on post-traumatic responses that are not included in the DSM IV criteria, but are never the less important in providing a holistic picture of post-traumatic responses.

Thirdly, there is a strong link between PTSD and depression, whether due to the fact that they may be part of the same disorder, or one may make the sufferer more susceptible to the other, or to symptom overlap. Researchers and clinicians concerned with post-traumatic responses in youth should also assess depressive symptomatology, and interventions should also target this aspect of the clinical presentation of traumatized adolescents. Additionally, the nature of this link needs to be explored further. It is also important to bear in mind that other "co-morbid" disorders (such as anxiety disorders and substance use) may be outcomes of exposure

to trauma in their own right, and should be explored in future research with South African adolescents.

Fourth, the results indicate that self-report scales for PTSD and depression may be better utilised as screening instruments than as diagnostic tools. This may not be true of all self-report scales – they do need to be examined carefully however.

Based on the findings the recommended procedure for a comprehensive assessment of South African adolescents should be as follows:

1. A screening with self-report instruments (preliminary findings in this study suggest a cut-off of 15 for the CATS and a cut-off of 14 for the CDI, but this should be investigated further in future studies). In the case of the CATS the adolescents endorsing the five most sensitive items should be considered most at risk for PTSD and therefore given priority for further assessment.

2. Assessment of all the screen-positive adolescents, or of only those endorsing the five most sensitive items, depending on the resources available, with a semi-structured interview.

3. Administration of a more open-ended interview to elicit post-traumatic responses that are not captured by the DSM IV PTSD criteria.

Since it is not suggested that self-report measures replace clinical interviews, there is a need to continue to search for more efficient ways of diagnosing PTSD and other post-traumatic sequelae in South Africa. Further studies, using the CATS and the CDI, as well as other self-rating scales and brief diagnostic measures need to be conducted, in larger samples, more representative of the South African population. In particular, more research to establish and verify suitable cut-off points to identify children and adolescents at high risk of PTSD and depression needs to be conducted.

The future holds many opportunities for research, preventative and ameliorative interventions and public policies, and their combined contributions to the well being of adolescents in South Africa.

REFERENCES

Achenbach, T. M. (1980). DSM III in light of empirical research on the classification of child psychopathology. Journal of the American Academy of Child and Adolescent Psychiatry, 19, 395 - 412.

Ambrosini, P. J. (2000). Historical development and present status of the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS). Journal of the American Academy of Child and Adolescent Psychiatry, 39, 49 – 58.

American Academy of Child and Adolescent Psychiatry (1995). Practice parameters for the psychiatric assessment of children and adolescents. Journal of the American Academy of Child and Adolescent Psychiatry, 34, 1386 – 1405.

American Psychiatric Association (1980). Diagnostic and statistical manual of mental disorders (3rd ed.). Washington DC: Author.

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington DC: Author.

American Psychological Association (1992). Ethical principles of psychologists and code of conduct. http://www.apa.org/ethics

Baldessarini, R. J., Finkelstein, S. Arang, G. W. (1983). The predictive power of diagnostic tests and the effects of prevalence of illness. Archives of General Psychiatry, 40, 567 – 573.

Ballinger, J. C., Davidson, J. R. T., Lecrubier, Y., Nutt, D. J., Foa, E. B., Kessler, R. C., McFarlane, A. C. & Shalev, A. Y. (2000). Consensus statement on Posttraumatic stress disorder from the International Consensus Group on Posttraumatic stress disorder. Journal of Clinical Psychiatry, 61, 60 – 66.

Barker, P. (1990). Clinical interviews with children and adolescents. New York: W.W. Norton & Company.

Barreto, S. & McManus, M. (1997). Casting the net for "depression" among ethnic minority children from the high-risk urban communities. Clinical Psychology Review, 17, 823 – 842.

Bernstein, G. A. & Borchardt, C. M. (1990). Anxiety disorders of childhood and adolescence: a critical review. Journal of the American Academy of Child and Adolescent Psychiatry, 30, 519 – 529.

Bleich, A., Koslowsky, M., Dolev, A. & Lerer, B. (1997). Post-traumatic stress disorder and depression: An analysis of comorbidity. British Journal of Psychiatry, 170, 479 – 482.

Bolton, D., O'Ryan, D., Udwin, O., Boyle, S. & Yule, W. (2000). The long-term psychological effects of a disaster experienced in adolescence: II: General psychopathology. Journal of Child Psychology and Psychiatry, 41, 513 – 523.

Boney–McCoy, S. & Finkelhor, D. (1995). Psychosocial sequelae of violent victimization in a natural youth sample. Journal of Consulting and Clinical Psychology, 63, 726 – 736.

Brady, K. T. (1997). Posttraumatic stress disorder and comorbidity: recognizing the many faces of PTSD. Journal of Clinical Psychiatry, 58, 12 – 15.

Breslau, N., Davis, G.C., Andreski, P. & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder I an urban population of young adults. Archives of General Psychiatry, 48, 216 – 222.

Briere, J. (1996). Trauma Symptom Checklist for Children (TSCC). Odessa, FL: Psychological Assessment Resources.

Camerer, L., Louw, A., Artz, L. & Sharf, W. (1998). Crime in Cape Town: Results of a victim survey. Institute for Security Studies, Cape Town: Halfway House.

Charcot, J. M. (1887). Lecons sur les maladies du systeme nerveux faites a la Salpetriere [Lessons on the illness of the nervous system held at Salpetriere]. (Vol. 3). Paris: Progres Medical en A. Delahoye & Lecrosnie.

Cooley-Quille, M. R., Turner, S. M. & Beidel, D. C. (1995) Emotional impact of Children's Exposure to community violence: A preliminary study. Journal of the American Academy of Child and Adolescent Psychiatry, 34, 1362 – 1368.

Cohen, J. (1960). A coefficient of agreement for nominal scales. Educational and Psychological Measurement, 10, 31 – 46.

Craighead, W. E., Craighead, L. W., Smucker, M. R. & Ilardi, S. S. (1998). Factor analysis of the Children's Depression Inventory in a community sample. Psychological Assessment, 10, 156 – 164.

Crime Information Analysis Center (2001). Crimes per adult and children as victims: January to December 2000. Pretoria: Author.

Crowley, S. L., Thompson, B., Worchel, F. (1994). The Children's Depression Inventory: a comparison of generalizability and classical test theory analysis. Educational and Psychological Measurement, 54, 705 – 712.

Cuffe, S. P., Addy, C. L., Garrison, C. Z., Waller, J. L., Jackson, K. L., McKeown, R. E. & Chilappagari, S. (1998). Prevalence of PTSD in a community sample of older adolescents. Journal of the American Academy of Child and Adolescent Psychiatry, 41, 277 – 286.

Dawes, A. & Donald, D. (Eds.). (1994). Childhood and adversity: psychological perspectives from South African research. Cape Town: David Phillips.

Dawes, A. & Tredoux, C. (1989). Emotional status of children exposed to political violence in the Crossroads squatter area during 1986/1987. Psychology in Society, 12, 33 - 47.

Dawes, A. & Tredoux, C. (1990). The impact of political violence on children of K.T.C. In the Center for Intergroup Studies (CIS). The influence of violence on children. Cape Town, South Africa: Center for Intergroup Studies (CIS).

Dawes, A., Tredoux, C & Feinstein, A. (1989). Political violence in South Africa: Some effects on children of the violent destruction of their community. International Journal of Mental health. 18, 16 – 43.

Deering, C. G., Glover, S. G., Ready, D., Eddleman, H. C. & Alarcon, R. D. (1996). Unique patterns of comorbidity in Posttraumatic stress disorder from different sources of trauma. Comprehensive Psychiatry, 37, 336 – 346.

Dowdall, Y. (1990). Working with children and their families in civil conflict situations. In CISC (Ed.). The influence of violence on children. Cape Town Center for Intergroup Studies.

Doyle, J. S. & Bauer, S. K. (1989). Post-traumatic stress disorder in children: Its identification and treatment in a residential setting for emotionally disturbed youth. Journal of Traumatic Stress, 2, 275 – 288.

Duncan, D. F. (1996). Growing up under the gun: Children and adolescents coping with violent neighborhoods. The Journal of Primary Prevention, 16, 343 – 356.

Duncan, N. & Rock, B. (1997). The impact of political violence on the lives of South African children. In C. de la Rey, N. Duncan, T. Schefer & A. van Niekerk. (Eds.). Contemporary issues in human development: a South African focus. Durban: ITP.

Ebata, A. T., Peterson, A. & Conger, J. (1990). The development of psychopathology in adolescents. In J. Rolf, A. S. Masten, D. Cicchetti, K. H. Nuechterlein & S. Weintraub (Eds.). Risk and protective factors in the development of psychopathology. (pp. 308 – 333). USA: Cambridge University Press.

Ensink, K., Robertson, B. A., Zissis, C. & Leger, P. (1997). Post-traumatic stress disorder in children exposed to violence. South African Medical Journal, 87, 1526 – 1530.

Farrell, A. D. & Bruce, S. E. (1997). Impact of exposure to community violence on violent behavior and emotional distress among urban adolescents. Journal of Clinical Child Psychology, 26, 2 – 14.

Finkelhor, D. & Dzuiba-Leatherman, J. (1994). Children as victims of violence: A national survey. Paediatrics, 94, 413 – 420.

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 and Adolescent Psychiatry, 32, 424 – 430.

Fletcher, K. (1991). When Bad Things Happen Scale. Available from the author, Department of Psychiatry, University of Massachusetts Medical Center, Worcester.

Frederick, C., Pynoos, R. & Nader, K. (1992). Childhood PTS Reaction Index. Available from the authors, P.O. Box 2551, Laguna Hills, CA.

Freeman, H. (1999). Post-traumatic stress disorder. Journal of the Royal Society of Medicine, 92, 213 – 214.

Freeman, L. N., Mokros, H. & Poznanski, E. O. (1993). Violent events reported by normal urban school-aged children: Characteristics and depression correlates. Journal of the American Academy of Child and Adolescent Psychiatry, 32, 419 – 423.

Freud, S. (1962). The aetiology of hysteria. In J. Strachey (Ed. & Trans.), The standard edition of the complete psychological works of Sigmund Freud. (Vol. 3). London: Hogarth Press.

Freud, S. (1959). An autobiographical study. In J. Strachey (Ed. & Trans.), The standard edition of the complete psychological works of Sigmund Freud. (Vol. 20). London: Hogarth Press.

Friedman, M. J. (1997). Posttraumatic stress disorder. Journal of Clinical Psychiatry, 58, 33 – 36.

Fristad, M. A., Emery, B. L., Beck, S. J. (1997). Use and abuse of the Children's Depression Inventory. Journal of Consulting and Clinical Psychology, 65, 699 – 701.

Garbarino, J., Kostelny, K. & Dubrow, N. (1991). What children can tell us about living in danger. American Psychologist, 46, 376 – 383.

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 and Adolescent Psychiatry, 34, 1369 – 1380.

Goodman, L. A., Corcoran, C., Turner, K., Yuan, N. & Green, B. L. (1998). Assessing traumatic event exposure: general issues and preliminary findings for the Stressful Life Events Screening Questionnaire. Journal of Traumatic Stress, 11, 521 – 542.

Hamber, B. (2000). "Have no doubt it is fear in the land": an exploration of the continuing cycles of violence in South Africa. Southern African Journal of Child and Adolescent Mental Health, 12, 5 – 18.

Herbert, M. (1996). Post traumatic stress disorder in children. Leicester, England: British Psychological Society.

Herman, J. (1992). Trauma and Recovery: From domestic abuse to political terror. London: Pandora.

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.

Horowitz, M. J. (1976). Stress response syndromes. New York: Jason Aronson.

Janet, P. (1920). The major symptoms of hysteria. New York: Hafner.

Janoff-Bulman, R. (1992). Shattered assumptions: toward a new psychology of trauma. New York: Free Press.

Janoff-Bulman, R. (1984). The aftermath of victimization: Rebuilding shattered assumptions. In C. R. Figley (Ed.), Trauma and its wake, volume 1: study and treatment of Post-traumatic stress disorder. (pp. 15 – 35). New York: Brunner/ Mazel.

Jones, R. T. (1994). Child's Reaction to Traumatic Events Scale (CRTES): A self-report traumatic stress measure. Available from the author, Department of

Psychology, Virginia Polytechnic Institute and State University, Blacksburg, V. A.

Kaufman, J., Birmaher, B. Brent, D, Rau, U. & Ryan, N. (1996). Schedule for Affective Disorders and Schizophrenia for School-Age Children (6 – 18 years)- Present and Lifetime version. The Department of Psychiatry, University of Pittsburg School of Medicine.

Kaufman, J., Birmaher, B. Brent, D, Rau, U. Flynn, C. Moreci, P., Williamson, D. & Ryan, N. (1997). Schedule for Affective Disorders and Schizophrenia for School-Age Children- Present and Lifetime version (K-SADS-PL): initial reliability and validity data. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 980 – 987.

Kaufman, J., Birmaher, B. Brent, D, Ryan, N. & Rau, U. (2000). K-SADS-PL. Journal of the American Academy of Child and Adolescent Psychiatry, 39, 1208.

Kazdin, A. E. (1990). Assessment of childhood depression. In A. M. LaGreca (Ed.). Through the eyes of the child: obtaining self-reports from children and adolescents. (pp. 189 – 233). Needham Heights, MA: Allyn & Bacon.

Kazdin, A. E. (1993). Adolescent mental health: prevention and treatment programs. American Psychologist, 48, 127 – 141.

Keane, T. M. & Wolfe, J. (1990). Comorbidity in Post-traumatic stress disorder: An analysis of community and clinical studies. Journal of Applied Social Psychology, 20, 1776 – 1788.

Kovacs, M. (1992). Children's Depression Inventory (CDI) Manual. New York: Multi-Health Systems.

Kovaks, M. (1985). The Children's Depression Inventory (CDI). Psychopharmacology Bulletin, 21, 995-998.

Lewis, S. (1999). An adult's guide to childhood trauma: understanding traumatized children in South Africa. Cape Town: David Phillips Publishers.

Lockhat, R. & van Niekerk, A. (2000). South African children: a history of adversity violence and trauma. Ethnicity and Health, 5, 291 – 302.

Magwaza, A. S., Killian, B. J., Peterson, I. & Pillay, Y. (1993). The effects of chronic violence on preschool children living in South African townships. Child Abuse and Neglect. 17, 795 – 803.

March, J. (1999). Assessment of pediatric Post-traumatic stress disorder. In P. Saigh & D. Bremner (Eds.), Post-traumatic stress disorder (pp199-218). Washington, DC: American Psychological Press.

March, J. (2001) Personal communication.

March, J. S. & Amaya-Jackson, L. (1993). Post-traumatic stress disorder in children and adolescents. PTSD Research Quarterly, 4, 1 + 2.

March, J. S., Amaya-Jackson, L., Terry, R. & Costanzo, P. (1997). Posttraumatic symptomatology in children and adolescents after an industrial fire. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 1080 – 1088.

March, J. S., Amaya-Jackson, L., Murray, M. C. & Shulte, A. (1998). Cognitive – behavioral therapy for children and adolescents with post-traumatic stress disorder after a single incident stressor. Journal of the American Academy of Child and Adolescent Psychiatry, 37, 585 – 593.

March, J. S., Feeny, M., Amaya-Jackson, L. & Foa, E. (2000). Traumatic stress disorder in children. In D. Nutt, J. R. T. Davidson & J. Zohar (Eds.). Posttraumatic stress disorder: diagnosis, management and treatment. London: Dunitz.

Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. Annual Review of Psychology, 51, 445 – 479.

Marsella, A. J. (1996). Ethnocultural aspects of post-traumatic stress disorder: Issues, research and clinical applications. Washington DC: American Psychological Association.

Martinez, P. & Richters, J. E. (1993). The NIMH community violence project: II: children's distress symptoms associated with violence exposure. Psychiatry, 56, 22 – 35.

Mazza, J. J. & Reynolds, W. M. (1999). Exposure to violence in young inner-city adolescents: Relationship with suicidal ideation, depression, and PTSD symptomatology. Journal of Abnormal Child Psychology, 27, 203 – 213.

McFarlane, A. C. & de Girolamo, G. (1996). The nature of traumatic stressors and the epidemiology of post-traumatic reactions. In B. A. Van der Kolk, A. C. McFarlane & L. Weisaeth (Eds.). Traumatic stress: the effects of overwhelming experience on mind, body and society. New York: The Guilford Press.

Miller, T. W., Kraus, R. F., Tatevosyan, A. S. & Kamenchenko, P. (1993). Post – traumatic stress disorder in children and adolescents of the Armenian earthquake. Child Psychiatry and Human Development, 42, 115 – 123.

Monahon, C. (1993). Children and trauma: a parent's guide to helping children heal. New York: Lexington Books.

Nader, K. O. (1997) Assessing traumatic experiences in children. In J. P. Wilson & T. M. Keane (Eds.). Assessing psychological trauma and PTSD. New York: The Guilford Press.

Nader, K. O., Kriegler, J. A. Blake, D. D. & Pynoos, R. S. (1994). Clinician Administered PTSD Scale, Child and Adolescent Version (CAPS – C). White River Junction, V. T.: National Center for PTSD.

Nader, K. O. & Pynoos, R. S. (1993). A preliminary study of PTSD and grief among the children of Kuwait following the Gulf crisis. British Journal of Clinical Psychology, 32, 407 – 416.

Newman, E., Kaloupek, D. G. & Keane, T. M. (1996). Assessment of posttraumatic stress disorder in clinical and research settings. In B. A. Van der Kolk, A. C. McFarlane & L. Weisaeth (Eds.). Traumatic stress: the effects of

overwhelming experience on mind, body and society. New York: The Guilford Press.

O'Keefe, M. (1997). Adolescent's exposure to community and school violence: prevalence and behavioural correlates. Journal of Adolescent Health, 20, 368 – 376.

Osofsky, J. D. (Ed.). (1997). Children in a violent society. New York: The Guilford Press.

Parry, C. D. H. (1996). A review of psychiatric epidemiology in Africa: Strategies for increasing validity when using instruments transculturally. Transcultural Psychiatric Research Review, 33, 173 – 188.

Pelcovitz, D., Van der Kolk, B., Roth, R., Mandel, F., Kaplan, S. & Resnick, P. (1997). Development of a criteria set and a Structured Interview for Disorders of Extreme Stress (SIDES). Journal of Traumatic Stress, 10, 3 – 16.

Peltzer, K. (1999). Posttraumatic stress symptoms in a population of rural children in South Africa. Psychological Reports, 85, 646 – 650.

Perrin, S., Smith, P. & Yule, W. (2000). Practitioner review: The assessment and treatment of post-traumatic stress disorder in children and adolescents. Journal of Child Psychology and Psychiatry, 41, 277 – 286.

Persaud, R. (1999). Post-traumatic stress disorder. Journal of the Royal Society of Medicine, 92, 52.

Pfefferbaum, B. (1997). Post-traumatic stress disorder in children: a review of the past 10 years. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 1503 – 1511.

Pillay, Y., Magwaza, A. & Peterson, J. (1992). Civil conflict in Mpumalanga: Some mental health sequelae in a sample of children and their primary caregivers. Southern African Journal of Child and Adolescent Psychiatry, 4, 42 – 45.

Pillay, A. L., Naidoo, P. & Lockhat, M. R. (1999). Psychopathology in urban/peri-urban children seeking medical health care. South African Journal of Psychology, 29, 178 - 183.

Pynoos, R. S. (1990). Post-traumatic stress disorder in children and adolescents. In B. D. Garfinkel, G. A. Carlson & E. B. Weller (Eds.). Psychiatric disorders in children and adolescents. (pp. 48 – 63). Philadelphia: WB Saunders.

Pynoos, R. S. (1993). Traumatic stress and developmental psychopathology in children and adolescents. In J. Oldham, M. Riba & A. Tasmin (Eds.). Review of Psychiatry 12. (pp. 205 – 238). Washington D.C.: American Psychiatric Press.

Pynoos, R. S. & Nader, K. O. (1992). Children exposed to catastrophic school violence. Paper presented at the American Psychiatric Association annual meeting. Washington DC.

Pynoos, R. S., Goenjian, A., Tashjian, M., Karakashian, M., Manjikian, R., Manoukian, G., Steinberg, A. M. & Fairbanks, L. A. (1993). Post-traumatic stress reactions in children after the 1988 American earthquake. British Journal of Psychiatry, 163, 239 – 247.

Pynoos, R. S., Steinberg, A. M. & Goenjian, A. (1996). Traumatic stress in childhood and adolescence: recent developments and current controversies. In B. A. Van der Kolk, A. C. McFarlane & L. Weisaeth (Eds.). Traumatic stress: the effects of overwhelming experience on mind, body and society. New York: The Guilford Press.

Randall, R. & Parker, J. (1997). Post-traumatic stress disorder and children of school age. Educational Psychology in Practice, 13, 197 – 203.

Reich, W., Shayka, J. J. & Taibleson, C. (1991). Diagnostic Interview for Children and Adolescents (DICA). St Louis, M. O.: Washington University.

Resnick, H. S., Kilpatrick, D. G., Best, C. L. & Kramer, T. I. (1992). Vulnerability stress factors in the development of posttraumatic stress disorder. Journal of Nervous Mental Disorders, 180, 424 – 436.

Richters, J. E. & Martinez, P. (1993). The NIMH community violence project: I: children as victims of and witnesses to violence. Psychiatry, 56, 7 – 21.

Saigh, P. A. Yasik, A. E., Oberfield, R. A., Green, B. L., Halamandaris, P. V., Rubenstein, H., Nester, J., Resco, J., Hetz, B. & McHugh, M. (2000). The children's PTSD inventory: Development and Reliability. Journal of Traumatic Stress, 13, 369 – 380.

Schaffer, D., Fisher, P. , Piacentini, J., Shwab-Stone, M. & Wicks, J. (1992). The Diagnostic Interview Schedule for Children (DISC). Available from the authors, New York State Psychiatric Unit, New York.

Schurink, W. J., Snyman, I. Krugel, W. F. & Slabbert, L. (1992). Victimisation: nature and trends. Pretoria: HSRC.

Schwab–Stone, M. E., Ayers, T. S., Kasprow, 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.

Schwab–Stone, M. E., Chen, C., Greenberger, E., Silver, D., Lichtman, J. & Voyce, C. (1999). No safe haven II: The effects of violence exposure on urban youth. Journal of the American Academy of Child and Adolescent Psychiatry, 38, 359 – 366.

Seedat, S., van Nood, E., Vythilingum, B., Stein, D. J. & Kaminer, D. (2000). School survey of exposure to violence and posttraumatic stress symptoms in adolescents. Southern African Journal of Child and Adolescent Mental health, 12, 38 – 44.

Selye, H. (1956). The stress of life. New York: McGraw Hill.

Shalev, A. Y. & Yehuda, R. (1998). Longitudinal development of traumatic stress disorders. In R. Yehuda (Ed.) Review of Psychiatry, volume 17: psychological trauma. (pp 31 – 66).

Sheehan, K., DiCara, J. A., LeBailly, S. & Christoffel, K. K. (1997). Children's exposure to violence in an urban setting. Archives of Pediatric and Adolescent Medicine, 151, 502 – 504.

Silver, S. M. & Salamone-Genovese, L. (1991). A study of the MMPI clinical and research scales for post-traumatic stress disorder diagnostic utility. Journal of Traumatic Stress, 4, 533 – 547.

Smith, C. & Holford, L. (1993). Post-traumatic stress disorder: South Africa's children and adolescents. Southern African Journal of Child and Adolescent Psychiatry, 5, 57 – 69.

Smucker, M. R., Craighead, W. E. Craighead, L. W. & Green, B. J. (1986). Normative and reliability data for the Children's Depression Inventory. Journal of Abnormal Child Psychology, 14, 25 – 38.

Steinberg, K. J., Lamb, M. E., Orbach, Y., Esplin, P.W. & Michell, S. (2001). Use of a structured investigative protocol enhances young children's responses to free recall prompts in the course of forensic interviews. Journal of Applied Psychology, 86, 997 – 1005.

Straker and The Sanctuaries Counselling Team (1987). The continuous traumatic stress syndrome: The single therapeutic interview. Psychology in Society, 8, 48 – 79.

Takanishi, R. (1993). The opportunities for adolescents – research, interventions, and policy. American Psychologist, 48, 85 – 87.

Terr, L. C. (1979). Children of Chowchilla: study of Psychic Trauma. Psychoanalytic Study of the Child, 34, 547 – 623.

Terr, L. C. (1991a). Acute responses to external events and Posttraumatic stress disorders. In M. Lewis (Ed.). Child and adolescent psychiatry: a comprehensive textbook. New Haven, Connecticut: Williams & Wilkins.

Terr, L. C. (1991b). Childhood traumas: an outline and overview. American Journal of Psychiatry, 148, 10 – 20.

Thabet, A. A. & Vostanis, P. (2000). Post-traumatic stress disorder reactions in children of war: A longitudinal study. Child abuse and Neglect, 24, 291 – 298.

Thompson, M. P., Kaslow, N. J., Bradshaw Lane, D. & Kingree, J. B. (2000). Childhood maltreatment, PTSD, and suicidal behaviour among African American females. Journal of Interpersonal Violence, 15, 3 – 15.

Trappler, B. & Friedman, S. (1996). Posttraumatic stress disorder in survivors of the Brooklyn Bridge Shooting. American Journal of Psychiatry, 153, 705 – 707.

Traut, A., Boshoff, E. L.D. & Hawkridge, S. (1998) Posttraumatic stress disorder in children. C.M.E.: South Africa's Continuing Medical Education Monthly, 16, 131 - 136.

Udwin, O., Boyle, S., Yule, W., Bolton, D. & O'Ryan, D. (2000). Risk factors for long-term psychological effects of a disaster experienced in adolescence: predictors of posttraumatic stress disorder. Journal of Child Psychology and Psychiatry, 41, 969 – 979.

Van der Kolk, B. A., McFarlane, A. C. & Weisaeth, L. (1996). (Eds.). Traumatic stress: the effects of overwhelming experience on mind, body and society. New York: The Guilford Press.

Van der Kolk, B. A. & Pelcovitz, D. (1999). Clinical applications of the Structured Interview for Disorders of Extreme Stress (SIDES). Clinical Quarterly, 8, 21 – 40.

Van der Kolk, B. A., Pelcovitz, D., Roth, S., Mandel, F.S., McFarlane, A. & Herman, J.L. (1996). Dissociation, somatization and affect dysregulation: The complexity of adaptation to trauma. American Journal of Psychiatry, 153, 83 – 93.

Wolfe, V. V., Wolfe, D. A., Gentile, C. & Larose, L. (1986). Children's Impact of Traumatic Events Scale (CITES). Available from Wolfe, Department of Psychology, London Health Sciences Center, Ontario.

World Health Organization. (1992). The ICD-10 classification of Mental and Behavioral Disorders: clinical descriptions and diagnostic guidelines. Geneva: Author.

Wright Berton, M. & Stabb, D. S. (1996). Exposure to violence and Posttraumatic stress disorder in urban adolescents. Adolescence, 31, 489 – 498.

Yehuda, R. & McFarlane, A. C. (1995). Conflict between current knowledge about Posttraumatic stress disorder and its original conceptual basis (1 – 18) http://www.trauma-pages.com/yehuda95.html (99/06/10).

Young, A. (1995). Reasons and causes for Post-traumatic stress disorder. Transcultural Psychiatric Research Review, 32, 287 – 299.

Yule, W. (1995). Posttraumatic stress disorders. In M. Rutter, E. Taylor & L. Hersov (Eds.). Child and adolescent psychiatry: modern approaches (3rd ed.). (pp. 392 – 405). Oxford: Blackwell Science.

Yule, W., Bolton, D., Udwin, O., Boyle, S., O'Ryan, D. & Nurrish, J. (2000). The long-term psychological effects of a disaster experienced in adolescence: I: The incidence and course of PTSD. Journal of Child Psychology and Psychiatry, 41, 503 – 511.

APPENDICES

I. **DSM-IV Criteria for Post-traumatic Stress Disorder**

II. **DSM-IV Criteria for Major Depression**

III. **Ethics Protocol**

DSM IV (APA, 1994) Criteria for PTSD is as follows:

Criteria A: Exposure to a traumatic event where:

i) The person experienced, witnessed or was confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of him/herself or others.

ii) The person's response involved intense fear, helplessness or horror. In children this may be expressed by disorganised or agitated behaviour.

Criteria B: The traumatic event is re-experienced in at least one of the following ways:

i) Recurrent and intrusive distressing recollections of the event

ii) Recurrent distressing dreams of the event

iii) Acting or feeling as if the event was recurring

iv) Intense psychological distress at exposure to internal or external reminders of the event

v) Physiologic reactivity on exposure to internal or external reminders of the event

Criteria C: Persistent avoidance of stimuli associated with the trauma and a general numbing of responsiveness that was not present before the trauma, shown by three or more of the following:

i) Efforts to avoid thoughts, feelings or conversations associated with the trauma

ii) Efforts to avoid activities, places or people that arouse recollections of the trauma

iii) Inability to recall important aspects of the trauma

iv) Diminished interest or participation in significant activities

v) Feelings of detachment or estrangement from others

vi) Constricted effect

vii) Sense of a foreshortened future

Criteria D: Persistent symptoms of increased arousal, not present before the trauma, and indicated by two or more of the following:

i) Difficulty falling or staying asleep

ii) Irritability or outbursts of anger

iii) Difficulty concentrating

iv) Hypervigilance

v) Exaggerated startle response

The DSM IV (APA, 1994) criteria for Major Depression is as follows:

Criteria A: Five or more of the following symptoms should have been experienced for more days than not in the previous two weeks:

i. Depressed mood / irritable mood

ii. Diminished interest or pleasure in most activities

iii. Significant weight loss / gain; or increase / decrease in appetite

iv. Insomnia / hypersomnia

v. Psychomotor agitation / retardation (observable, not only subjective feelings of restlessness / being slowed down

vi. Fatigue / loss of energy

vii. Feelings of worthlessness or excessive / inappropriate guilt

viii. Diminished ability to think or concentrate / indecisiveness

ix. Recurrent thoughts of death, suicide ideation / plan / attempt

Criteria B: Symptoms do not meet criteria for a mixed episode

Criteria C: Symptoms cause clinically significant distress / impairment in social / occupational / other areas of functioning

Criteria D: Symptoms not due to substance use

Criteria E: Symptoms not better accounted for by bereavement

Ethics Protocol for conducting clinical interviews to assess PTSD and Depression with Adolescents

1. Consent to be interviewed will be obtained from the school, the parents and the research participants.
2. Parents will be informed that the interview is confidential, but that if evidence of clinical impairment is found, the researcher will inform the parents, with the participant's permission.
3. Research participants will be informed that they may terminate the interview at any point.
4. Participants will be debriefed at the end of the interview (i.e. told that they may possibly experience some distress in the days following the interview, that this is to be expected, but that if it continues they should make contact with the researcher who will refer them appropriately).
5. In the event that it becomes clear that the interviewee is about to reveal current ongoing abuse, the interviewer will interrupt the interview before details are revealed (as far as possible), and the participant will be informed of the interviewer's responsibility to report it, should s/he reveal it. If participants then proceed to disclose current (within six months of the interview) physical or sexual abuse, the researcher will report the abuse to the participant's parents/ guardians and/ or the appropriate authorities.
6. For participants who receive a diagnosis of PTSD or depression, or their functioning is impaired by sub-clinical symptoms: The researcher will discuss the possibility of referral with the participant. The diagnosis and referral options will also be discussed with the participant's parents/ guardians, with the participant's permission. In cases of apparent danger to self or others, legal/ ethical obligations to disclose will override the need to obtain the child's permission. If a participant does not give permission for the researcher to discuss the problem with the parents, and there is no apparent danger to self and others, the researcher will refer the participant appropriately without informing the parents/ guardians.
7. The researcher will take care to conduct the interviews in a sensitive manner.

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