

**The psychometric properties of the Child PTSD Checklist in a sample of  
treatment-seeking children and adolescents from a Youth Stress Clinic  
in the Western Cape**

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A mini-thesis submitted in partial fulfilment of the requirements for the  
degree of Masters in Psychology at the University of the Western Cape.

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## KEYWORDS

Posttraumatic stress disorder (PTSD)

Trauma

Violence

Youth

South Africa

Child PTSD Checklist

Psychometric properties

Internal consistency

Factorial validity



## ABSTRACT

Exposure to severe trauma and resulting PTSD affects individuals of all ages, cultures and geographical areas. Epidemiological surveys reveal that approximately one third of the general population is exposed to a traumatic event at some point in their lives. From the people exposed to a traumatic event about 10% will develop PTSD. Compelling evidence further suggests that the PTSD prevalence in South Africa is even higher, especially among the youth, and has thus been identified as a significant public health concern. In order to adequately address the diverse effects of PTSD, reliable and valid instruments diagnosing PTSD are required. It is a further imperative that these instruments are adapted to the specific context in which they will be utilized. This study thus focused on assessing the psychometric properties (factorial validity and internal consistency) of the Child PTSD Checklist in a sample of treatment-seeking children adolescents in the Western Cape. For the purpose of this study secondary data from a larger, longitudinal study investigating PTSD in children and adolescents was utilized. The preliminary study employed a quantitative research design in order to obtain data from the participants. The sample comprised of 200 children and adolescents between the ages of 8 and 18 years that were selected from the Youth Stress Clinic. In terms of the psychometric properties the scale demonstrated excellent internal consistency (Cronbach's alpha = 0.93). Exploratory factor analysis revealed a three factor structure (anxiety and avoidance, anger and dissociation, depressive symptoms) which accounted for 41,96 % of the total variance. In conclusion, the Child PTSD Checklist appears to be a promising tool for assessing PTSD in trauma-exposed youth in clinic settings, however further studies are needed to address its broader utility.

## DECLARATION

I declare that *the psychometric properties of the Child PTSD Checklist in a sample of treatment-seeking children and adolescents from a Youth Stress Clinic in the Western Cape* is my own work and that it has not been submitted before for any degree or examination in any other university. I also declare that all the sources I have used or quoted have been indicated as complete references. Furthermore I acknowledge that for this specific study secondary data from a longitudinal study was utilized.



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**Friederike Frank-Schultz**

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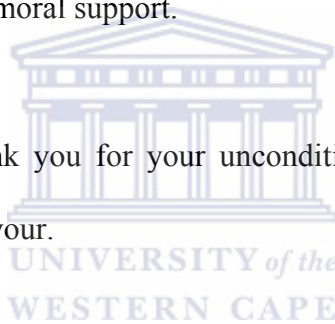
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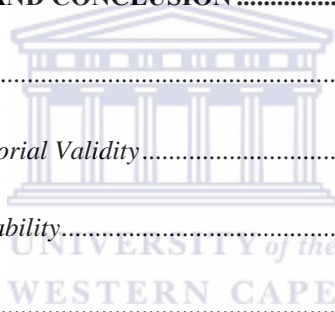
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# CHAPTER 1

## INTRODUCTION

### 1.1 Background to the Study and Statement of the Problem

The present study forms part of a larger research project which investigated the relationship between trauma exposure and PTSD in a sample of treatment-seeking children and adolescents from a Youth Stress Clinic in the Western Cape. More specifically, this study examined the prevalence of violence exposure and the development of PTSD as well as clinical and functional aspects of the disorder and gender differences within a clinical sample. The larger study further framed PTSD within the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (APA, 1994).

According to the DSM-IV and the DSM-IV-TR, PTSD is categorized as an anxiety disorder that is currently defined by the coexistence of three clusters of symptoms that are present for more than one month after exposure to a traumatic event (APA, 1994; APA, 2000). The clusters include (1) intrusive re-experiencing of the trauma; (2) persistent avoidance of stimuli associated with the trauma(s); and (3) persistent symptoms of increased arousal (APA, 1994; APA, 2000). DSM-IV-TR further stipulates that a person's response to the trauma or traumatic event involves "intense fear, helplessness or horror" (APA, 2000, p.428).

Epidemiological surveys illustrate that about one third of the general population will be exposed to a severe trauma at some point in their lives. Although the majority of the people exposed to a traumatic event will later adapt and continue their lives without experiencing any psychological problems, approximately 10% will develop PTSD (Brunello, Davidson & Deahl, 2001). Considerable evidence indicates that the probability of developing PTSD can be linked to numerous factors such as the nature of the experienced trauma, the frequency of trauma exposure as well as other risk factors including gender or having a pre-existing mental disorder (Deykin, 1999; Ward, Flisher, Zissis, Muller & Lombard, 2001; Majodina, 1991).

Based on survey data it is estimated that the life-time prevalence of PTSD in the general global population is about 8 % (Sadock & Sadock, 2007). Literature further suggests that there has been a steep increase in the life-time prevalence of PTSD in the overall global population in the past two decades (Deykin, 1999). The increasing PTSD prevalence rates introduced the question of whether this precipitous increase is real or can be attributed to factors such as more clearly defined diagnostic criteria or improved diagnostic measurement tools (Williams, Herman, Stein, Heeringa, Jackson, Moomal & Kessler, 2008). Although a multitude of factors may be contributory, the world-wide rise of interpersonal violence appears to be a distinct risk factor (Ward et al., 2001). Current rates of PTSD may thus be reflective of violent and dangerous societal living conditions which, in turn, increase the vulnerability to traumatic event exposures.

## **1.2 PTSD in the South African Context**

A recent study revealed that the rates of PTSD in the general South African population are even higher compared to the global population (Esterhyse, Louw & Bach, 2007; Edwards, 2005). In the past, these high rates were often attributed to the country's apartheid struggle and related political violence (Edwards, 2005). However, despite the end of apartheid and arrival of democracy, PTSD remains a considerable public health concern in South Africa.

The statistics released by the South African Crime Information Analysis Centre (CIAC) (2008) illustrate the exceptionally high rates of crime and violence in this country. Table 1.1 summarizes some of the South African crime statistics for the year 2007 with the figures for 2005 given for comparative purposes. In addition some figures from the Kenyan Police Services (2008) are provided for a more global comparison, even though the methods of classifying the crimes may vary from those used in South Africa.

**Table 1.1 Crime Rates in South Africa for 2005 and 2007 and Comparative Figures from Kenya**

Crime	South Africa <sup>1</sup>				Kenya <sup>2</sup>	
	Total		Ratio per 100 000		Total	Ratio per 100 000
	2005	2007	2005	2007	2007	2007
Murder	18793	19202	40.3	38.6	1261	5.6
Rape	55114	52617	118.3	111.0	876	2.52
Indecent assault	10123	9367	21.7	19.8	191	0.55

<sup>1</sup> Source: Statistics from the CIAC, South Africa (2008)

<sup>2</sup> Source: Statistics from Kenya Police Services (2008)

Although there seems to be a decline of the crime rate in South Africa since 2005, these rates are still extremely high in global terms. This is further evident when comparing the South African crime rates with those of Kenya. In this regard it is important to note that the decreases are from extremely high levels and that a consistent decrease over a number of years is required before internationally acceptable levels might be reached (Burger, 2008). Further, the South African CIAC (2008) statistics reveal considerable variability between provinces with respect to rates of particular crimes. While KwaZulu Natal for example seems to experience the highest rate of reported murder cases, public violence is especially prevalent in the Western Cape region. In light of the exceptionally high crime rates and the persistent fear of crime amongst South Africans it is not surprising that

South Africa is currently viewed as one of the most stressful societies in the world (Edwards, 2005; Esterhyse et al., 2007).

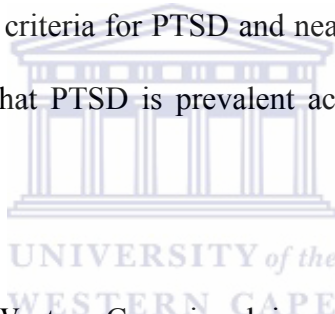
### **1.3 PTSD amongst South African Youth**

Significantly high rates of PTSD have also been established among the South African youth and it is evident that the life-time prevalence of PTSD among children and adolescents may exceed those found for adults (Esterhyse et al., 2007). The predicament of children and adolescents is reflected in the findings of the Institute of Race Relations, revealing that 40 % of rape victims are under the age of 18 (Meier, 2002). South African youth is further exposed to increasing community violence and what has become known as a “culture of violence”. According to Dempster (2002) “South Africa is so steeped in violence that it has become a way of life, a culture that holds a dangerous fascination for today’s youth” (p.2). Children and adolescents thus seem to represent a particularly vulnerable population group which is evident in the following studies.

A South African study conducted by Govender and Killian (2001), found that about 62 % of adolescents from KwaZulu-Natal schools in areas affected by political violence, met the classic PTSD symptoms, including increased vigilance, flashbacks and avoidance. A further South African community study of an urban Xhosa primary care population established a PTSD prevalence of 20 % (Carey, Stein, Zungu-Dirwayi & Seedat, 2003). The high prevalence rates were confirmed by a recent school survey of 307 Grade 10 pupils in the Western Cape, where the adolescents reported an average of 3.5 childhood

trauma experiences and 12,1% met the DSM-IV criteria for PTSD (Suliman, Kaminer, Seedat & Stein, 2005).

Edwards (2005) argues that exposure to violence with regards to children and adolescents in the Western Cape are predominately the consequence of gangsterism and criminal activity. Conversely however Ward et al. (2001) established unacceptable high rates of exposure to violence in a sample of Grade 11 students from Cape Town private schools. It is generally accepted that these participants come from wealthier families that reside in safer communities compared to students from public schools. Nonetheless over 6% of the respondents met the diagnostic criteria for PTSD and nearly 20% endorsed more than 15 PTSD symptoms, suggesting that PTSD is prevalent across all socio-economic groups (Ward et al., 2001).



Another research study in the Western Cape, involving adolescents from schools in both lower socio-economic as well as higher socio-economic areas, revealed that 14,7 % of females and 8,5 % of males meet the criteria for PTSD (Seedat, Van Nood, Vythilingum, Stein & Kaminer, 2000). On average these respondents were exposed to more than three childhood traumas including being sexually assaulted, witnessing violence on the street, seeing family members being injured, beaten or killed and being mugged or robbed (Seedat et al., 2000). This study further found a positive association between being exposed to multiple childhood traumas and the development of PTSD.

## 1.4 Measuring and Diagnosing PTSD

All of the aforementioned studies emphasize the fact that South African children and adolescents are exposed to high levels of trauma and that a significant proportion develop PTSD. PTSD therefore continues to be a significant problem in the domain of mental health warranting urgent attention and intervention. An imperative aspect of the intervention and prevention process requires the availability of accurate measurements which are critically important for the identification and treatment of this disorder. Consequently, a large number of instruments that measure posttraumatic stress symptoms and diagnose PTSD have been developed (Elhai, Gray, Kashdan & Franklin, 2005).

On such measure is the Child PTSD Checklist which is a 28 item self-rated checklist that has been developed to diagnose childhood and adolescent PTSD (Amaya-Jackson, Newman & Lipschitz, 2000). Literature reveals that although the Child PTSD Checklist is a relatively widely used screening instrument, limited research on its psychometric properties, especially within the South African context, has been conducted (Seedat, Nyamai, Njenga, Vythilingum & Stein, 2004; Fehon, Grilo & Lipschitz, 2001; Cluver, Gardner & Operano, 2007). The purpose of this study is thus to establish the validity and reliability of the Child PTSD Checklist in a sample of treatment-seeking children and adolescents from a Youth Stress Clinic in the Western Cape.

## **1.5 Rationale for this Study**

Given the exceptionally high rates of violent crimes in South Africa it is not surprising that PTSD is one of the most common anxiety disorders found amongst the general South African population. Furthermore, significant high rates have been established among the South African youth. Research indicates that the onset of PTSD in adolescence, a pivotal phase of human development, may have particularly damaging impact (Dykin, 1999).

In order to combat the disorder and its consequences, accurate PTSD measuring instruments are necessary. Although there is adequate research on PTSD and many accurate PTSD measuring tools have been developed, most have originated in the United States. However, because measuring tools are sensitive to administrative, environmental, cultural and linguistic factors, they must be validated in each new patient population in which they are used (Corcoran & Flisher, 2000). Hence, in order to accurately diagnose PTSD in a specific context, instruments should preferably be standardized for use in local populations. Even though the Child PTSD Checklist is a relatively widely used measurement in the South African context, limited research on its psychometric properties has been conducted. This study thus contributes towards socially relevant research within the mental health domain in South Africa as it establishes the psychometric norms for the Child PTSD Checklist and investigates its applicability within the South African context.



## **1.6 Research Question and Aims**

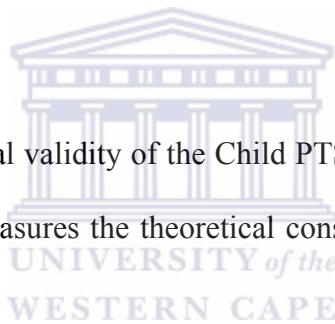
### **1.6.1 Research Question**

The research question in this study endeavours to investigate whether the Child PTSD Checklist is a valid and reliable measure for diagnosing PTSD within the South African context.

### **1.6.2 Aims of the Study**

The aims of this study are:

1. To establish the factorial validity of the Child PTSD Checklist by verifying if the checklist accurately measures the theoretical constructs of PTSD as specified by the DSM-IV.
2. To determine the reliability of the Child PTSD Checklist by establishing the degree to which the Child PTSD Checklist consistently measures posttraumatic stress symptoms.



## 1.7 Objectives of the Study

The following research objectives were derived from the aims of this study.

The objectives in relation to aim one are:

- a) To investigate the extent to which the instrument measures the theoretical constructs it is supposed to measure.
- b) Conduct an exploratory factor analysis to assess the factor structure of the questionnaire. The factor structure should ideally result in the DSM-IV hierarchical model of PTSD: Three factors reflective of the three symptom clusters.



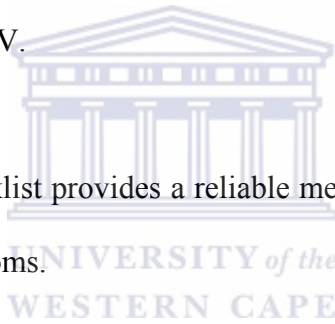
The objective in relation to aim two is to:

- a) Determine the internal consistency of the Child PTSD Checklist by establishing the Cronbach's alpha coefficient ( $\alpha$ ) for the total scale and the different subscales obtained through the exploratory factor analysis.

## **1.8 Hypotheses**

According to Burns (2000) the word hypothesis is generally used in a rather restricted sense in research to refer to the inferences that can be used to explain observations. A hypothesis is an educated guess that is advanced for the purpose of being tested (Neuman, 2000). The following hypotheses were tested in the current study:

1. The Child PTSD Checklist proves to measure the constructs of PTSD and will maintain the three-factor structure reflective of the three symptom clusters specified by the DSM-IV.
2. The Child PTSD Checklist provides a reliable measurement tool that consistently measures PTSD symptoms.



## **1.9 Conclusion**

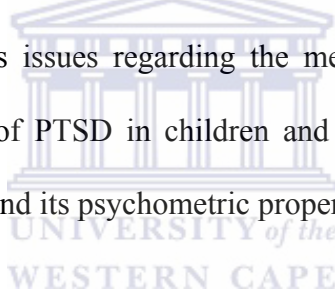
Exposure to violence and other traumatic events and the subsequent development of PTSD is a common phenomenon in South Africa. South African's youth further seem to represent a particular vulnerable population group which is evident in the significantly high PTSD prevalence rates among children and adolescents. In order to combat this distressing anxiety disorder, precise measuring instruments are required. This leads to chapter two, where the measurement of PTSD is discussed in detail.

## **CHAPTER 2**

# **THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE**

### **2.1 Introduction**

The following chapter provides a summary of the literature with regards to the concept of PTSD. A theoretical overview is presented which assists in understanding how the concept of PTSD evolved and was formally recognized as a psychiatric disorder. In addition, the chapter addresses issues regarding the measurement of PTSD and more specifically the measurement of PTSD in children and adolescents. Finally, the Child PTSD Checklist is introduced and its psychometric properties are discussed in detail.



### **2.2 Theoretical Consideration**

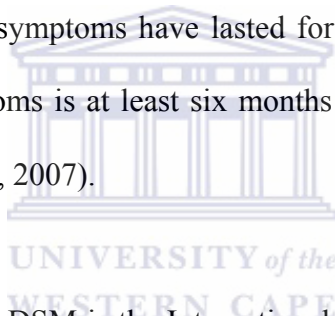
Although PTSD was not formally acknowledged as a mental disorder until 1980, it was described under various other names for many decades (Cohen, 1998). According to the literature, the history of PTSD dates back to the early 1800's where military doctors began diagnosing soldiers with "exhaustion" following the stress of a battle. This "exhaustion" was characterized by mental shutdown due to individual or group trauma (Sadock & Sadock, 2003, p. 417). Further, during World War I and II many soldiers developed what was called "shell shock" or "combat fatigue", PTSD-like symptoms which were initially ascribed to neurological damage. It however soon became evident

that the disorder derives from psychological rather than physiological trauma and was renamed “combat neurosis” (Cohen, 1998, p.124). The psychiatric morbidity associated with Vietnam War veterans finally brought the concept of PTSD, as it is currently known, to realization (Herman, 1992). In response to the growing recognition of the disorder, PTSD was formally recognized as a psychiatric diagnosis in the third edition of the DSM which was published by the American Psychological Association (APA) in 1980.

While the defining symptoms of PTSD were conceptualized in the DSM III, the diagnostic criteria were based on limited empirical evidence. The conceptual framework for the initial PTSD symptoms was predominately based upon Kardiner’s (1941) earlier description of traumatic neurosis and thus mainly reflected the experiences of men in war (Lasiuk & Hegadoren, 2006). Given the lack of empirical research and limited knowledge about the causes of PTSD, the DSM III concluded that an event was sufficiently catastrophic if it could "evoke significant symptoms of distress in almost everyone" (APA, 1980, p. 238), leaving no room for individual perceptions or experiences of an event. In response to increasing knowledge and systematic empirical evidence the diagnostic criteria for PTSD were repetitively revised and redefined in the DSM-III-R, DSM-IV and DSM-IV-TR. However, the diagnostic criteria for PTSD in the DSM-IV and DSM-IV-TR are compatible with only very subtle changes.

The current diagnostic criteria for PTSD according to the DSM-IV-TR require that a person reacts with fear and hopelessness to an extreme traumatic stressor that involved “actual or threatened death or a threat to the physical integrity of self or others” (APA,

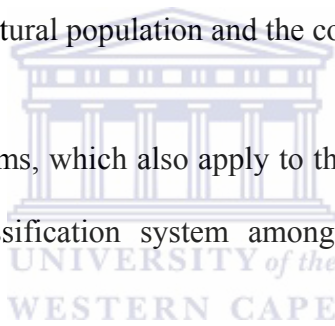
2000, p. 427). To make a diagnosis, the symptoms must last for at least a month after the event has occurred and must cause clinically significant distress or impairment in various areas of functioning (APA, 2000). In order to receive a DSM-IV-TR diagnosis of PTSD, a person must further meet a specific number of criteria from the following clusters of symptoms: i) at least one symptom that indicates persistent re-experiencing of the traumatic event, ii) three or more symptoms reflecting persistent avoidance of stimuli associated with the traumatic event and iii) two or more symptoms indicative of increased arousal (APA, 2000). The DSM-IV-TR furthermore includes specifiers that permit clinicians to stipulate if the disorder is acute (if the symptoms have persisted for less than three months), chronic (if the symptoms have lasted for three months or more) or with delayed onset (onset of symptoms is at least six months after the stressor has occurred) (APA, 2000; Sadock & Sadock, 2007).



An important alternative to the DSM is the International Classification of Disease (ICD) manual, published by the World Health Organization (WHO). Like the DSM the ICD is revised periodically and currently appears in its tenth edition. While the DSM serves as the primary diagnostic system for psychiatric and psychological disorders within the United States the ICD is more commonly used in European countries and world wide for epidemiological purposes (Sadock & Sadock, 2007). An international survey of psychiatrists from 66 countries, comparing the use of the ICD-10 and DSM-IV, established that the former was more often used for clinical diagnosis while the later was valued more highly for research purposes (Mezzich, 2002; Sorensen, Mors & Thomsen, 2005).

It is further important to be aware of the critique raised against the DSM. According to Zur and Nordmarken (2007) the DSM is criticized for being a political rather than a scientific document. Critics' state, that the DSM provides a tool of social control, used to decide what is considered normal or abnormal behaviour. The classification system is thus often disapproved on the grounds of pathologizing normal behaviour (Marshall et al., 1999). In addition, the DSM generally fails to consider contextual factors in the development of psychological disorders. While focusing primarily on individual psychopathology, social and environmental stressors such as poverty, racism and discrimination are minimized. This is a particularly important criticism, especially in light of South Africa's multicultural population and the countries contextual difficulties.

However, despite these criticisms, which also apply to the ICD-10, the DSM is a widely recognized and accepted classification system amongst mental health professionals worldwide.

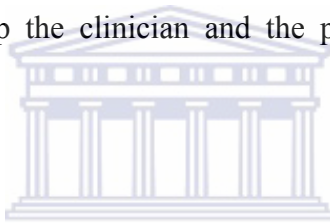


### **2.3 Measuring PTSD**

Currently PTSD represents the most common observed psychiatric disorder in communities affected by disaster and violence (Galea, Nandi & Vlahov, 2005). In view of the high levels of violence worldwide and in South Africa, identification of people suffering from PTSD is crucial and necessary to allow for appropriate interventions. Subsequently a large number of instruments, measuring posttraumatic stress symptoms have been developed (Suliman et al., 2005; Elhai et al., 2005). Investigators usually use two methods for measuring PTSD: Structural clinical interviews and self administered

questionnaires. Clinical interviews are often considered to be the gold standard for measuring PTSD (DuHammell et al., 2004).

In the recent years however self-administered scales are increasingly and more commonly utilized as they provide flexible, time and cost efficient and an easy-to-use diagnostic tool for use by non professionals when professional resources are limited (Farina, Venturi, Onofri & Di Giannantonio, 2007). In addition, self-administered scales reflect information straight from the “experiencing self”, which is the person directly involved in the phenomena (Farina et al., 2007). Further, in the clinical context, self report questionnaires may help the clinician and the patient to address sensitive and embarrassing topics.



The usefulness and reliability of self rating scales for the screening of PTSD is nevertheless still a controversial issue and the scales are often criticized on various grounds. Disadvantages of self rating scales include their unsuitability for psychotic disorders or symptoms, in which a lack of insight could affect the validity and reliability of the scale. Self rating scales are also prone to cause a reactive affect in the respondent, resulting in the assessment process altering the actual problem (Corcoran & Flisher, 2000). An additional disadvantage that may affect the validity of a self-report questionnaire is the common desire to present oneself in a favourable light. Finally, self report questionnaires underlie various cognitive processes which could influence the validity and reliability of the questionnaire including the comprehension of questions, the retrieval of information from memory and the use of prior and heuristic beliefs in



responding. These cognitive processes are in turn influenced by biological, social and cultural factors (Farina et al., 2007).

Numerous aspects have furthermore been identified that generally complicate the measurement of PTSD including co-morbidity of other psychiatric disorders, the effects of multiple traumas and the malingering of symptoms for secondary gain (Green et al., 2000, Hawkins & Redcliffe, 2006).

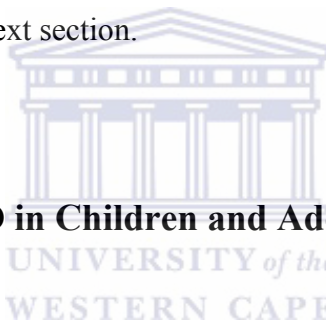
Co-morbidity in PTSD is a common phenomenon that may affect the heterogeneity and presentation of the disorder (Hawkins & Redcliffe, 2006; Brady, 1997). Data from epidemiological surveys reveal that more than 70 % of individuals with PTSD meet the criteria for at least one other psychiatric disorder (Brady, 1997). PTSD is especially likely to co-occur with mood disorders, substance abuse, other anxiety disorder and somatization disorders (Brady, Killeen, Brewerton & Lucerine 2000). Consequently, screening for psychiatric co-morbidity should be standard in any assessment of PTSD.

Assessing multiple traumas provides another challenge in the screening process for PTSD. Limited information is available about how multiple or chronic trauma affects symptoms manifestation of the disorder. Green et al. (2000) established that 38% in a sample of young women reported exposure to multiple traumatic events. The results of the study revealed that these women had significantly worse outcomes compared to those women who experience only one traumatic event. Chronic exposure to trauma is particularly common in the South African context and it is therefore imperative that

assessment instruments are designed in a way that captures information about the extent and the duration of exposure to the traumatic event.

PTSD is further a condition that can be easily malingered for secondary gain, which directly influences and complicates the assessment process (Hall & Hall, 2007). For this reason it is imperative for clinicians to understand the phenomenology of true PTSD and indicators that might imply that an individual is malingering.

Lastly, assessing PTSD in children and adolescents provides an additional challenge, which will be explored in the next section.



## **2.4 Measuring PTSD in Children and Adolescents**

Although a growing body of research has increased knowledge about PTSD in children and adolescents, there are still significant gaps in knowledge concerning diagnosis and assessment. Since PTSD was introduced as a formal diagnosis in the DSM-III (APA, 1980), PTSD in children and adolescents has often been diagnosed using the criteria designed for adults (Cohen, 1998). Consequently many of the measurement tools that are originally designed for adults are used in the assessment of child PTSD, only after minor adaptations such as simplifying the concepts and language (Lonigan, Phillips & Richey, 2003). Numerous studies however suggest, that children and adolescents may manifest PTSD symptoms differently and adapting measures might hence not be sufficient (Hawkin & Radcliffe, 2006; Lonigan et al., 2003).

In response to this recognition, there have been ongoing revisions in the DSM-III-TR, DSM-IV and DSM-IV-TR regarding the diagnostic criteria for PTSD with progressively more attention given to the ways in which children and adolescents' manifest these symptoms. PTSD criteria have further been extended to include specific qualifiers for children and adolescent (Hawkins & Radcliffe, 2006). However, given the uniqueness of child and adolescent PTSD, it is argued that completely separate criteria for diagnosing the disorder in children and adolescents are required (Hawkins & Radcliffe, 2006).

Even though various clinically useful measures and questionnaires have been developed, no "gold standard" for diagnosing the disorder or monitoring its symptom course in children and adolescents is available (Suliman et al., 2005; Cohen, 1998; Lonigan et al., 2003). Most of the current measures of PTSD include either child interviews with companion parent interviews, or self-reports. Jensen et al. (1999) suggest that using a multi-method approach that combines the parent and child interview with the self report and additional collateral resources would ultimately result in greater symptom clarification. A difficulty that is however commonly experienced is a low concordance rate between the child and the parent report. In the literature it is generally substantiated that self reports concerning the PTSD symptomatology seem to be more reliable for internalizing symptoms while parent reports are more often used to evaluate externalizing symptoms (Hawkins & Radcliffe, 2006; Cohen, 1998). Guidelines on how to integrate the information received through a multi-method approach still need to be developed.

Further, most of the existing measures have been criticized on various grounds such as for their lack of diagnostic capabilities, being time consuming, unfriendly for systematic use as well as having limited or nonexistent establishment of psychometric properties (Amaya-Jackson et al., 1995; Lonigan et al., 2003). Another critic reports that although most of the existing instruments originated in the United State, researchers utilize them worldwide often without standardizing the instruments for their specific sample (Suliman et al., 2005). Finally, many of the existing questionnaires have been criticized for not taken the child's developmental stage into consideration which could result in under diagnosing PTSD in those children (Hawkins & Radcliffe, 2006).

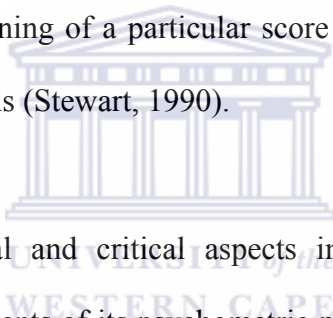
## **2.5 Questionnaire Construction**

Questionnaires are one of the most commonly used psychological instruments and can be utilized in various settings such as one to one interviews, self administered or surveys to obtain statistical information about a specific topic (Boyton & Greenhalgh, 2004). Whether a questionnaire yields relevant information is primarily determined by the quality of the questionnaire construction process. According to Boyton and Greenhalgh (2004) good questionnaire construction is critical to the success of any survey.

The construction of a psychological measure is however a complex and time consuming process that requires careful planning and can take several years for completion (Foxcroft & Roodt, 2005). Numerous aspect, such as specifying the aim of the measure, item writing, item analysis as well as standardizing and evaluating the measurement have to be considered in the construction process. Providing detailed information about this

multifaceted process is however beyond the scope of this paper and this section will instead focus mainly on evaluating the technical quality of a questionnaire.

The adequacy of questionnaires can be judged in terms of their variability, sensitivity, practicality, interpretability, reliability and validity (Stewart, 1990). Generally a measurement demonstrates good variability, if the scores on a particular sample are spread over the full range of a scale, not limited to one end of it. Sensitivity refers to the ability of a measurement to detect changes in measured constructs. Practicality in contrast points to how easy or difficult the use of a measure is in practice while the interpretability of a measure refers to the meaning of a particular score and differences in score values over time or between individuals (Stewart, 1990).



One of the most fundamental and critical aspects in the process of evaluating a questionnaire, is the establishments of its psychometric properties. Gregory (1996) states that the merit of a psychological test is determined by its reliability and then ultimately by its validity. According to Terre Blanche and Durrheim (2002, p.88) the reliability of a measure is defined as the “dependability of a measurement instrument, that is, the extent to which the instrument yields the same results over repeated trials”. Consequently, reliable questionnaires are expected to yield consistent results from repeated samples and different researchers over time (Boyton & Greenhalgh, 2004). There are different ways to assess the reliability of a measure including test-retest reliability, inter-rater reliability and the internal consistency of a measure (Foxcroft & Roodt, 2005).

While test-retest reliability evaluates whether a scale is stable over time, inter-rater reliability reflects the agreement between different raters and is often represented by kappa values (Foxcroft & Roodt, 2005). The internal consistency of a measure assesses the homogeneity of the items within a scale. In other words it measures how consistent the individual items are with each other.

Validity on the other hand relates to the degree to which a scale measures what it was designed to measure (Foxcroft & Roodt, 2005). According to Gregory (1996), many psychometricians agree that the validity is one of the most fundamental and important aspects of a test because it actually defines the meaning of test scores. Validity must be established against multiple criteria. Although most researchers agree on the definitions of the various forms of validity, not all agree on how to categorize the various forms and the methods of testing validity. For consistency and clarity the discussion of validity in this research study will be divided into the three main categories outlined by Anastasi (1982) and Gregory (1996) consisting of content, criterion and construct validity.

Content validity involves determining whether “the content of the measure covers a representative sample of the behaviour domain to be measured” (Foxcroft & Roodt, 2005, p.49). It assesses whether the scale’s items represent the entity being measured. Criterion validity on the other hand establishes the scale’s relation to other scales or criteria, while construct validity refers to how the scale fits the theoretical construct of a measured idea (Corcoran & Flisher, 2000).

In addition to establishing whether a questionnaire is reliable and valid for the intended purpose, appropriate norms need to be created which is a crucial step in the standardization of any measure (Terre Blanche & Durrheim, 2002). In order to ascertain if a norm group presents a standardized sample, the representativeness, the size and the relevance of the norm group must be considered (Sattler & Hoge, 2003).

The purpose of this research study is to look at the questionnaire construction process and more specifically to evaluate the reliability and validity of the Child PTSD Checklist in order to standardize the questionnaire for a sample of treatment seeking children and adolescents in the Western Cape.



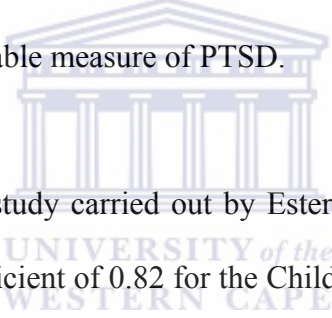
## **2.6 Child PTSD Checklist**

### **2.6.1 Introduction**

The Child PTSD Checklist was designed to overcome many of the above mentioned problems of existing questionnaires. According to Amaya-Jackson et al., (1995) the Child PTSD Checklist is not only easy to administer and child friendly but also corresponds to the DSM-IV diagnostic criteria. The instrument yields four scores, namely a total PTSD symptom score as well as three cluster scores based on the DSM-IV criteria for PTSD. Although limited information about the questionnaire's psychometric properties is available, the studies evaluating the Child PTSD Checklist found that it had acceptable psychometric properties (Lipschitz, Grilo, Fehon, McGlashan & Southwick, 2000; Esterhyse et al., 2007).

### **2.6.2 Reliability of the Child PTSD Checklist**

Studies assessing the reliability of the Child PTSD Checklist obtained satisfactory to excellent results. Newman and Amaya-Jackson (1996) established excellent internal consistency (0.91) of the Child PTSD Checklist in a sample of incarcerated adolescents in Boston. This result was confirmed by Lipschitz et al., (2000) obtaining an excellent internal consistency of 0.90 and 0.95 for the checklist in an adolescent inpatient sample and an adolescent medicine sample respectively. In a study conducted by Amaya-Jackson et al., (2000) an internal consistency value of 0.82 in a sample of 33 children and adolescents from a specialized trauma clinic in Yale, USA demonstrated that the Child PTSD Checklist provides a reliable measure of PTSD.



A comparative South African study carried out by Esterhyse et al., (2007) revealed the same internal consistency coefficient of 0.82 for the Child PTSD Checklist in a sample of 186 Venda speaking and 151 Northern Sotho adolescents from South Africa. However while the total scale of the Child PTSD Checklist demonstrated high reliability (0.82) the reliability for the subscales was low for this specific population: cluster B (re-experiencing) = 0.65, cluster C (avoidance) = 0.60, cluster D (hyperarousal) = 0.50. The low reliability values obtained for the subscales could indicate that the symptom clusters specified by this scale, which corresponds to the DSM-IV clusters, do not necessarily represent the best fit for this specific population. A different symptom cluster model might thus have provided a better fit for the data of this specific study and thus increased the reliability of the subscales.



### **2.6.3 Validity of the Child PTSD Checklist**

Research conducted by Newman and Amaya-Jackson (1996) established the criterion validity of the Child PTSD Checklist by comparing the diagnoses generated by the checklist to those obtained on a semi structured interview for PTSD, the Clinician-Administered PTSD scale for Children and Adolescents (CAPS-CA). The mean intensity rating showed an acceptable correlation of 0.64 with the Child PTSD Checklist.

Lipschitz et al. (2000) further evaluated the construct validity in terms of the convergent and discriminant validity of the checklist. A measure demonstrates convergent validity when it correlates highly with other variables with which it should theoretically correlate. Discriminant validity on the other hand is established when the measure correlates minimally with variables from which it should theoretically differ (Foxcroft & Roodt, 2005). Low convergent validity was established (0.42) when Lipschitz et al. (2000) correlated the Child PTSD Checklist with the Multidimensional Anxiety Scale for children which measures general anxiety across several domains. The same study also assessed the checklist's discriminant validity by correlating the checklist with a questionnaire measuring "Past Feelings and Acts of violence". The low correlation coefficient (0.35) in this case demonstrates that both questionnaires differ in the variables they measure and the Child PTSD Checklist thus provides high discriminant validity.

All the aforementioned studies were carried out with samples from the United States with no comparative studies conducted in the South African context. Hence, although the

above mentioned studies reveal that the Child PTSD Checklist generally demonstrated high validity, further studies are necessary to confirm these results.

## **2.7 Conclusion**

In view of the high rates of exposure to traumatic events, especially in a country like South Africa, the assessment of PTSD is critically important. Numerous different measuring instruments have been established in the past two decades that facilitate the diagnosis and intervention process of PTSD. However, the measuring process still provides various challenges including aspects such as the co-morbidity of other psychiatric disorders, the effect of multiple traumas and malingering of PTSD symptoms for secondary gain. Consequently further research as well as refinement of the existing questionnaires is required. Another challenge includes diagnosing PTSD among children and adolescents, who generally seem to manifest symptoms of the disorder differently compared to adults. As a result various measures have been adapted for measuring PTSD amongst the youth. One such measure is the Child PTSD Checklist, which proves to have sound psychometric properties for the use in populations outside South Africa. The checklist's psychometric properties within the South African context still needs to be established which links to the research question of this particular research study.


## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the methods used to meet the primary aim of the research study which is to examine the psychometric properties of the Child PTSD Checklist in a sample of treatment-seeking children and adolescents from the Western Cape.

#### **3.2 Research Design**



The current study forms part of a larger, longitudinal study which employed a quantitative research design. By definition, a quantitative research design refers to systematic scientific investigation of quantitative properties and phenomena and their relationships (Foxcroft & Roodt, 2005). Furthermore, quantitative research generally uses a deductive reasoning process, which starts with an abstract, logical relationship among concepts and then moves towards concrete empirical evidence (Neuman, 2000).

In the preliminary study, an extensive survey was conducted, which allowed the collection of a wealth of sensitive information about the exposure to traumatic events and its consequences. Advantages of survey designs include the fact that they are relatively inexpensive and make the use of a large sample population feasible (Foxcroft & Roodt,

2005). For the purpose of the current study, secondary data from the longitudinal quantitative study was used and analyzed.

### **3.3 Population and Sampling**

In the preliminary study, convenience sampling was utilized. Convenience sampling is a non-probability sampling method that refers to the process of selecting participants for examination based on easy availability and accessibility (Foxcroft & Roodt, 2005). The sample consisted of consecutive referrals to a Youth Stress Clinic which is situated in the Western Cape, South Africa.

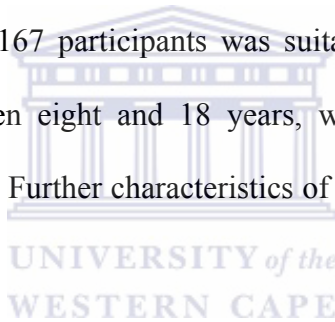


The above mentioned clinic is a specialized research trauma facility that provides services for children and adolescents between the ages of eight and 18 years who have been affected by violence and severe trauma. It is a combined initiative of the Medical Research Council's Anxiety and Stress Disorder Unit and the Departments of Psychiatry at Stellenbosch University and the University of Cape Town. Generally the clinic aims to provide free and accessible services to traumatized youth who are experiencing traumatic stress symptoms. Most of the patients come from a low socio-economic background, marked by high levels of poverty, unemployment and violence. The clinic offers various free assessments including a diagnostic assessment to determine if a patient meets the criteria for PTSD or other psychiatric problems, a neurological assessment as well as a brain scan to assess if there are abnormalities in the brain structure. Depending on the condition of the patients, they are then either treated directly at the clinic or referred to

other psychiatric facilities in their residential areas. The Youth Stress Clinic further offers psycho-education for parents, teachers and the youth about the effects of violence and trauma. In addition, research is conducted at the clinic to increase the knowledge of the effects of trauma in the South African context.

### **3.4 Participants**

The sample for the purpose of this study initially comprised of 200 (N=200) children and adolescents referred to a Youth Stress Clinic in the Western Cape. However from the 200 participants, the data of only 167 participants was suitable for statistical analysis. All participants were aged between eight and 18 years, with a mean age of 13,6 years (standard deviation (SD)= 2.9). Further characteristics of the participants are described in Table 3.1.



**Table 3.1 Description of Sample Characteristics**

	N	%
<b>Sample Size</b>	167,0	
<b>Mean Age (SD)</b>	13,6 (2.9)	
<b>Sex</b>		
Male	72	43,0
Female	95	57,0
<b>Ethnicity</b>		
White	12	7,0
Coloured	118	71,0
African	22	13,0
Other	1	0,5
Missing Data	14	8,5
<b>Religion</b>		
Christian	101	60,0
Muslim	19	11,5
None	5	3,0
Other	19	11,5
Missing Data	24	14,0
<b>Reported Substances Use</b>		
Cigarettes	30	18,0
Alcohol	14	8,5
Dagga	4	2,5

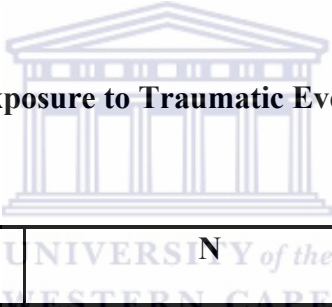
Inspection of Table 3.1 reveals that the sample consisted of 57% females and 43% males. Further, the majority of the participants were coloured people (71 %) and the predominant religious affiliation among the participants was Christianity (60 %). Statistics about the substance use demonstrated that 18 % of the participants smoked cigarettes, 8.5% consumed alcohol and 2.5 % used Dagga.

Information on the parents of the participants revealed, that while 39 % of the parents are married or living together, 27 % are divorced, 12 % were never married and 12,5 % are

widowed. In addition, statistics with regards to parental substance use illustrated that 28 % of the mothers and 44 % of the fathers consume alcohol. Furthermore, 42,5 % of the participants mothers and 47 % of the fathers smoke and finally 1,5 % of the mothers and 8 % of the fathers abuse drugs.

An overview of the traumatic events that the participants from this sample experienced is provided in Table 3.2. Exposures to traumatic events were measured with the K-SAD, which has a specific section on PTSD and a section consisting of numerous questions relating to trauma exposure.


**Table 3.2 Participants Exposure to Traumatic Events (types)**



Type of Trauma	N	%
Car accident (being involved)	24	12,0
Other accident	28	14,0
Fire	13	6,5
Witness of disaster	6	3,0
Witness of violent crime	84	42,0
Victim of violent crime	52	26,0
Confronted with traumatic news	90	45,0
Witness of domestic violence	96	48,0
Physical abuse	53	26,5
Sexual abuse	86	43,0
Other	45	22,5

The statistics reveal that many of the participants have been exposed to multiple traumas which is clearly evident given the percentages in table 3.2. According to these statistics the primary traumatic experience was being the witness of domestic violence (48 %), closely followed by being confronted with traumatic news (45 %), sexual abuse (43 %) and being a witness of violent crimes (42%). The cluster 'being a witness of violent crimes' included eye witnessing somebody being murdered, stabbed or being physically assaulted. These figures are generally representative of the traumatic events that the patients coming to the Youth Stress Clinic experience. Once again these statistics confirm the exceptionally high violence rates in South Africa.

### **3.5 Data Collection Instruments**



In terms of the larger longitudinal study the participants were asked to complete a battery of questionnaires which were administered in English or Afrikaans (depending on the preferred language of the participant). The test battery included the following measures: Demographic questionnaire, Child PTSD Checklist, Child Exposure to Violence Checklist (CEVC), Beck Depression Inventory (BDI-II), Childhood Trauma Questionnaire (CTQ) and the Kiddies Schedule for Affective Disorders and Schizophrenia, Present and Lifetime version (K-SADS-PL). However, for the purpose of this particular study, only data received from the demographic questionnaire and the Child PTSD Checklist were considered relevant and were utilized.



### **3.5.1 Demographic Questionnaire**

A demographic questionnaire was used to obtain information regarding the gender, age, ethnicity, religion, family income, composition of the home, parental marital status, parental occupation and participant as well as parental substance abuse (including cigarette smoking, alcohol and other substances).

### **3.5.2 The Child PTSD Checklist**

The Child PTSD Checklist (Amaya-Jackson et al., 1995) is a 28-item scale that asks subjects to rate the degree to which each of the 17 symptoms of PTSD was present during the past month. In the preliminary study, the scale was administered as a self-rated measure and respondents were asked to rate PTSD symptoms according to the most upsetting event endorsed on the trauma checklist. The measure is derived from the DSM-IV criteria (APA, 1994) and uses a four point likert-type scale, one corresponding to “not at all” and four to “all the time”, to establish symptom severity. The checklist can be used to generate a symptom-based diagnosis of PTSD based on three possible thresholds (i.e., symptoms present “some of the time”, “most of the time” or “all of the time”). A conservative threshold score of two (“most of the time”) was used to support the presence of a symptom. In the preliminary study, like in other studies (Lipschitz et al., 2000), DSM-IV criteria (a minimum of one re-experiencing, three avoidance and two hyperarousal symptoms) and not a cut-off score were used to determine whether a respondent meets the diagnosis of PTSD. Partial symptom PTSD was characterized as having at least one symptom in each DSM-IV symptom category (Stein et al., 1997).

As already mentioned in previous chapters, limited information on the psychometric properties of the Child PTSD Checklist is available (Seedat, Nyamai, Njenga, Vythilingum & Stein, 2004; Fehon et al., 2001; Cluver et al., 2007). However those studies that did assess the psychometric properties of the checklist generally found that it was a valid and reliable instrument (Lipschitz et al., 2000; Esterhyse et al., 2007).

### **3.6 Procedure**

As part of the main study a research psychologist, stationed at the clinic, conducted initial telephonic screening interviews with potential children and adolescents to identify individuals who had experienced a traumatic event meeting the A1 criterion for PTSD (traumatic event exposure). Further, prior to conducting the survey, written informed consent was obtained from parents and legal guardians and assent was obtained from the participants. Once consent and assent was obtained the test battery was administered to the participants by a clinical psychologist.

For the current study, permission to use secondary data from a larger longitudinal study was sought from the Research Grants Committee of the Community and Health Science Faculty at the University of the Western Cape (UWC). Once permission was granted and the proposal for the research study was accepted, a data sharing agreement was signed with the principal investigator and the relevant dataset for this particular study was made

available. The data set was subsequently analyzed in order to establish the psychometric properties of the Child PTSD Checklist within the specific sample.



### **3.7 Data Analysis**

For the purpose of this study secondary data from the longitudinal quantitative study was utilized. Secondary data analysis has become an increasingly popular method of research design and its growing recognition is compatible with its various benefits (Sales, Lichtenwalter & Fevola, 2006). A primary appeal of using secondary data is the possibility to conduct research based on large samples that are usually beyond the capacity and resources of an individual. Secondary data analysis generally provides a cost and time effective method as pre-existing data is used and reanalyzed. In addition, the analysis of secondary data can facilitate the comparison with other data and allows multiple sets of data to be compared (Sales et al., 2006). Besides the above mentioned benefits, secondary data analysis was considered the most appropriate research design for this particular study as this facilitated valuable research contributions for the original study. By assessing the psychometric properties of the Child PTSD Checklist, the study contributed towards accurately interpreting the results of the main study.

#### **3.7.1 Statistical Analysis**

The secondary survey data was analyzed using the Statistical Package for Social Sciences (SPSS) software version 16.0 (SPSS Inc., 2007).

### **3.7.2 Construct Validity**

Based on the discussion of validity in chapter two, the construct validity of a measure is defined as the “extent to which it measures the theoretical construct or trait it is supposed to measure” (Foxcroft & Roodt, 2005, p.35). There are different methods to assess the construct validity of a measure. This study will provide evidence of the construct validity of the Child PTSD Checklist by identifying the factorial validity of the checklist.

### **3.7.3 Factor Analysis**

The factorial validity of a measure relates to the underlying dimensions explored by a measuring instrument (Hepper, Kivilighan & Warmpold, 1999). By means of a factor analysis, the underlying structure of a measure is identified. This is achieved by reducing a large number of variables to a relatively small number of factors, based on common variance (Foxcroft & Roodt, 2005). The two primary factor analyses include exploratory and confirmatory factor analysis (Child, 1990). In the current study exploratory factor analysis was utilized. Exploratory factor analysis refers to a statistical technique used to explore the possible underlying factor structure of a set of observed variables without imposing a preconceived structure on the outcome (Child, 1990).

Initially, a principal component analysis with Kaiser normalization was performed on the Child PTSD Checklist using a sample of 167 participants (the data of 33 participants was excluded, as their questionnaires were incomplete). Subsequently, a Principal Axis factor analysis with a Direct Oblimin rotation was carried on the items of the Checklist.

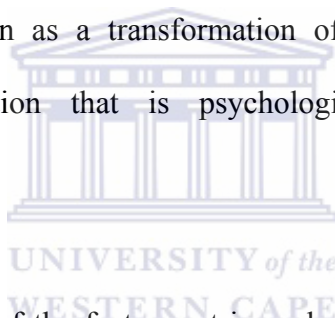
According to Cramer (2003) Principal Axis factor analysis is a multivariate procedure in which the data is rotated such that maximum variabilities are projected onto the axis. To determine the strength of the inter-correlations among the individual items, Tabachnick and Fidell (2001) recommended that the number of coefficients greater than 0.25 should be considered to determine whether a factor analysis is appropriate. Following these guidelines a factor loading of 0.25 or greater was considered meaningful for the purpose of this study.

Further, to establish the suitability of the data for the analysis, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett's test of sphericity and an anti-image rotation was used. The KMO is used to test whether partial correlations are small and whether distribution is enough for factor analysis. The index ranges from 0 to 1, with 0.6 being suggested as the minimum value for a factor analysis (Tabachnick & Fidell, 2001). The Bartlett's test of sphericity on the other hand tests whether the original correlation matrix is an identity matrix. For a factor analysis to work, the variables need to be correlated to some degree, and therefore the original correlation matrix should not be an identity matrix (Field, 2000). If Bartlett's test of sphericity proves to be significant, a relationship between the variables exists and factor analysis is considered appropriate. Lastly, the anti-image rotation tests the factorability of the data by assesses the sampling adequacy of each variable (Field, 2000).

To determine the number of factors to be extracted, Cattell's scree test as well as Kaiser's eigenvalues-greater-than-one criterion were utilized. While Kaiser (1958) recommended

retaining all factors with eigenvalues greater than one, the scree test indicates the factors to be extracted by plotting them on a graph. All factors above the point of inflexion on the curve are considered relevant (Field, 2000).

Once the factors were extracted and a basic component matrix was established, a rotated component matrix was obtained through a Direct Oblimin rotation. The rotation allowed for the identification of factors by summarizing sets of closely related variables. The Direct Oblimin rotation method pursues this objective by indicating the overall contribution that each variable makes to a factor (Cramer, 2003). According to De Bruin (1998) a rotation can be seen as a transformation of the component matrix to an equivalent mathematic solution that is psychologically more meaningful and interpretable.



To enhance the interpretation of the factor matrix, only variables with loadings greater than 0.25 were considered (Diekhoff, 1992). Lastly, a factor inter-correlation structure was obtained, indicating the strength of the relationship between rotated factors.

#### **3.7.4 Reliability**

To establish the internal consistency of the Child PTSD Checklist, Cronbach's alpha (Cronbach, 1951) coefficients ( $\alpha$ ) was computed for the subscales as well as the total scale. An alpha value  $> 0.70$  was considered sufficient (Cronbach, 1951).

### **3.8 Ethical Considerations**

The study was approved by the University of Stellenbosch Ethics Committee for Human Research (ethics number: 98/030) and the University of the Western Cape. All ethical requirements of confidentiality, informed consent, lack of harm, maximum benefit, acting in the participant's best interest and the option for participants to withdraw at any stage were met in the permission granted by the ethical committee. In order to ensure confidentiality all participants were identified by a study code in the dataset, thus eliminating any personal identifiers. Further, written informed consent from parents/caregivers as well as written assent from the participants was obtained prior to conducting the surveys.



### **3.9 Conclusion**

This chapter offered a detailed account of the methodology employed in this research study and further provided the foundation for the following chapter where the results of this study are presented.

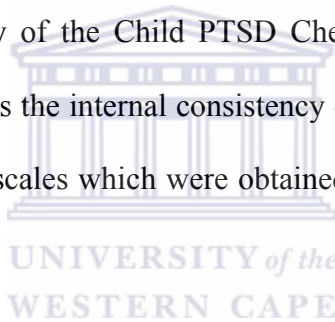


## **CHAPTER 4**

### **RESULTS**

#### **4.1 Introduction**

The results of this study are presented in terms of descriptive and inferential statistics. Firstly, the findings pertaining to the validity, more specifically the factorial validity of the Child PTSD Checklist (Amaya- Jackson et al., 1995) are provided. Secondly, the results regarding the reliability of the Child PTSD Checklist are reported in terms of Cronbach's alpha. This includes the internal consistency of the entire scale as well as the internal consistency of the subscales which were obtained through the exploratory factor analysis.



#### **4.2 Factorial Validity of the Child PTSD Checklist**

As already discussed in the previous chapter an exploratory factor analysis was conducted to explore the underlying structure of the Child PTSD Checklist. The factor analysis entailed various steps which will be discussed in the subsequent sections.

#### 4.2.1 Preliminary Analysis

Prior to conducting the factor analysis, the factorability of the data was tested using the KMO measure of sampling adequacy, Barlett's test of sphericity and an anti-image correlation.

As stated in chapter three, the KMO statistic varies between 0 and 1. While a value of 0 would indicate that the sum of partial correlations is large relative to the sum of correlations, a value of 1 indicates that the patterns of correlations are quite compact and thus factor analysis should produce distinct and reliable factors (Field, 2000). Hutecheson and Sofroniou (1999) recommend the following guidelines: Values between 0.5 and 0.7 are seen as mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are very good and values above 0.9 are regarded as superb. More generally 0.6 is being suggested as the minimum value for a factor analysis (Tabachnick & Fidell, 2001). The KMO measure of sampling adequacy, Barlett's Test of sphericity and the anti-image statistics are provided in Table 4.1 and in Table 4.2 respectively.

**Table 4.1 KMO Measure of Sampling Adequacy and Barlett's Test of Sphericity**

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>		.913
<b>Bartlett's Test of sphericity</b>	Approx. Chi-Square	2129.574
	Df	378.000
	Sig.	.000

For the data of the current study the KMO value is 0.91. This value is above 0.6 and falls into the range of being superb, thus indicating that factor analysis is appropriate. This is consistent with Bartlett's test of sphericity. For the current data the Bartlett's test of sphericity is highly significant ( $p < 0.001$ ), suggesting that factor analysis is suitable.



**Table 4.2 Anti-image Correlation**

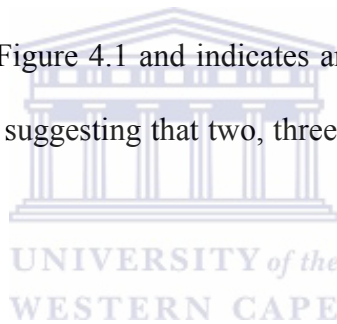
	Ptsd1	ptsd2	ptsd3	ptsd4	ptsd5	ptsd6	ptsd7	ptsd8	ptsd9	ptsd10	ptsd11	ptsd12	ptsd13	ptsd14	ptsd15	ptsd16	ptsd17	ptsd18	ptsd19	ptsd20	ptsd21	ptsd22	ptsd23	ptsd24	ptsd25	ptsd26	ptsd27	ptsd28		
Ptsd1	.905																													
Ptsd2		.934																												
Ptsd3			.939																											
Ptsd4				.929																										
Ptsd5					.928																									
Ptsd6						.907																								
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Ptsd9									.901																					
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Ptsd27																											.605			
Ptsd28																													.913	



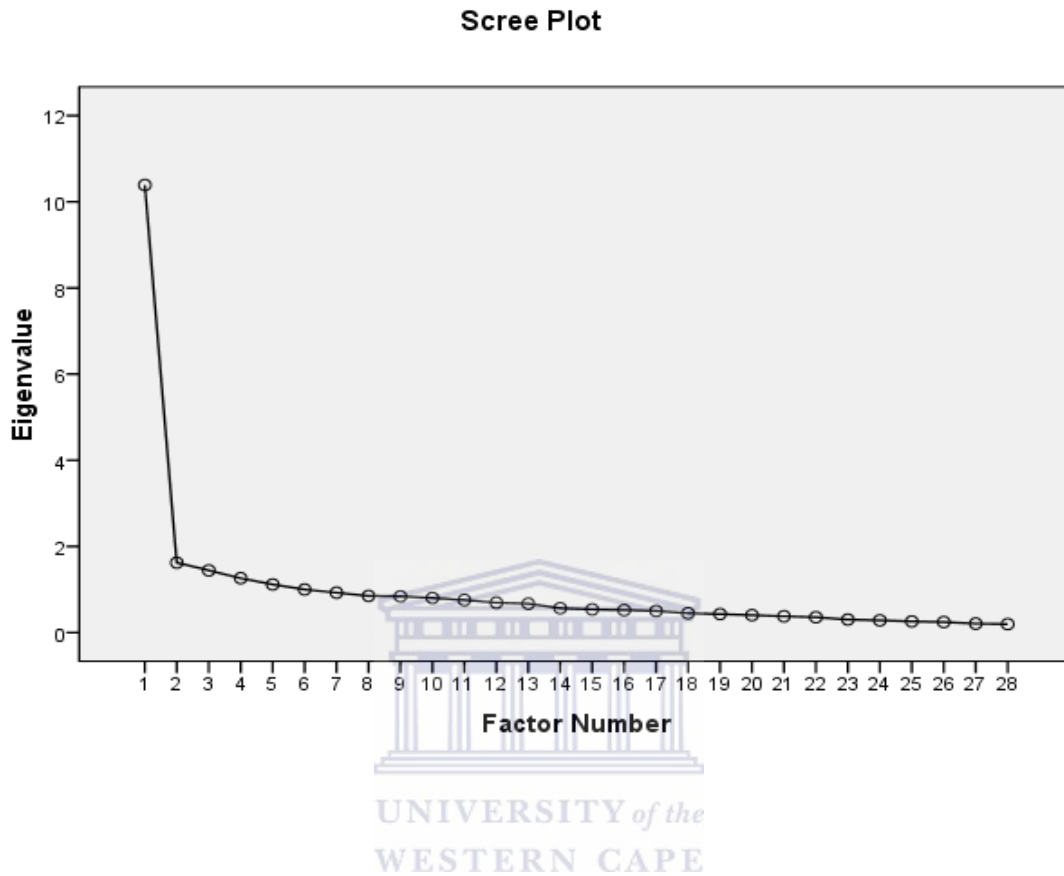
Inspections of the diagonals on the anti image correlation matrix reveal reasonably high correlations for all the variables. None of the variables on the anti image correlation diagonal has a value of less than 0.5, indicating that all the variables correlate significantly with each other and no variable has to be excluded.

#### **4.2.2 Factor Extraction**

As discussed in chapter three, Cattell's scree test as well as Kaiser's eigenvalues-greater-than-one criterion were further utilized to determine the number of factors to be retained. The scree plot is presented in Figure 4.1 and indicates an inflexion after the second factor and again after the fifth factor, suggesting that two, three, four or five factor solution could be optimal.



**Figure 4.1** Cattell's Scree Plot of the Child PTSD Checklist



Inspection of eigenvalues presented in Table 4.3 revealed that five factors should be extracted in terms of Kaiser's eigenvalues-greater-than-one criterion. Tabachnik and Fidell (2001) however recommended looking at solutions with different factors and evaluating them on the basis of interpretability and psychological meaningfulness. Based on these guidelines three factors were extracted that jointly accounted for approximately 42 % of the variance in the correlation matrix. The results are presented in Table 4.3.

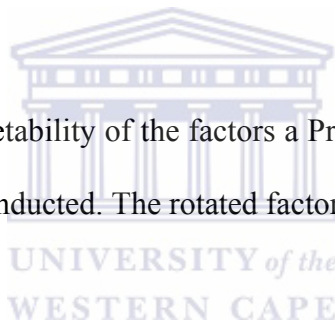
**Table 4.3 Eigenvalues of the Child PTSD Checklist**

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.390	37.107	37.107	9.845	35.161	35.161	9.122
2	1.622	5.792	42.899	1.038	3.709	38.870	3.794
3	1.443	5.153	48.051	.864	3.086	41.956	4.962
4	1.261	4.505	52.556				
5	1.117	3.989	56.545				
6	.999	3.570	60.115				
7	.925	3.303	63.418				
8	.851	3.039	66.457				
9	.839	2.998	69.455				
10	.803	2.867	72.322				
11	.756	2.702	75.024				
12	.693	2.474	77.498				
13	.670	2.394	79.892				
14	.565	2.019	81.911				
15	.538	1.921	83.832				
16	.519	1.855	85.687				
17	.500	1.787	87.474				
18	.447	1.598	89.071				
19	.429	1.533	90.605				
20	.403	1.440	92.045				
21	.378	1.351	93.396				

22	.355	1.268	94.664			
23	.303	1.082	95.746			
24	.284	1.015	96.761			
25	.260	.927	97.688			
26	.244	.872	98.560			
27	.208	.742	99.301			
28	.196	.699	100.000			

### 4.2.3 Factor Rotation

In order to improve the interpretability of the factors a Principal Axis factor analysis with a Direct Oblimin rotation was conducted. The rotated factor matrix is provided in Table 4.4.



**Table 4.4 Obliquely Rotated Factor Matrix for a Three Factor Solution of the Child PTSD Checklist**

NO	ITEM	F1 <sup>1</sup>	F2 <sup>2</sup>	F3 <sup>3</sup>
PTSD 3	When something reminds you of what happened do you get tense or upset?	<b>0.761</b>	-0.046	-0.051
PTSD 5	Do you think about (or see pictures in your head of) what happened even when you don't want to?	<b>0.734</b>	-0.146	-0.090
PTSD 4	Do you go over and over what happened in your mind?	<b>0.720</b>	-0.174	-0.060
PTSD 14	Have you ever got physically upset when something reminded you of what happened - like getting sweaty, shaking, your heart pounding, getting short of breath, or stomach aches?	<b>0.664</b>	0.113	0.000



NO	ITEM	F1 <sup>1</sup>	F2 <sup>2</sup>	F3 <sup>3</sup>
PTSD 1	Do you get nightmares or bad dreams about what happened?	<b>0.653</b>	0.144	0.067
PTSD 11	Do you sometimes feel like it's happening all over again even when it's not?	<b>0.642</b>	0.128	0.099
PTSD 2	Do you get upset when you think about what happened?	<b>0.639</b>	-0.100	-0.103
PTSD 18	Do you get jumpy or startle easily?	<b>0.604</b>	0.156	0.034
PTSD 19	Do you get annoyed (grouchy) or irritable (kind of angry) real easy?	<b>0.569</b>	0.270	0.111
PTSD 15	Do you have trouble falling asleep or staying asleep?	<b>0.540</b>	0.090	-0.180
PTSD 6	Do you worry that it might happen again?	<b>0.535</b>	-0.018	-0.121
PTSD 12	Do you ever feel it's hard to have any feelings anymore, like you feel numb?	<b>0.533</b>	0.081	-0.249
PTSD 7	Do you try not to think about what happened?	<b>0.523</b>	-0.282	-0.256
PTSD 10	Do you act out things or repeat things like what happened?	<b>0.478</b>	0.104	0.193
PTSD 8	Do you try to stay away from things that remind you of what happened?	<b>0.461</b>	-0.051	-0.211
PTSD 13	Do you ever make yourself very busy and do things so you won't think about what's happened?	<b>0.450</b>	-0.007	-0.276
PTSD 9	Do you ever have trouble remembering important parts of what happened?	<b>0.388</b>	0.050	-0.017
PTSD 17	Do you ever feel you need to stay "on guard" like something could happen and you need to be ready?	<b>0.324</b>	0.228	-0.240
PTSD 21	Do you ever get so angry at people you hit or hurt someone?	0.156	<b>0.492</b>	0.002
PTSD 20	Do you get angry or upset at people for no reason?	0.282	<b>0.444</b>	-0.213
PTSD 22	Do you ever think you won't grow up and be what you want to be?	0.098	<b>0.407</b>	-0.320
PTSD 16	Is it hard for you to pay attention – like listening to your teacher, or doing your work - because you can't concentrate well?	0.325	<b>0.386</b>	0.044

NO	ITEM	F1 <sup>1</sup>	F2 <sup>2</sup>	F3 <sup>3</sup>
PTSD 28	Do you feel like you are "tuned out" or in a "trance" so you can go away in your mind and not think?	0.211	<b>0.360</b>	-0.279
PTSD 27	Do you wet your pants or bed by accident?	-0.041	<b>0.280</b>	-0.022
PTSD 26	Do you feel bad or guilty – like what happened was your fault?	0.034	0.074	<b>-0.658</b>
PTSD 24	Do you ever feel it's hard to feel happy?	0.099	0.389	<b>-0.541</b>
PTSD 25	Do you feel alone even when other people are around?	0.204	0.021	<b>-0.508</b>
PTSD 23	Do you feel it's hard to have fun doing things?	0.160	0.363	<b>-0.401</b>

F1<sup>1</sup>: Anxiety and avoidance

F2<sup>2</sup>: Anger and dissociation

F3<sup>3</sup>: Depressive symptoms

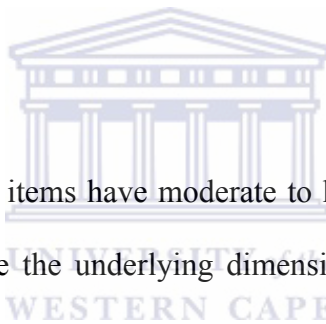


Table 4.4 illustrates that all 28 items have moderate to high loading on at least one of the extracted factors. To determine the underlying dimension of each factor and in order to label the factors, the items that loaded highly on a particular factor were analyzed. The three factors were labelled as follows:

**Factor 1 *Anxiety and avoidance*:** This factor is characterized primarily by anxious symptoms in response to the experienced trauma such as physical and psychological reactivity on exposure to clues that resemble the traumatic event. The factor further entails symptoms that pertain to the avoidance of stimuli associated with the trauma.

**Factor 2 *Anger and dissociation*:** The underlying dimension of this factor involves anger and dissociation in response to the traumatic event. Anger is expressed in terms of an urge to hurt people without a reason, while dissociation is characterized by an inability to concentrate or the feeling of being in a “trance”.

**Factor 3 *Depressive symptoms*:** The third factor is characterized primarily by depressive and dysphoric symptoms including feelings of excessive guilt, loneliness and sadness.

#### 4.2.4 Factor Correlations

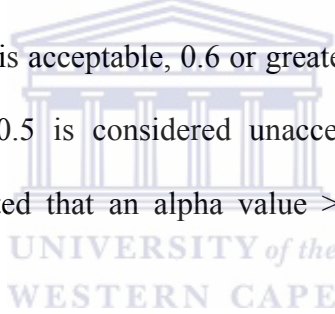
Finally, a correlation matrix that contains the correlation coefficients between the three factors is presented in Table 4.5. The results indicate that all the factors are interrelated to some degree. However, none of these correlations can be described as large correlations, indicating that the three factor solution is optimal (Cohen, 1988).

**Table 4.5 Intercorrelation Matrix of the Direct Oblimin Rotated Factors of the Child PTSD Checklist**

<b>Factor</b>	<b>1</b>	<b>2</b>	<b>3</b>
1. Anxiety & avoidance	1.000	.419	-.513
2. Anger & dissociation	.419	1.000	-.173
3. Depressive symptoms	-.513	-.173	1.000

### **4.3 Reliability of the Child PTSD Checklist**

According to Oliver (1979) it is a standard procedure to report on the reliability of a measuring instrument. The reliability of the Child PTSD Checklist is reflected in terms of the internal consistency of the measure. Internal consistency refers to the homogeneity between the items within a measure, reflected in terms of Cronbach's alpha. Cronbach's alpha coefficient ranges between 0 and 1 (Gliem & Gliem, 2003). The closer the Cronbach's alpha coefficient is to 1 the greater the internal consistency of the items in the scale (Gliem & Gliem, 2003). George and Mallery (2003, p.231) suggest the following rules of thumb: "An alpha coefficient of 0.9 or greater is regarded as excellent, 0.8 or greater is good, 0.7 or greater is acceptable, 0.6 or greater is questionable, 0.5 or greater is poor and a value less than 0.5 is considered unacceptable". This is consistent with Cronbach (1951) who suggested that an alpha value  $> 0.70$  is considered sufficient or acceptable.



The descriptive statistics and the alpha coefficients for the extracted factors as well as the total Child PTSD Checklist are presented in Table 4.6.

**Table 4.6 Descriptive Statistics and Cronbach’s Alpha Coefficients ( $\alpha$ ) for the Child PTSD Checklist Subscales and the Total Scale**

<b>Item</b>	<b>Mean</b>	<b>SD</b>	<b>Skewness</b>	<b>Kurtosis</b>	<b>Alpha</b>
Anxiety & avoidance	43.04	12.02	0.02	-0.42	0.92
Anger & dissociation	11.89	3.61	0.39	-0.41	0.72
Depressive symptoms	6.02	2.31	0.50	-0.50	0.73
Total scale	60.95	16.37	0.07	-0.43	0.93

From the results in Table 4.6, it is evident that the scores on the subscale and the total scale are normally distributed. The analysis of the internal consistency for the Child PTSD Checklist yielded an alpha coefficient of 0.93 for the total scale which indicates excellent internal consistency. The alpha coefficients for the three factors extracted from the data of the current study were 0.92 for the first factor (anxiety and avoidance), 0.72 for the second factor (anger and dissociation) and 0.73 for the third factor (depressive symptoms), reflecting acceptable to excellent internal consistency (George & Mallery, 2003).

#### **4.4 Conclusion**

In this chapter the results of the various statistical procedures were documented and main observations were reported. The exploratory factor analysis established a three factor structure for the Child PTSD Checklist that explained approximately 42 % of the variance. Finally, the results pertaining to the internal consistency of the checklist were provided, revealing acceptable to excellent internal consistency for the checklist and its subscales.



## **CHAPTER 5**

### **DISCUSSION AND CONCLUSION**

#### **5.1 Introduction**

The main purpose of this study was to evaluate the psychometric properties of the Child PTSD Checklist in a sample of treatment-seeking children and adolescents from a Youth Stress clinic in the Western Cape. The results of the current study thus provide a contribution to the existing literature by further standardizing this specific measure of PTSD for children and adolescents from a specific area in the Western Cape. While the results of this study were presented in detail in chapter four, this chapter provides a discussion of the results, organized according to the hypotheses which were specified in chapter one. To conclude, the limitations as well as the recommendations for further research are discussed in terms of the findings.

#### **5.2 Hypothesis One and Factorial Validity**

In terms of hypothesis one it was predicted that the Child PTSD Checklist measures the constructs of PTSD and will maintain the three-factor structure reflective of the three symptom clusters specified by the DSM-IV.

Exploratory factor analysis did reveal a three factor structure for the Child PTSD Checklist that accounted for 41,96 % of the total variance. However, contrary to the predictions, the

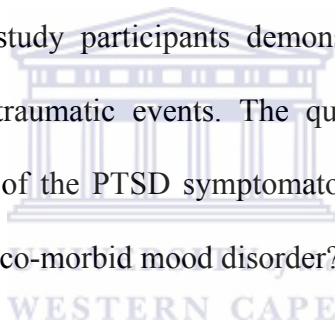
items of the Child PTSD Checklist did not load onto factors reflective of the symptom clusters specified by the DSM-IV. While the DSM-IV classifies the symptoms of PTSD according to three clusters including; (1) re-experiencing of the trauma; (2) avoidance of stimuli associated with the trauma(s); and (3) symptoms of increased arousal (APA, 1994), the three clusters obtained for the data of this study conceptualized the symptoms according to the following underlying factors: (1) anxiety and avoidance, (2) anger and dissociation, and (3) depressive symptoms.

Factor one, for the data of this study, cuts across all three DSM-IV specified clusters including symptoms of intrusion, avoidance and hypervigilance. During exposure to trauma, children and adolescents (as with adults) find themselves in a state of ‘alarm’, characterized by increased activity of the sympathetic nervous system (Sadock & Sadock, 2007). Following the disappearance of that threat, attention becomes focused on internal stimuli and trauma-exposed individuals perceive a sense of fear and anxiety which is clearly represented by the symptoms grouped together as factor one. In addition, there is an attempt to process and “master” the event, often in terms of re-experiencing the trauma in different ways. Frequently, however, a sense of loss of control over the event or intrusive thoughts can lead to a set of mental and psychological responses (Sadock & Sadock, 2007). Consequently the individual does not only relive the traumatic event but also the physiological changes that were present during the initial ‘alarm’ response. This may cause hypervigilance, also presented in factor one. Together with this, various avoidance mechanisms are activated to escape reminders of the original trauma. In factor one these avoidance symptoms include feeling numb as well as more active avoidance mechanisms (avoiding event-related thoughts).



Factor two encapsulates more specific symptoms of avoidance and hypervigilance, namely dissociation and aggressive behaviour (Vogel & Vernberg, 1993). Children and adolescents with PTSD may have difficulty verbally expressing their fears which may become demonstrable in behavioural changes, such as aggression (Taylor, Kuch, Crockett & Passey, 1998).

Finally, factor three entails depressive symptoms relating to depression. This specific cluster of symptoms encapsulates the emotional state of an individual after being exposed to a traumatic event. Research indicates that mood disorders often co-exist with PTSD (Brady et al., 2000). In the current study participants demonstrated high levels of depressive symptoms after exposure to traumatic events. The question thus arises whether these depressive symptoms are part of the PTSD symptomatology or if the participants can in actual fact be diagnosed with a co-morbid mood disorder?



There are various reasons that could explain the incongruence between the DSM-IV symptom clusters and the symptom presentation revealed by the current study. The result could be due to poor construct validity of the Child PTSD Checklist, the conceptualization of PTSD in the DSM-IV or the uniqueness of the post traumatic stress syndrome found in this particular population.

To the knowledge of the author the current study is the first study to investigate the factorial validity of the Child PTSD Checklist. Consequently these results cannot be compared with other studies or sample populations. Thus, further psychometric and conceptual work may

be needed with the Child PTSD Checklist in order to determine if the checklist truly measures the constructs of PTSD and if the checklist has sufficient construct validity.

However, on the basis of converging evidence, it is further possible that the results found in the present study may not reflect a problem with the Child PTSD Checklist but rather an alternative presentation of PTSD to that described in the DSM-IV. This conception was supported by DuHammell et al., (2004) whose findings suggested four-symptom clusters for PTSD that did not reflect the DSM cluster specification. Lancaster, Melka and Rodriguez (2009) further examined the factor structure of PTSD symptoms in a sample of college students, reporting exposure to a range of traumatic events. A factor analysis identified a three-factor symptom structure consisting intrusion/avoidance, dysphoria and hyperarousal clusters. These results add to the body of literature which has found an alternative presentation of PTSD to that specified in the DSM. Similarly, McWilliams, Cox and Asmundson (2005) addressed the fact that factor analytic studies have suggested several alternative models of PTSD symptomatology. They conducted a factor analysis to symptom data from National Comorbidity Survey respondents with a lifetime history of PTSD. A principal component analysis yielded a four factor solution with factors representing dysphoria, cued reexperiencing and avoidance, uncued reexperiencing and hyperarousal, and trauma-related rumination (McWilliams et al., 2005)

The present findings in conjunction with prior research thus propose that that an alternative symptom cluster presentation needs to be considered in the current psychiatric nomenclature (DuHammell et al., 2004; McWilliams et al., 2005; Lancaster et al., 2009).

In light of this discussion, Kleinman (1977) further warns against the “category fallacy” in which we presume that mental health constructs will translate and be evident in other cultures. Accumulating evidence reports that there is substantial variability in the expression of specific traumatic stress symptoms between cultures (Baron, 2002; Bracken, Giller & Summerfield, 1995). Edwards (2005) for example established that “when individuals from cultures not exposed to Western medical labelling are interviewed about their experiences of and responses to traumatizing events, they do not typically provide an account of PTSD symptoms” (p.119). The following studies highlight this dynamic.

In a study conducted by Yeomana, Herbert and Foreman (in press) both qualitative and quantitative methods were used to investigate PTSD symptoms among internationally displaced people in Berundi. All of the participants of this study disclosed a history of at least one traumatic event. The standardized measures however revealed that among these participants distress was mostly expressed in symptoms of somatization, anxiety and depression and less so in specific PTSD symptoms. This was confirmed by a qualitative analysis with Sudanese refugees in Northern Uganda, revealing a much broader symptom picture than offered by the diagnosis of PTSD (Baron, 2002). Bracken et al. (1995) further carried out a similar study in Tanzania. The findings of this study illustrated that whereas PTSD symptoms were often reported they were less of the focus of distress than were somatic complaints. Lastly, a research study with adolescents in Palestine, all of whom revealed a trauma history, reported a predominance of conversion fits, behavioural problems and psychosomatic complaints rather than the classical PTSD symptomatology (Abu Hein, Qouta, Thabet & El Sarraj,1993).

These studies among others suggest that PTSD may be an overly narrow characterization of traumatic stress across different cultures and thus may not be the best descriptor of reactions to trauma in all settings. It is imperative to realize that although models of PTSD are primarily based on industrialized cultures' conceptualization of trauma they are increasingly applied to diverse cultural populations. However the validity of this conceptualization and the validity of the diagnosis of PTSD is still in debate and the degree to which PTSD is universally applicable is even less certain.

In addition to realizing that PTSD symptoms may be exhibited differently among diverse cultural groups it further important to note that PTSD and its symptom manifestation does not only seem to be culture bound but also appears to differ among different developmental stages. As already discussed in chapter two, the applicability of the DSM PTSD criteria for children and adolescents has been debated by many researchers (Hawkins & Radcliffe, 2006; Lonigan et al., 2003). Converging evidence reveals that the current diagnostic criteria do not actually capture the full range of behaviours and symptoms children and adolescents seem to experience (Levensdosky, Huth-bocks, Semel & Shapiro, 2002; Carrion, Weems, Ray & Reiss, 2002; Nader, 2004). Levensdosky et al., (2002) for example found in their study that although many children suffer from PTSD symptoms, few meet the diagnostic criteria that would support the actual diagnosis. These results were confirmed in a study conducted by Meier–Stedman, Smith, Glucksman, Yule and Dalglish (2008). The authors assessed 60 traumatized children between two and six year's old and 49 children between seven and 10 years for PTSD using the DSM-IV criteria as well as alternative criteria. The proposed alternative criteria included alterations in wording to make the symptoms more developmentally sensitive without changing the essence of the symptoms. This results for

this particular study revealed that the rate of the PTSD diagnosis by the alternative criteria was 10 % compared to 1.7% by the DSM-IV criteria (Meier-Stedman et al., 2008). In light of these results the authors questioned the developmental appropriateness of the DSM-IV criteria as it seems implausible that children who experience so many PTSD symptoms and impairment are unable to receive a DSM-IV diagnosis.

The fact that the DSM's conceptualization of PTSD symptoms clusters for children and adolescents is still the subject of a debate in the psychological trauma literature is further highlighted by the following study. Anthony et al. (2005) studied the posttraumatic stress reactions in children and adolescent victims of Hurricane Hugo. They found that the DSM model was not the best fitting or parsimonious for describing PTSD in the child and adolescent of natural disaster. In their study a different formulation that distinguished passive avoidance of interpersonal relations and active avoidance of trauma related thoughts was suggested (Anthony et al., 2005).

Generally, these studies conclude that children and adolescents seem to manifest PTSD symptoms differently and one needs to be very careful assessing and treating the disorder based on the adult parameters.

The above mentioned discussion highlights that the incongruence between the DSM-IV symptom clusters and the symptom presentation revealed by the current study does not necessary relate to poor construct validity of the Child PTSD Checklist, but could further be a result of the uniqueness of the post traumatic stress syndrome found in this particular population.

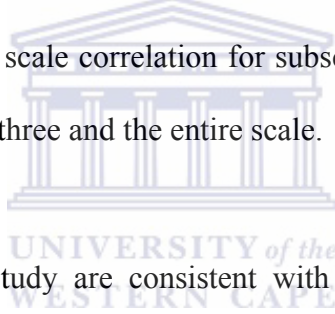
When looking at the symptom representation of this particular study the following aspects need to be taken into consideration. The sample comprised of a relatively homogenous group of adolescents, characterised by a non Western culture and similar socio economic status. Furthermore, the sample was limited to a restricted geographic area in South Africa that is well known for its exceptionally high levels of violence and crime. As a result many of the participants have been subjected to multiple and severe traumas. Based on the evidence from past research all of the above mentioned factors could have had a definite impact on the symptom presentation and could thus explain the incongruence between the DSM-IV symptom clusters and the symptom presentation revealed by the current study.



### **5.3 Hypothesis Two and Reliability**

The second research question of this study enquired about the reliability of the instrument. It was hypothesized that the Child PTSD Checklist would be internally consistent, both in its subscales and in the instrument as a whole.

As discussed in previous chapters, internal consistency using Cronbach's alpha was used to assess reliability. The findings confirmed the hypothesis. Alpha coefficients of 0.93, 0.73, 0.72, and 0.92 were obtained for the total scale and the subscales respectively. These results indicate that the Child PTSD Checklist and its subscale are highly reliable although it is important to note that the item scale correlation for subscale one and two are considerably weaker than those for subscale three and the entire scale.



The findings of the present study are consistent with those reported by Newman and Amaya-Jackson (1996) and Lipschitz et al., (2000) who established internal consistency coefficients of 0.91, 0.90 and 0.95 for the total Child PTSD Checklist. Eysterhyse et al., (2007) furthermore obtained a high internal consistency coefficient of 0.82 for the total scale, while establishing low internal consistency for the subscales of the Child PTSD Checklist.

From the current study it can be concluded that based on the internal consistency of the overall instrument and its three subscales, the instrument will produce scores that are reliable taken the specific research population into consideration.

## 5.4 Limitations of the Study

Despite the fact that the current study established a number of significant results, certain methodological problems however limited the value of this study in a broader context.

A primary limitation of this study is the generalizability of the results. All participants of this particular research study were referred from a Youth Stress clinic in the Western Cape. The sample therefore comprised of a relatively homogenous group, with broadly similar socio-economic status and limited to a restricted geographical area in South Africa. Thus in attempting to describe the psychometric properties of the Child PTSD Checklist within the South African context, only trends could be suggested in light of the current results. In addition the study was limited in terms of culture which is a crucial factor here in South Africa, known for its cultural and ethnical diversity. The majority of the participants from this particular study came from similar cultural and ethnical background, and the results are therefore not generalizable to the South African population as a whole.

A technical limitation that affects the generalizability of the results of the current study refers to the fact that the sample size was relatively small ( $N = 200$ ). In addition, the study included missing data in a comparatively large number of participants which reduced the sample size to only 167 participants whose data was suitable for statistical analysis. It is hypothesized that various factors could have contributed to the large number of participants with missing data. Language seems to present a critical factor, as a large number of South Africans do not speak English or Afrikaans as their first language. The language differences



may have had an influence on the interpretation of the items in the questionnaires which could consequently explain the missing data in the sample.

In addition, the findings of the preliminary study may be potentially limited due to the reliance of the participant's self report. The validity of self reports in children and adolescents must be considered cautiously. A number of potential biases range from negative mood states to more interpersonal biases stemming from individual response style (Farina et al., 2007). It is recommended that future research, investigating PTSD in children and adolescents utilize multivariate techniques as part of a more comprehensive research.

Finally, the fact that participant sample of this study consisted exclusively of a clinical sample might be considered a limitation. Given the principle of variability, explained in chapter 2 (p.21) it would have been desirable to have had a sample that included respondents who had not been exposed to traumatic events.

## **5.5 Recommendations and Implications for Future Research**

The current study revealed important implications for future research and various recommendations can be made.

Firstly, this study supports previous research studies suggesting that the diagnostic criteria for PTSD need to be revised and further refined. Especially with regards to PTSD among children and adolescents it is questioned if the current DSM criteria for PTSD are adequately representing how the disorder is experienced by these age groups. Revising or

establishing separate diagnostic criteria for PTSD among children and adolescents would hopefully contribute towards more clarification as well as timely identification of the disorder. This in turn would lead to improved intervention and prevention processes with regards to PTSD among this specific population.

In terms of the above mentioned limitations of this study it is important to note that while the study provides some preliminary evidence to support the validity and reliability of the Child PTSD Checklist more studies should be conducted. A major limitation of the current study refers to the lack of generalizability to the South African population as a whole. Future research should thus specifically focus on replicating these findings across other cultural and ethnic settings in the South African context in order to validate the Child PTSD Checklist across the South African population. Future research should further consider utilizing a larger sample and translating the particular questionnaires into the first language of the participants of the study.



Given the above discussion, as well as keeping the limitations of this particular study in mind, the need to pilot this scale for this specific population group is highlighted. While this study relied on self report from the participant, future research should consider using multi-method approach that combines the parent and child interview with the self report of the child /adolescent. A multi-method approach will eliminate the potential biases of a self report approach and would ultimately result in greater symptom clarification. Future research should furthermore consider adapting this scale in a way that exposure to multiple traumas, which might have an effect on symptom representation, is captured. In addition it

is important that the scale considers time lines, meaning that the time of trauma exposure as well as the time when the study data is captured must be recorded.

Finally while the sample of this particular study exclusively included a clinical sample it is recommended that future research should use a broader sample consisting of both, respondents with and without trauma exposure.

## **5.6 Conclusion**

The aim of this study was to determine whether the Child PTSD Checklist is a valid and reliable measure for diagnosing PTSD in a sample of treatment seeking children and adolescents from the Western Cape. While the results are not generalizable for the South African population as a whole, the findings indicated that the items of the Child PTSD Checklist did not load onto factors reflective of the symptom clusters specified by the DSM-IV. This could theoretically indicate that the Checklist demonstrates poor construct validity for the population of this study. Increasing evidence however suggests that the conceptualization of PTSD in the DSM-IV might not be the best descriptor of reactions to trauma amongst diverse cultural groups or different developmental stages (Levensdosky et al., 2002; Carrion et al., 2002; Nader, 2004; DuHammell et al., 2004; McWilliams et al., 2005; Lancaster et al., 2009). The results of this study are therefore not necessarily an indication of poor construct validity of the Child PTSD Checklist but rather refer to the uniqueness of the posttraumatic stress reaction found in this particular population.

In terms of the reliability of the Child PTSD Checklist the results illustrated that checklist has high internal consistency for both the total scale as well as the subscales and is hence an reliable instrument for measuring PTSD amongst this specific population group.

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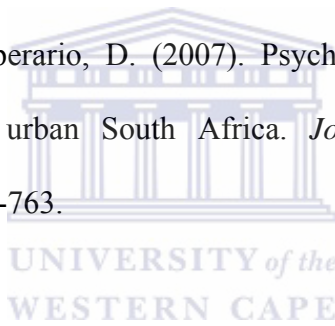
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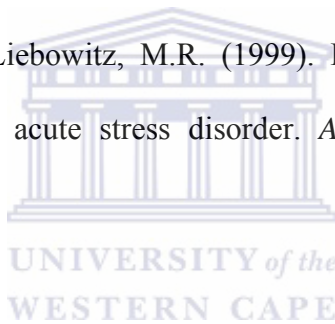
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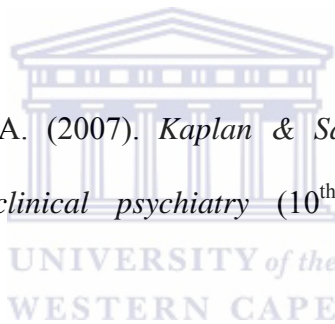
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**Figure 4.1**                      **Cattell's Scree Plot of the Child PTSD Checklist**



# APPENDIX

## APPENDIX: Child PTSD Checklist

### CHILD PTSD CHECKLIST

(Amaya-Jackson. Duke Treatment Service)

Refer back to the Traumatic Events List in the K-SADS PTSD section

“Remember that you told me that \_\_\_\_\_ happened to you”

OR (if more than one event)

“Remember you told me that the most frightening or upsetting thing that happened to you was \_\_\_\_\_”

“Please think about that event when you answer these questions, and tell me **how much** you felt the kind of feeling in each question in the **PAST MONTH**.”

In the **PAST MONTH**.....

	Not at all	Some of the time	Most of the time	All the time
1. Do you get nightmares or bad dreams about what happened?				

2. Do you get upset when you think about what happened?				
3. When something reminds you of what happened do you get tense or upset?				
4. Do you go over and over what happened in your mind?				
5. Do you think about (or see pictures in your head of) what happened even when you don't want to?				
6. Do you worry that it might happen again?				
7. Do you try not to think about what happened?				
8. Do you try to stay away from things that remind you of what happened?				
9. Do you ever have trouble remembering important parts of what happened?				
10. Do you act out things or repeat things like what happened?				
11. Do you sometimes feel like it's happening all over again even when it's not?				
12. Do you ever feel it's hard to have any feelings anymore, like you feel numb?				
13. Do you ever make yourself very busy and do things so you won't think about what's happened?				
14. Have you ever got physically upset when something reminded you of what happened - like getting sweaty, shaking, your heart pounding, getting short of breath, or stomach aches?				
15. Do you have trouble falling asleep or staying asleep?				
16. Is it hard for you to pay attention - like listening to your teacher, or doing your work - because you can't concentrate well?				
17. Do you ever feel you need to stay "on guard" like something could happen and you need to be ready?				

TURN PAGE OVER

	Not at all	Some of the time	Most of the time	All the time
18. Do you get jumpy or startle easily?				
19. Do you get annoyed (grouchy) or irritable (kind of angry) real easy?				
20. Do you get angry or upset at people for no reason?				
21. Do you ever get so angry at people you hit or hurt someone?				
22. Do you ever think you won't grow up and be what you want to be?				
23. Do you feel it's hard to have fun doing things?				
24. Do you ever feel it's hard to feel happy?				
25. Do you feel alone even when other people are around?				
26. Do you feel bad or guilty - like what happened was your fault?				
27. Do you wet your pants or bed by accident?				
28. Do you feel like you are "tuned out" or in a "trance" so you can go away in your mind and not think?				

How old were you when the following first started to happen? (Leave blank if it did not happen)

AGE

- Having nightmares or bad dreams about what happened \_\_\_\_\_
- Getting tense or upset when something reminds you of what happened \_\_\_\_\_
- Trying not to think about what happened \_\_\_\_\_



- Trying to stay away from things that remind you of what happened \_\_\_\_\_
- Feeling like it's happening all over again even when it's not \_\_\_\_\_
- Getting jumpy and startling easily \_\_\_\_\_
- Having difficulty falling or staying asleep \_\_\_\_\_

