AN INVESTIGATION OF THE RELATIONSHIP BETWEEN PTSD, REFLECTIVE FUNCTIONING AND CAREGIVING SENSITIVITY AMONGST MOTHERS MISUSING SUBSTANCES

By

Amy S Adams

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Supervisor: A/Prof. Astrid Berg

Co-supervisor: A/Prof. Nancy Suchman

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Declaration

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ABSTRACT

Substance use has increased significantly in South Africa and has been associated with several risk factors for both maternal and infant mental health including dysfunctional parenting practices. Trauma has been shown to impact an individual's ability to form stable attachments with early caregivers as well as on relationships formed later in life. Reflective functioning is postulated to moderate several different individual risk factors including the effects of trauma. However, the relationship between these factors has not been explored in the South African setting. Moreover, mothers misusing substances serve as a unique population within which to explore this interaction. The current study therefore represents a distinctive research endeavour.

The primary aim of this study was to explore the relationship between PTSD, reflective functioning (RF) and caregiving sensitivity amongst mothers misusing substances. The objectives deriving from this were to (a) evaluate the levels of reflective functioning of mothers in both the exposed group and the non-exposed group (b) assess the caregiving sensitivity of mothers in both the exposed group and the non-exposed group and (c) compare the levels of reflective functioning and caregiving sensitivity in the exposed group with those found in the non-exposed group.

The total sample consisted of 72 mother/child dyads and were recruited from those who had previously participated in the Safe Passage Study (SPS). Participants who presented with PTSD were assigned to an exposed group (PTSD group) and those who did not meet full diagnostic criteria for PTSD were assigned to a non-exposed group (No PTSD group). Thereby controlling for the effects of PTSD on outcome variables in an attempt to assess associations between these

variables. Trauma exposure was assessed using the Life Events Checklist (LEC) and the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) was used to assess PTSD. Parental reflective functioning was assessed with the shortened version of the Parental Development Interview (PDI-S). Caregiving sensitivity was assessed with the use of the Coding Interactive Behaviour system (CIB) which was used to rate a video-recorded mother-child interactive play session termed the curiosity box paradigm.

Findings of the present study revealed that only 20.8% of participants in the total sample presented with adequate RF and 79.2% presented with poor RF with no statistically significant difference between the exposed and non-exposed group. The level of caregiving sensitivity between the exposed and non-exposed group were mostly similar. Small-medium effect sizes suggested that mothers in the No PTSD group presented with a poorer quality of maternal behaviour with their child than those in the PTSD group. Little evidence of correlation between RF and caregiving sensitivity was found. No significant difference was found between mothers with higher levels of PTSD and lower levels of RF and their caregiving sensitivity. No statistically significant results were found suggesting a moderating effect of RF on PTSD and the outcome variable caregiving sensitivity.

Overall, the findings confirmed the concerning extent of substance use and PTSD pathology in the given setting. It also revealed largely poor levels of reflective functioning and caregiving sensitivity in this specific population and highlighted the need for ongoing research and intervention.

OPSOMMING

Dwelmgebruik in Suid-Afrika het aansienlik toegeneem en word met verskeie risikofaktore vir die geestesgesondheid van sowel moeders as babas geassosieer insluitend disfunksionele ouerpraktyke. Daar is vasgestel dat trauma ’n impak het op individue se vermoë om stabiele verbintenisse met ander (soos vroeë versorgers) te vorm, asook op die verhoudings wat hul later in die lewe aangaan. Daar word gepostuleer dat reflektiewe funksionering verskeie individuele risikofaktore verminder insluitend die effek van trauma. Hierdie verhouding is egter nie in die Suid-Afrikaanse omgewing ondersoek nie. Boonop dien moeders wat stowwe misbruik as 'n unieke populasie om die wisselwerking tussen hierdie verskillende faktore te ondersoek en bied die huidige studie 'n eiesoortige navorsingspoging.

Die oogmerk van die huidige studie was om die verhouding tussen PTSD, reflektiewe funksionering en versorgingsensitiwiteit onder die unieke populasie moeders wat substanse misbruik te ondersoek. Die doelstellings wat hieruit voortspruit, was om (a) om die vlakke van reflektiewe funksionering van moeders in sowel die blootgestelde groep as die nie-blootgestelde groep te evalueer; (b) om die versorgingsensitiwiteit van moeders in sowel die blootgestelde groep as die nie-blootgestelde groep te evalueer; en (c) om die vlakke van reflektiewe funksionering en versorgingsensitiwiteit in die blootgestelde groep met dié wat in die nie-blootgestelde groep voorkom.

Die totale steekproef het bestaan uit 72 moeder/kind dyades en was gewerf uit diegene wat voorheen aan die Safe Passage Study (SPS) deelgeneem het. Deelnemers met PTSD was aan die

blootgestelde groep (PTSV groep) opgedra en diegene wat nie aan die volledige diagnostiese kriteria vir PTSV voldoen nie, was aan 'n groep wat nie blootgestel is nie, toegewys (geen PTSV groep). Daardeur word gekyk na die gevolge van PTSV op uitkomsveranderlikes in 'n poging om assosiasies tussen hierdie veranderlikes te beoordeel. Trauma-blootstelling is met behulp van die Life Events Checklist (LEC) beoordeel en die PTSV-skaal vir DSM-5 (CAPS-5) wat deur die kliniek toegedien is, is gebruik om PTSV te beoordeel. Ouers se reflektiewe funksionering is beoordeel aan die hand van die verkorte weergawe van die ouerontwikkelingsonderhoud (PDI-S). Versorgingsensitiwiteit is beoordeel aan die hand van die kodering-interaktiewe gedragstelsel (CIB), wat gebruik is om 'n video-opgeneemde moeder-kind interaktiewe speel sessie te beoordeel wat die nuuskierigheidsparadigma genoem word.

Bevindings van die huidige studie het getoon dat slegs 20.8% van die totale steekproef was aangebied met voldoende RF en 79.2% met swak RF sonder statisties beduidende verskil tussen die bloodgestelde en nie-bloodgestelde groepe. Die versorgingsensitiwiteitsvlak tussen die blootgestelde en nie-blootgestelde groep het meestal ooreengestem. Klein-medium effekgroottes het aangedui dat moeders in die Geen-PTSV-groep 'n swakker gehalte moederlike gedrag met hul kind gehad het as dié in die PTSV-groep. Min korrelasie tussen RF en sensitiwiteit vir versorging is gevind. Geen beduidende verskil is gevind tussen moeders met hoër PTSV-vlakke en laer RF-vlakke en hul versorgingsensitiwiteit nie. Geen statisties beduidende resultate is gevind wat aan die hand doen dat RF ’n modererende effek op PTSV en die uitkomsveranderlike versorgingsensitiwiteit het nie.

In die geheel het die bevindings die omvang van substansgebruik en PTSV-patologie in die gegewe omgewing bevestig. Dit het ook grootliks swak vlakke van reflektiewe funksionering en sensitiwiteit vir versorging in hierdie spesifieke populasie geopenbaar, en dit het die behoefte aan voortdurende navorsing en intervensie onderstreep.

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Our Lady of Fatima, pray for us. Amen

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
APA	American Psychiatric Association
ATS	Amphetamine-type stimulants
CAPS-5	Clinician-Administered PTSD Scale for DSM-5
CAVES	Clinician Assisted Video feedback Exposure Session
CIB	Coding Interactive Behaviour
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, 5th edition
FASD	Foetal Alcohol Spectrum Disorder
HIC	High income countries
HIV	Human Immunodeficiency Virus
HPA	Hypothalamic-pituitary-adrenal axis
IPV-PTSD	Interpersonal violence-related PTSD
LEC	Life Events Checklist
LMIC	Low to middle income countries
MA	Methamphetamine
MOU	Midwife Obstetrical Unit

NIAAA	National Institute on Alcohol Abuse and Alcoholism
NICHD	National Institute for Child Health and Development
PASS	Prenatal Alcohol in SIDS and Stillbirth
PDI	Parent Development Interview
PDI-S	Parental Development Interview – shortened version
PTE	Potentially traumatic events
PTSD	Post-Traumatic Stress Disorder
RF	Reflective functioning
RFQc	Certain reflective functioning
RFQu	Uncertain reflective functioning
SACENDU	South African Community Epidemiology Network on Drug Use
SADHS	South African Demographic Survey
SAHPRA	South African Health Products Regulatory Authority
SAMHSA	Substance Abuse and Mental Health Services Administration
SIDS	Sudden infant death syndrome
SPS	Safe Passage Study
SSP	Strange Situation Procedure

TB	Tuberculosis
THC	Tetrahydrocannabinol
UNODC	United Nations Office on Drugs and Crime
US	United States
WMCI	Working Model of the Child Interview

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CHAPTER 1

INTRODUCTION

This chapter discusses the rationale for the study. The study aims and objectives, hypotheses and research questions are also presented along with an overview of the subsequent chapters.

1.1 Rationale

This study sought to explore the relationship between Post-Traumatic Stress Disorder (PTSD), attachment and caregiving sensitivity in mothers with substance abuse. For the purposes of this study, the term 'mothers with substance abuse' refers to mothers who had a history of or were currently (at the time of assessment) using illicit drugs including stimulants (e.g., methamphetamines, cocaine), hallucinogens (e.g., cannabis) and opiodes (e.g., heroin) as well as licit substances such as alcohol and over the counter/prescription medication (i.e., benzodiazepines and opioid-analgesics which includes medication containing morphine and codeine) (Myers et al., 2003). According to this definition, substance abuse may therefore either be chronic or acute. Substance abuse has increased significantly in South Africa and has been associated with several risk factors for both maternal and infant mental health (Ovens, 2009; Watt et al., 2014). Research has established that mothers with a history of substance abuse are at greater risk for dysfunctional parenting practices than mothers without a substance abuse history (Suchman et al., 2012).

Trauma has been shown to impact an individual's ability to form stable attachments with others including early caregivers as well as relationships later in life (Fonagy et al., 1995 as in Slade, 2005). Reflective functioning has been found to moderate several different individual risk factors

including the relationship between interpersonal trauma and depression severity (Fowler et al., 2013), the relationship between child sexual abuse and psychological adjustment (Roche et al., 1999) and the relationship between childhood trauma and eating disorders (Tasca et al., 2013). Schechter et al. (2005) found reflective functioning to moderate the effects of trauma on maternal reflective functioning. These findings support the view that maternal reflective functioning serves as a possible resilience factor and supports affect regulation in traumatised mothers. However, this relationship has not been explored in a setting such as South Africa, with its high incidence of violence exposure and PTSD (Kaminer, et al., 2008). Moreover, mothers misusing substances serves as a unique population within which to explore the interplay between these various factors. To the author's knowledge, no studies have been done to investigate the association between PTSD, attachment and caregiving sensitivity amongst mothers misusing substances specifically in this setting.

1.2 Research Question

How does reflective functioning affect the relationship between PTSD and caregiving sensitivity in mothers with substance abuse?

1.3 Hypotheses

Hypothesis 1: Lower levels of reflective functioning will be associated with decreased caregiving sensitivity irrespective of the degree of PTSD symptoms and substance abuse.

Hypothesis 2: Mothers with higher levels of PTSD *and* lower levels of reflective functioning will have poorer caregiving sensitivity than mothers who present only with higher levels of PTSD *or* lower levels of reflective functioning.

Hypothesis 3: Levels of reflective functioning and care-giving sensitivity of mothers in the exposed group will differ from those in the non-exposed group.

Hypothesis 4: Higher levels of reflective functioning will have a moderating effect on the relationship between PTSD and caregiving sensitivity (i.e., the negative impact of PTSD on caregiving sensitivity will be moderated by higher levels of reflective functioning.)

1.4 Aims and Objectives

This study investigated the relationship between PTSD, reflective functioning and caregiving sensitivity in mothers misusing substances. The principal aim was to investigate whether reflective functioning could have a moderating effect on trauma and how this would further impact on the mother's ability for caregiving sensitivity.

The following objectives derived from this aim:

- To evaluate the levels of reflective functioning of mothers in both the exposed group and the non-exposed group.
- To assess the caregiving sensitivity of mothers in both the exposed group and the non-exposed group.

- To compare the levels of reflective functioning and caregiving sensitivity in the exposed group with those found in the non-exposed group.

The current study was a sub-study of the Safe Passage Study. The Safe Passage Study was initiated by the Prenatal Alcohol in SIDS (sudden infant death syndrome) and Stillbirth (PASS) Network as a community-linked prospective study to investigate the role of prenatal alcohol exposure in the risk for SIDS and stillbirth, as well as other adverse pregnancy outcomes including Foetal Alcohol Spectrum Disorder (www.safepassagestudy.org).

The objectives of the Safe Passage Study conducted by the PASS Network were to:

(1) Investigate the association between pre-natal alcohol exposure (PAE), sudden infant death syndrome (SIDS), and stillbirth, and

(2) Determine the biological basis of the spectrum of phenotypic outcomes from exposure, as modified by environmental and genetic factors that increase the risk of stillbirth, SIDS, and in surviving children, Foetal Alcohol Spectrum Disorder (FASD).

1.5 Overview of chapters

The second chapter reviews literature discussing substance use trends in South Africa. Specific focus is then placed on substance use amongst females and mothers, as well as on substance use during pregnancy. This is followed by a discussion on trauma exposure and PTSD in the South African context, the neurobiology of PTSD and finally the link between PTSD and substance use.

The third chapter reviews literature concerning attachment theory, the significant role attachment plays in parenting and the concept of reflective functioning. Maternal reflective functioning and parenting is then discussed in the context of maternal substance use. This is followed by a review of attachment and parenting studies done in Africa and South Africa. The concept of attachment as a moderator is then discussed as well as the relationship between PTSD, attachment and parenting.

The fourth chapter focuses on the methods utilised in the study and includes details regarding research design, study sample, research procedures, instruments and data analysis.

Chapter five presents the results of the study, and includes demographic information, trauma exposure, an assessment of PTSD, reflective functioning and caregiving sensitivity. The discussion and limitations of the study form part of chapter five.

Chapter six comprises the conclusion and recommendations for practice and future research.

CHAPTER 2

LITERATURE REVIEW

Substance use, trauma and Post-traumatic Stress Disorder in South Africa

This chapter discusses substance use trends in South Africa and the three main substances of abuse in this setting, namely alcohol, cannabis and methamphetamine. Specific focus is then placed on substance use amongst females and mothers, as well as on substance use during pregnancy. This is followed by a discussion on trauma exposure and PTSD in the South African context, the neurobiology of PTSD and finally the link between PTSD and substance use.

2.1 Substance use trends in South Africa

Research in South Africa indicates high rates of substance use across all regions with approximately 13% of the general population having an untreated substance use disorder (Herman et al., 2009). The increase in substance use has major social implications for the country (Ovens, 2009). Problems associated with substance abuse include poverty, unemployment, increased burden on the health care system, the disintegration of family systems, and drug-related crimes (Ovens, 2009).

The Western Cape, in particular, has been found to have significantly higher rates of substance-related problems compared to other provinces (Herman et al., 2009). Cape Town has been identified as being particularly affected with higher rates of arrestees (Parry et al., 2004) and trauma patients testing positive for substances than in other parts of the country (Plüddeman et al., 2004). Plüddeman et al (2004) attribute these higher rates in Cape Town to the emergence of

ethnically specific market chains for drugs in the country. These specific markets stem from former government's apartheid policy which assigned designated living spaces and employment prospects based on race. These race-related divisions then influenced the types of drugs used by different race groups and is the reason why there are still strong associations between race, living area and drug use in our setting. Cape Town has a large 'coloured' (mixed-ancestry) population that resides mainly in poor townships across the metropole (the largest percentage of any particular racial group in the Western Cape is the coloured population at 42.4%) (World Population Review, 2020). Substance use is unfortunately high within this specific population (Plüddeman et al., 2004) which consequently contributes to the higher rates of substance use and substance-related problems in this part of South Africa.

Substance use trends in South Africa have shifted over the past 20 years. Prior to the first democratic elections in 1994 alcohol, cannabis and methaqualone (mandrax) were the primary substances of abuse in the country (Pasche & Myers, 2012). The transition to democracy, however, has opened borders and along with it brought a flow of previously unavailable illicit drugs (Pasche & Myers, 2012). It is difficult to describe specific substance use trends in South Africa as no routine surveys have been done to assess substance use and variations over time. However, the South African Community Epidemiology Network on Drug Use (SACENDU) has been collecting data on treatment admissions for substance use disorders since 1996 and this gives us some indication of the treatment utilisation trends since then. Their data, however, are limited by treatment admission policies and problems with access to treatment and, therefore, might underestimate the extent of drug use in the population (Pasche & Myers, 2012).

According to SACENDU alcohol remains the substance of choice in several regions in South Africa including the Eastern Cape (34%), KwaZulu-Natal (37%) and the central region consisting of the Free State, Northern Cape & North West (45%) (Dada et al., 2018). Approximately 2% of the population uses cannabis (locally referred to as 'dagga'), making it the most common illicit drug, followed by cocaine (0.3%), sedatives (0.3%), amphetamines (0.2%) and inhalants, hallucinogens and opioids (0.1% each) (Shisana et al., 2005 as in Harker et al., 2008). Heroin use has also steadily increased since 1994. The treatment demand for heroin as the primary drug of choice has increased from less than 1% to between 5% and 20% depending on the province (Plüddemann et al., 2010). According to SACENDU data the main substances of abuse in the Western Cape are alcohol, cannabis and methamphetamine. The following sections will consider each of these substances in more detail.

2.1.1 Alcohol

South Africa has one of the highest consumption rates of alcohol per drinker in the world (Parry et al., 2004). The 2003/2004 South African Demographic Survey (SADHS, 2003/2004 as in Harker et al., 2008) reported a prevalence rate of 70.3% for men and 39.2% for women over the age of 15. Approximately 30% of South African women consume alcohol (Rehm et al., 2003 as in Pithey, 2014) and in the Western Cape an estimated 34% of women living in urban areas and 46-51% of rural women consume alcohol during pregnancy (May et al., 2007).

According to SACENDU data 23.8% of all substance-related treatment admissions in the Western Cape are due to alcohol (Dada, 2018). Furthermore, in a study examining the alcohol and drug treatment seeking behaviour among women in the Western Cape between 2000 and 2013, it was

found that the number of women seeking treatment had increased from 4% to 11% during the reporting period (Dada et al., 2018). The most common primary substance of abuse in this sample was alcohol (37.3%) followed by methamphetamine (34.2%) (Dada et al., 2018). Dada et al. (2018) further reported that the proportion of female admissions for alcohol-related treatment increased gradually from 34.1% in 2000 to 37.3% in 2009.

The South African Stress and Health study conducted between 2002 and 2004 found that the prevalence of lifetime alcohol use in the Western Cape ranges from 39% to 64% (Herman et al., 2009). According to Herman et al. (2009) 14% of the population in South Africa has a lifetime diagnosis of alcohol abuse and/or dependence. Although other regions have been found to have higher alcohol-focused treatment admission rates, national health surveys have found that, when compared to other regions, the Western Cape had the highest prevalence of risky drinking (16%) in South Africa (Harker et al., 2008). These high levels of alcohol abuse have dire consequences which include having one of the highest rates of foetal alcohol spectrum disorder in the world (May et al., 2007), 36% - 79% of trauma patients testing positive for alcohol (Plüddemann et al., 2004), and nearly half of all pedestrians and drivers killed are above the legal alcohol limit (Seedat et al., 2009).

Although lifetime use of alcohol is higher amongst males (70.3%) than females (39.2%) the rates for problem drinking have been found to be higher amongst females than males (SADHS, 2003). For instance, the rates of binge drinking on weekends was found to be higher amongst females (48%) than males (23%) and Myers (as cited in Harker et al., 2008) reported more daily use of alcohol among women than men. The overall mean age for those seeking substance treatment in

the Western Cape from January to June 2018 was reportedly 29 years old (Dada et al., 2018). However, mean ages are not available for specific substances within or between male and female users, a notable limitation within the current literature.

2.1.2 Cannabis

South Africa is the third largest producer of cannabis in the world. In South Africa, cannabis is both imported from Swaziland, Mozambique, Lesotho and Zimbabwe and exported to mainly the Netherlands, United Kingdom, and neighbouring African countries (UNODC, 2017). Currently, it is most commonly used in the form of dried leaves and flowers of the plant which looks like tobacco. This is then rolled into cigarettes (called a 'joint') and wrapped in small pieces of newsprint (referred to as a 'zol') or packed into cigars (Peltzer & Ramlagan, 2007).

Cannabis is produced from 2 subspecies of plant namely *Cannabis sativa* and *Cannabis indica* (Naz et al., 2017; Whiting et al., 2015). The main active ingredient is the cannabinoid (the chemical derived from the cannabis plant) trans-delta-9-tetrahydrocannabinol (THC) (Whiting et al., 2015). Some of the effects include a sense of euphoria, relaxation, perceptual alterations, time distortion and the intensification of ordinary sensory experiences such as eating and watching a movie or listening to music (Hall & Solowij, 1998). When used in a social setting it may produce infectious laughter, problems with short-term memory and attention, motor skill difficulty, and slower reaction time. Skilled activities are impaired during intoxication and the most common unpleasant side effects are anxiety and panic reactions (Hall & Solowij, 1998).

In South Africa, individuals may apply for special dispensation for the medicinal use of cannabis under Section 21 of the Medicines and Related Substances Act of 1965 (Whiting et al., 2015). There are currently only 56 individuals in South Africa who have been granted such dispensation and the South African Health Products Regulatory Authority (Sahpra) reports that it is currently reviewing 16 applicants for licenses to grow cannabis for medicinal use (de Wet, 2019).

Cannabis is the most common illicit drug used in South Africa and 20% to 55% of patients attending treatment centres have cannabis as either a primary or secondary substance of choice (Dada et al., 2018). It has recently replaced methamphetamine (MA) as the primary drug of choice amongst patients admitted for treatment in the Western Cape (Dada et al., 2018). The most recent statistics show that 27.3% of patients report it as their drug of choice versus 26.1% for MA use (Dada et al., 2018). This surge in cannabis use may in part be due to the ruling by the Western Cape High Court in March 2017 that cannabis should be legalised for private use, possession and cultivation (Evans, 2017). This ruling was later supported by the Constitutional High Court in September 2018 (Lindeque, 2018).

2.1.3 Methamphetamine

Methamphetamine (MA) is locally referred to as ‘tik’ because of the ticking sound it makes when smoked, usually through a ‘tik’ pipe which the user makes from glassware (Watt, 2014). It forms part of a class of drugs known as amphetamine-type stimulants (ATS) and includes methamphetamine, amphetamine, methylene and dioxy methamphetamine along with other designer drugs (Chomchai & Chomchai, 2015). Methamphetamine first emerged in South Africa

in the late 1990s with the drastic socio-political changes following the end of Apartheid (Peltzer et al., 2010).

MA is a highly addictive psycho-stimulant which creates feelings of increased energy, alertness, hyper-sexuality and euphoria among other physiological effects (Watt et al., 2014). The effects of chronic MA use include weight loss, severe tooth decay, cardiopulmonary complications and increased risk of mental health problems such as anxiety, depression, psychotic symptoms and global neuropsychological impairment particularly memory, attention and executive functioning (Watt et al., 2015; Weybright et al., 2016). Suicide and overdose are also prevalent and present as significant contributing factors to morbidity and mortality rates amongst MA users (Marshall & Werb, 2010). MA use has also been associated with the contraction and spread of communicable diseases (such as TB), domestic violence and criminal activity resulting in the degradation of community safety (Watt et al., 2014).

The prevalence of MA use in South Africa has increased steadily since 2000 (Dada et al., 2012). Its use peaked in the mid-2000s and has since stabilised (Pasche & Myers, 2012). The prevalence of MA use in the Western Cape however has been different from the rest of the country with consistently higher rates of MA use than in other regions. In a study conducted by Plüddeman et al. (2008), which monitored drug treatment admission rates in Cape Town between 2004 and 2006, it was found that patients reporting MA as their primary drug of choice increased from 0.3% to 42.3%. This dramatic increase in use represents the fastest increase in admissions for a specific drug ever recorded in the country (Plüddeman et al., 2008). Although this number has been slowly tapering down since to 39% in 2011 (Dada et al., 2012) and 28% in 2013 (Dada, 2014; Watt et al.,

2014) there are still large numbers of patients in treatment who report MA as either their primary or secondary drug of choice. Data reported by SACENDU for the January to June 2018 period reflect a slight decrease in MA use to 26.1% (Dada, 2018).

Hobkirk et al. (2016) conduced a qualitative study of MA initiation in Cape Town. In their study they found that prevalence rates were very high in this region. These high rates were partly due to MA being so easily accessible, being considered "trendy" making it socially appealing, as well as the lack of recreation and employment opportunities. The close association between MA use and distribution and gang membership is also listed as a reason for high consumption rates. The final reason provided was that MA is often used as a means to cope with psychological distress related to increased violence and crime in these communities. Increased use amongst women has also partly been attributed to its anorectic effect which helps women with weight loss (Chomchai & Chomchai, 2015).

In a study conducted by Myers (as cited in Dada et al., 2018) it was found that the levels of MA use among men and women were similar with 28% of female users reporting daily MA use compared to 22% amongst male users. Furthermore, Dada et al. (2018) reported a rapid increase in female admissions for MA use in the Western Cape from 20.4% in 2000 to 34.2% by 2004 followed by a decrease in 2008 (22.2%) and eventual plateau in the last 3 years.

These increasing numbers in substance use amongst women has had significant implications for mothering which is discussed more specifically below.

2.2 Maternal substance use

Substance use disorders are currently more common amongst men but a shift is occurring with ever increasing numbers of women abusing illicit drugs and alcohol (McHugh et al., 2014). Moreover, the number of mothers misusing substances has increased with the increase of young girls of childbearing age who are abusing drugs and alcohol (Kumpfer & Fowler, 2007; Ovens, 2009). Substance use itself leads to unsafe sexual practices, which presents the additional problem of unplanned pregnancy as well as HIV/AIDS transmission in this vulnerable population (Carrico et al., 2012; Pasche & Myers, 2012). Dada (2019) reports that 37.4% of patients in substance abuse treatment in the Western Cape are between the ages of 10 and 24 and that 28% of these patients are female. According to the Western Cape Department of Education (as cited by Lesch & Kruger, 2005) more than 33% of all women giving birth in South Africa are younger than 18 years, and many of these pregnancies are unplanned (Lesch & Kruger, 2005).

Drug use among women has been associated with a history of risk factors for mental health problems including parental death or desertion, marital discord, divorce (Haight et al., 2005), a history of being emotionally, physically and/or sexually abused (Palacios et al., 1999), as well as a history of behavioural problems in childhood and adolescence such as aggressiveness, impulsivity, poor frustration tolerance, learning disabilities, attention-deficit disorder, oppositional defiant disorder, and family problems such as abuse or neglect (Riggs, 2003). Evidence suggests that women use drugs to self-medicate against emotional difficulties (Newcomb, 1995), to help deal with anger and tension, or to relieve feelings of depression (Klee, 2002 as in Haight et al., 2009), to cope with everyday life pressures, alleviate stress, maintain emotional and physical well-being, and effectively care for their children (as substances such as methamphetamines boost

energy) (Joe, 1996). Joe (1996) found that women misusing substances had experienced poverty, domestic violence, criminality, and parent drug abuse within their families and that many of these women were introduced to drugs in childhood or adolescence by family or peers. All of the data discussed above have been reported in international studies and there is unfortunately a lack of such data available in the South African setting.

2.2.1 Maternal substance use: effects and associated risk factors

The adverse effects of maternal substance use are far reaching and impact both the mother misusing substances and her child. Kettinger et al. (2000) found that mothers misusing substances experienced heightened maternal stress, low self-esteem and depression. These mothers are further at risk for developing co-morbid psychiatric illness (Palacios et al., 1999). Research has shown that when psychiatric problems and substance use co-occur, there is an increased risk for poorer psychosocial outcomes than when substance use occurs alone (Greig et al., 2006; Tomlinson et al., 2004 as in Saban, 2013). Joe (1996) found that his sample of mothers misusing substances reported increasing isolation from others including their children. Other outcomes included irritability, anxiety, depression, hallucinations, paranoia, increased domestic violence and inadequate nutrition. As their substance use intensified women became increasingly unable to care for their children and relied on extended family to raise them. Similarly, Baker and Carson (1999) describe how the lifestyle of mothers misusing substances negatively impacts their children as they are physically, financially and emotionally unavailable; and mothers also reported that they felt they could not control their children's behaviour. In addition to this, mothers misusing substances reportedly find it difficult to respond to children in sufficiently emotionally available, sensitive and flexible ways leading to problematic parenting practices (Suchman et al., 2012).

Parental substance use is a risk factor for child maltreatment and neglect (Dore, 1995; Walsh, 2003; Wolock, 1996). It is also a primary factor contributing to increasing rates of children entering foster care (Green et al., 2007; Choi & Ryan, 2007) as well as subsequent substance abuse in children (Catalano et al., 1999). Other adverse effects on children are child mental health problems, poor physical (Hjerkinn, 2009) and developmental outcomes including low birth weight (Kelly et al., 2002), externalising behaviour problems (Barth, 2006; Connors-Burrow et al., 2013; Nöthling et al., 2014), and exposure to violence (Barth, 2006).

2.2.2 Substance use during pregnancy

According to Merikangas and McClair (2012) women are at greatest risk of developing a substance use disorder in their childbearing years with the highest rates of use occurring in adolescence and early adulthood. Substance use amongst women is of particular concern as female users typically increase their rate of use more rapidly and develop substance use disorders more quickly than men (UNODC, 2017). Furthermore, substance use is associated with unsafe sexual practices leading to unplanned pregnancies (Heil et al., 2011).

It may therefore be said that women commonly initiate substance use before they become pregnant but once they start using they become addicted more easily than men and will then continue using during pregnancy leading to adverse outcomes for both mother and child (Jones et al., 2011). Substance use therefore presents as a particular challenge amongst female users as their use affects not only themselves but also the life of their unborn child. Furthermore, most women who use drugs during pregnancy are initially not aware that they are pregnant and therefore continue to use (Holbrook & Rayburn, 2014). Unfortunately, it is during these early stages of pregnancy where

the teratogenic risk (the risk of disturbance in the healthy development of an embryo or foetus) is highest (Holbrook & Rayburn, 2014).

Gestational substance exposure is considered harmful as substances penetrate the placenta affecting foetal development and brain growth (Ross et al., 2015). It can also result in premature birth, small gestational age and low birth weight (Jones et al., 2014). Such exposure can even be fatal for both mother and child (Oei et al., 2011). Substance exposure *in utero* is associated with several other adverse effects including increased risk for mental illness, poor perinatal outcomes and poor psychosocial consequences (Oei et al., 2011). During pregnancy, mothers misusing substances are less likely to receive antenatal care than non-substance misusing pregnant women (Bell & Harvery-Dodds, 2008). These mothers also tend to seek health care services during later stages of pregnancy disadvantaging both mother and child, have chaotic lifestyles, including poor care for themselves and compromised capacity to care for their children (Barth, 2006; Friedman et al., 2009 as in Louw, 2018).

However, pregnancy can also serve as a motivation for many substance using mothers to either stop or reduce their use or participate in opioid substitution programmes (Higgins et al., 2009 as in Louw, 2018). The Substance Abuse and Mental Health Administration (Office of Applied Studies, 2009) conducted a survey between 2002 and 2007 and gathered information on the use of illicit substances amongst approximately 67,500 US citizens aged 12 years and older. It was found that substance use during pregnancy decreased steadily as pregnancy progressed and that alcohol consumption was lowest during the third trimester of pregnancy (Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 2009). However, it was also noted that

substance use would frequently resume again after childbirth (Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 2009. The chronic and relapsing nature of substance use disorders makes recovery challenging and women often relapse within the first 6 months post-partum (Forray et al., 2015). The complexity of maternal substance use is further impacted by severe psychosocial difficulties including trauma exposure.

2.3 Trauma exposure

Hamber and Lewis (1997) define trauma as an event that overwhelms the coping resources of the individual, as traumatic situations are those where great danger is present and the individual is left feeling powerless. Freud (as cited in Berg, 2006) states that trauma refers to an experience which within a specific period of time presents the mind with a stimulus that is too powerful to be dealt with in an ordinary way. Therefore, traumatic experiences are considered to be unusual and far beyond our normal experience of everyday life.

The extent and nature of trauma and violence in South Africa is unique (Hamber & Lewis, 1997). South Africa has been characterised by violence from the time of colonisation in 1652. During Apartheid, political violence was common. The form of violence during this period was characterised by human rights abuses such as detention without trial, torture and politically motivated assaults (Truth and Reconciliation Commission, 1998). However, since 1994, with the beginning of political transition in South Africa, the occurrence of political violence has decreased and the presentation of violence has shifted to an increase in criminal violence (Hamber & Lewis, 1997; Kaminer et al., 2008).

Surveys have shown that South Africa has among the highest rates of murder and armed robbery (Shaw, 2002 as in Kaminer et al., 2008), rape (Bollen et al., 1999 as in Kaminer et al., 2008) and intimate partner violence (Abrahams et al., 2006) in the world. These high levels of violence may be the result of South Africa's socio-political history of Apartheid and violent subjugation, in combination with ongoing socioeconomic inequality and the suffering associated with it (Fajnzylber et al., 2002). Research has indicated that violence is more likely than other forms of trauma to be associated with PTSD (Breslau et al., 1998).

2.4 Post-traumatic Stress Disorder (PTSD)

According to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (American Psychiatric Association, 2013) a diagnosis of PTSD can be made if an individual has been exposed to actual or threatened death, serious injury, or sexual violence by direct experience, witnessing, learning that such an event happened to a close family member and experiencing repeated exposure to details of a traumatic event. The presence of at least one intrusion symptom is required. These symptoms include intrusive memories, distressing dreams related to the event or experience, dissociative reactions, prolonged psychological distress after exposure to cues related to the trauma as well as physiological reactions to these cues (American Psychiatric Association, 2013). Avoidance behaviour should be noted either by avoiding distressing memories, thoughts or feelings about the event and/or avoidance of external reminders of the event (American Psychiatric Association, 2013).

Two or more symptoms of altered cognition and mood associated with the trauma such as an inability to remember certain aspects of the trauma or having persistent negative beliefs about

oneself and others are also required (American Psychiatric Association, 2013). Other notable symptoms include hyper-vigilance, increased startle response, irritable behaviour and reckless or self-destructive behaviour. To meet diagnostic criteria the symptoms must last for at least one month, cause significant distress or impairment in functioning and should not be attributable to the effects of a substance or another medical condition (American Psychiatric Association, 2013). Specifiers for the diagnosis note the presence of dissociative symptoms, depersonalization (feeling detached from one's body), derealisation (experiencing the world as unreal or in a dreamlike state) and whether there has been delayed expression of symptoms (emergence of symptoms at least 6 months after the traumatic experience) (American Psychiatric Association, 2013).

2.4.1 PTSD in South Africa

In their study, Kaminer et al. (2008) examined the risk for post-traumatic stress disorder (PTSD) associated with political, domestic, criminal, sexual and other forms of assault in the South African population. Their findings indicated that over a third of South Africans had been exposed to some form of violence (Kaminer et al., 2008). The most common forms of violence experienced by men were criminal and miscellaneous assaults and, amongst women, the most common forms of violence included physical abuse by an intimate partner, childhood physical abuse and criminal assaults (Kaminer et al., 2008).

With reference to South Africa's tumultuous past, the forms of violence most strongly associated with a lifetime diagnosis of PTSD amongst men was political detention and torture while rape had the strongest association with PTSD among women. Criminal assault and childhood abuse were associated with the greatest number of PTSD cases among men, while intimate partner violence

was associated with the greatest number of PTSD cases among women (Kaminer et al., 2008). Nöthling et al. (2014) conducted a longitudinal study exploring maternal PTSD, depression and alcohol dependence in mother-child dyads infected with HIV. These authors found that maternal PTSD had the greatest descriptive power for child behaviour problems but did not significantly predict child outcomes.

2.4.2 PTSD in females

Local studies have documented that nearly half of South African women experience physical or sexual assault from a male partner in their lifetime (Dunkle et al., 2004; Jewkes et al., 2002) and more than 30% have a history of childhood sexual abuse (Suliman et al., 2009). A consistent finding in PTSD research globally has been that women present with higher prevalence rates of the disorder than men (Breslau, 2001; Olff, 2017). The ratio is approximately 2:1 with global lifetime prevalence of PTSD in women being between 10-12% and in men 5-6% (Christiantansen & Hans, 2015; Olff, 2017). Many reasons have been postulated to explain and/or understand this difference (Breslau, 2001; Farhood et al., 2018). The difference has in part been attributed to the type of trauma to which women are exposed (more interpersonal violence and more often of a sexual nature than men), younger age at the time of trauma exposure, greater perceptions of threat and loss of control, higher prevalence of peri-traumatic dissociation (a state of limited awareness at the time of the traumatic event or soon thereafter), poor social support, and higher rates of alcohol use to manage trauma-related symptoms such as intrusive thoughts and dissociation (Olff et al., 2007).

Christiansen and Hansen (2015) conducted a study specifically investigating sex differences in PTSD. They found that women reported more PTSD symptoms than men and this difference was attributed to the higher levels of associated risk factors amongst women including lack of social support, feeling let down by others and negative post-traumatic cognitions concerning self, the world and others (Christiansen & Hansen, 2015). In a primary health care setting in Khayelitsha (a poor urban community in Cape Town South Africa), Carey et al. (2003) assessed trauma and PTSD in a sample of 201 participants. It was found that 94% of the sample reported exposure to traumatic events and PTSD was among the most common diagnosis with 19.9% meeting current criteria for the disorder (Carey et al., 2003). Men and women were both found to be equally likely to develop PTSD following a traumatic event which is contrary to common findings of women being more likely to develop the disorder than men. In this study, the authors postulate that the severity and extent of adversity in which these men and women find themselves minimizes the gender differences in PTSD diagnosis consistently found in other research (Carey et al., 2003).

Similar prevalence rates (19%) of current and lifetime PTSD were found in a study conducted in two primary health care clinics in poor peri-urban communities in Paarl just outside of Cape Town (Koen et al., 2016). A total of 544 mother-infant dyads were included in the study which aimed to investigate the prevalence and risk factors for maternal trauma and PTSD and the effects these may have on birth outcomes (Koen et al., 2016). They further found that approximately two-thirds of their sample reported lifetime trauma and a third had been exposed to intimate partner violence in the past year (Koen et al., 2016).

2.4.3 The neurobiology of PTSD

Many studies have found a link between PTSD and abnormal brain functioning. However, even though the symptoms of PTSD are easily identified, the exact neurobiological underpinnings are complex and there is still much to learn about how the brain responds to trauma (Zhang et al., 2015). PTSD research has mainly focused on the hippocampus and amygdala (Logue et al., 2018). The hippocampus has been found to play an important role in regulating stress hormones and stress responses through the hypothalamic-pituitary-adrenal (HPA) axis (Sapolsky et al., 2000). It has also been associated with behaviour modulation through fear learning and fear suppression (Jovanovic et al., 2009). Short-term memory loss and the cognitive-related symptoms of PTSD (i.e. alterations in memory such as nightmares, flashbacks, intrusive memories and amnesia) have also been attributed to damage in this area of the brain (Bremner et al., 1995).

The amygdala is highly interconnected with the hippocampus and evidence suggests that the two regions play a role in modulating emotional memory (Phelps, 2004). Furthermore, the HPA axis (which is involved in the regulation of the stress response) has been found to have heightened reactivity in patients with trauma-spectrum disorders (Simeon, Knutelska et al., 2007). Researchers have usually found smaller hippocampal volume in PTSD patients (Villareal et al., 2002) but these findings have been inconsistent (Schuff et al., 2001). Studies examining amygdala volume have found both smaller (Morey et al., 2012) and larger (Kuo et al., 2012) volumes which has left more questions and the need for further research.

Logue et al. (2018) undertook a large-scale neuroimaging consortium study on PTSD and analysed the neuroimaging and clinical data of 1868 subjects (794 of whom were PTSD patients). This

represents the largest neuroimaging study of PTSD to date. Their meta-analyses revealed significantly smaller hippocampi in subjects with PTSD compared to trauma-exposed control groups. Smaller amygdala were also noted however differences were not statistically significant.

Bremner et al. (1995) used magnetic resonance imaging (MRI) to measure hippocampal volume in patients experiencing combat-related PTSD and found that the PTSD patients had a statistically significant 8% smaller right hippocampal volume than those in the comparison group but no difference was found in the size of other regions in the brain. This is consistent with the results of other studies where findings suggest a link between stress and hippocampal damage (McEwen et al., 1992). Sex differences have also been shown in relation to the psychobiological reactions to trauma (Olff, 2017). Women have been found to have a more sensitive HPA axis than men while men seem to have more sensitized physiological hyperarousal systems (Olff, 2017). There is also evidence to suggest that sex differences in neuroendocrine profiles are related to the difference in coping styles and cognitive appraisal of traumatic events between the sexes (Pierce et al. as cited in Olff et al., 2007).

2.5 PTSD and substance use

PTSD and substance use disorders frequently co-exist (Jarnecke et al., 2019). It has been argued that this link exists because individuals with PTSD use substances as a means to self-medicate PTSD symptoms (Debell et al., 2014). Research indicates that approximately 24-57% of women seeking treatment for their substance use disorder have a comorbid diagnosis of PTSD (Brown et al., 1995). Individuals with substance use disorders have also been found to be at greater risk for meeting lifetime criteria for PTSD (Grant et al., 2015). Petrakis et al. (2011) found that

approximately 41.4% of war veterans diagnosed with PTSD had a comorbid substance use disorder.

Co-morbid diagnosis of substance use disorder and PTSD has also been associated with higher rates of self-harm, self-harm ideation, suicidal behaviour and suicidal ideation (Harned et al., 2006). For female substance users, pregnancy may actually trigger or exacerbate PTSD-related traumatic experiences (Josephs as cited in Moylan et al., 2001) and pregnancy itself may increase the risk of trauma exposure and PTSD (Thompson & Kingree, 1998). Pregnancy itself, independent of substance use, has been found to be a period of greater vulnerability for women as it increases the likelihood of traumatic events such as physical abuse.

Pregnant women are 35% more likely to experience husband-to-wife violence than non-pregnant women (Helton et al., 1987). Women with a history of being battered are three times more likely to be injured during pregnancy than non-battered women (Hillard, 1985). Berenson et al. (1991 as in Goodman et al., 1993) note that amongst battered women the abdomen is targeted twice as frequently in those who are pregnant than those who are not pregnant.

In their study with pregnant substance abusers Thompson and Kingree (1998) found that their sample had high rates of sexual assault (72%), physical assault (67%), and indirect violent trauma (68%) and that 62% met diagnostic criteria for PTSD. The implications for pregnant substance users are therefore more severe given that pregnancy itself is a risk factor and is associated with higher rates of trauma exposure leading to the development of PTSD symptoms (as noted above). These PTSD-related symptoms then hav further negative outcomes for the mothers misusing

substances as it increases the risk of relapse, onset of depression and premature treatment dropout (Brady, 1997).

2.6 Conclusion

The above literature review highlights the problems associated with substance use amongst the female population. The abuse of substances has previously been a predominantly male-focused concern but the substance use trends are shifting with an increasing number of women abusing alcohol and drugs. According to the literature presented above, the Western Cape has higher rates of problem drinking (e.g., binge drinking) amongst women than men and the levels of MA use among men and women are similar (28% of female users reporting daily MA use compared to 22% amongst male users).

These are concerning figures as it has been found that female users tend to increase their rate of use more rapidly and develop substance use disorders more quickly than men, presenting a greater challenge to mental health services and the broader communities within which they live. Furthermore, it has been found that women typically initiate substance use before pregnancy but once they start using they become addicted and their battle with addiction then continues during pregnancy and often persists throughout the lifespan of both the mother and child. Trauma exposure and PTSD further complicate this picture as substances can be used as a means to self-medicate PTSD-related symptoms but can also be a contributing factor to trauma exposure and consequent diagnosis of PTSD. Both substance use and PTSD have been found to be associated with attachment, reflective functioning and caregiving sensitivity in mothers. The following chapter will further explore these constructs namely, attachment theory (the theoretical framework

of the current thesis), reflective functioning and caregiving sensitivity amongst mothers misusing substances.

CHAPTER 3

LITERATURE REVIEW

Attachment, reflective functioning and caregiving sensitivity

This chapter discusses attachment theory, the significant role attachment plays in parenting and the concept of reflective functioning. Maternal reflective functioning and parenting is then discussed in the context of maternal substance use. This is followed by a review of attachment and parenting studies done in Africa and South Africa. The concept of attachment as a moderator is then discussed as well as the relationship between PTSD, attachment and parenting.

3.1 Theoretical framework of reflective functioning and caregiving sensitivity in mother-child interactions

Attachment theory significantly changed our understanding of child development by highlighting the importance of the socio-emotional underpinnings of developmental processes (Keller, 2008). In so doing, it has also played a crucial role in our understanding of the mother-child relationship and the ideas proposed in the theory have been widely utilised in both the clinical and research setting (Keller, 2008). It is therefore fitting for attachment theory to serve as the theoretical framework for the current study. The following discussion on attachment theory offers a broader context for the specific topics of interest as it is closely linked to both reflective functioning and caregiving sensitivity.

3.2 Attachment theory

Attachment research originated with the work of John Bowlby drawing on evolutionary theory and observations of nonhuman primates (Main, 1996). He later developed a working partnership with Mary Ainsworth and they jointly developed the theory of attachment (Ainsworth & Bowlby, 1991). The core aspect of the theory is the importance of the bond between mothers and their infants and the idea of using the mother as a secure base from which to explore the world (Cortina & Marrone, 2004). An attachment bond is said to comprise of behavioural, cognitive and emotional elements where the infant will continually monitor the availability of one or more attachment figures and will flee to them in times of distress for the purpose of safety and survival (Main, 1996).

Mary Ainsworth expanded on Bowlby's original works by highlighting the importance of the mother's sensitivity to her infant's cues and the role this plays in the development of the mother-infant attachment relationship (Bretherton, 1992). In the 1950s Ainsworth observed 28 infants in their natural environment in Uganda and from these observations developed a series of experiments to assess mother-infant attachment known as the "Strange Situation" procedure (SSP) (Ainsworth, 1985). The experiment is a 20-minute situation where conditions are simulated to assess the infant's exploratory behaviour (feeling safe to explore the immediate environment) versus their attachment behaviour (seeking closeness with mother) (Ainsworth, 1985). The mother-child dyad is placed in an unfamiliar room, a stranger is introduced into this environment and this is then followed by two brief separations from the mother and two reunions with her (Ainsworth, 1985).

Under these conditions it was observed that infants responded to their mothers in various ways. Ainsworth (1985) described these responses by different categories of attachment namely, *secure attachment* (where the infant feels secure in the presence of the mother and uses her as a secure base from which to explore the surrounding environment), and two subcategories of insecure attachment as *insecure-resistant/insecure-ambivalent* (where the infant feels anxious, angry and passive in the mother's presence) and *insecure-avoidant attachment* (the infant ignores and avoids mother once reunited after separation).

However, after reviewing over 200 cases Main and Solomon (1990) had difficulty classifying each of them into the traditional three attachment categories and introduced a fourth known as *disorganized attachment*. In this form of insecure attachment the infant displays disorganized behaviour in response to stress as the mother is both the cause of distress but also the only possible source of comfort (van Ijzendoorn et al., 1999). The infant's disorganized behaviour would present as indifference, proximity seeking, avoidance, dissociation and fear towards the mother (Main & Solomon). This disturbing behaviour is often the result of direct harm towards the child in the form of abuse, maltreatment or neglect of some kind (van Ijzendoorn et al., 1999). The role of the parent is crucial in the development of the attachment relationship and will be discussed in more detail below.

3.2.1 Attachment and parenting

Attachment research highlights the importance of parental attunement to their infant's emotional cues (Karen, 1994 as in Suchman et al., 2008). It is the quality of this attunement, responsiveness and sensitivity to the child's cues that fosters secure attachment and has a major influence on the

future development of the child (Suchman et al., 2008). When parents are able to appropriately respond to their child's needs the child is more likely to foster a sense of psychological well-being in later life (Sroufe et al., 1999). Similarly, when parents are inadequately attuned to their children the children are more likely to present with emotional and behavioural difficulties during childhood and adolescence (Suchman et al., 2013).

Research has shown that children adapt the expression of their emotional cues to the level of sensitivity and capacity of the caregiver to respond to these cues (Sroufe et al., 1999). When parents adequately and accurately attune to their children's needs these children are more likely to express their distress more directly towards the caregiver and develop an increased ability to self-regulate in times of distress. These children are said to be securely attached and use their caregiver as a secure base from which to explore the world. Inversely, when a caregiver is not sufficiently able to recognise and respond to their child's emotional cues these children tend to suppress these cues and generally do not display secure base behaviours. These children are more likely to develop behavioural problems and relationship difficulties later in life (Sroufe et al., 1999).

These maladaptive patterns of responsiveness are said to be a function of the caregiver's own unmet needs in the attachment relationship with their early caregiver. Moreover, when the caregiver has not had an experience of being soothed or cared for in times of distress themselves they may use certain psychological defences such as denial or distortion when faced with their child's distress to avoid painful memories of their own childhood (Suchman et al., 2013). In so doing, the mother then repeats the cycle by not meeting her child's needs similar to her experience with her own attachment figures. In this way the intergenerational transmission of unhealthy

attachment patterns is perpetuated (Grienenberger et al., 2005). Their experiences are laid down in memories and are termed psychological "representations". It is these representations that guide the mother's expectations of herself and her child's behaviour (Suchman et al., 2004). It is believed that a mother's interaction with her child will change when these representations change and her representations of herself and her child may become more accurate rather than a reflection of past experiences.

3.2.2 Reflective functioning

Following attachment research, Fonagy et al. (1991) developed the concept of reflective functioning (RF), which is defined as one's ability to recognise intentions and emotions underlying behaviour. RF is believed to be the mechanism by which a mother's representations of herself and her child influence attachment patterns in parent-child interaction (Slade et al., 2005). Mothers with inflexible and distorted representations have been found to be less accurate in the inference made regarding their children's emotional states (Slade, 2005) and are less sensitive in their interactions when caring for their child (Grienenberger et al., 2005). Mothers high in RF have the ability to reflect on their own mental states which allows them to experience distressing parenting situations without becoming overwhelmed or shutting down. This results in more sensitive parenting behaviour (Slade, 2005).

A parent's distortion or denial of painful affect may impair their capacity to think reflectively about their child's behaviour. In such instances, the parent may misattribute their child's behaviour to unrelated circumstances, experiences or attribute the behaviour to personality or other unrelated factors. Without the capacity to consider possible thoughts, wishes, feelings and intentions

underlying their child's behaviour they are unlikely to make sense of and appropriately respond to their child's emotional needs in a way that will restore emotion regulation to their child (Suchman et al., 2013).

For example, a mother may mistakenly understand her infant's distress about her leaving as their deliberate attempt to ruin her day causing her to feel annoyed, frustrated or even angry with her child. This lack of reflective capacity denies the child's anxiety and the mother is therefore unlikely to respond appropriately to her child's needs. A mother with adequate reflective capacity may rather understand her infant's distress as an expression of fear or anxiety about being separated from her. With this understanding she may then attempt to soothe her child by reassuring her that she will return shortly (Suchman et al., 2013). This example illustrates the importance of a mother's ability to think beyond her child's observable behaviour and to instead consider the intentionality underlying such behaviour.

A mother's ability to hold a representation of her child's feelings, desires and intentions in her own mind grants the child an opportunity to experience their internal world through that of their mother. Her representation of her child's internal states by reciprocal gesture, words or play is the core of sensitive caregiving and is key to the child developing their own capacity for reflective functioning of self and others (Slade, 2005).

RF specific to the role of the parent/mother is termed parental/maternal RF (Slade, 2005) and is further distinguished into two categories, namely self-focused RF and child-focused RF (Camoirano, 2017; Suchman et al., 2010). *Self-focused RF* refers to a parent's capacity to

understand the mental states underlying their own behaviour and how this impacts on their child; whereas *child-focused RF* is understood as the parent's ability to understand the mental states underlying the behaviour of the child and how this impacts on the parent (Suchman et al., 2010).

Both self- and child-focused RF are important skills for a parent to possess if they are to parent sensitively and effectively (Slade, 2005). However, findings in a study by Suchman et al. (2010) suggest that self-focused RF is more significantly associated with positive caregiving behaviour than child-focused RF amongst substance-abusing mothers. In other words, when a mother is more able to reflect on her own mental states in her role as a parent she is then more likely to provide her child with a sense of safety, engages more socially and is able to play with more affection (Suchman et al., 2010).

Research has indicated that maternal RF is associated with maternal mental representations of the care giving relationship, the expression of specific maternal behaviours while interacting with the child such as sensitivity or flexibility (Fonagy et al., 1996), and with the level of attachment security of the child (Grienenberger et al., 2005). In a study with mothers misusing substances by Pajulo et al. (2008) it was found that higher levels of maternal reflective functioning were associated with more sensitive interaction with the child. Inversely, low levels of maternal reflective functioning have been associated with poorer maternal behaviours such as insensitivity or inflexibility whilst interacting with their child (Grienenberger et al., 2005).

Slade et al. (2005) also found mothers who were themselves securely attached had higher maternal RF scores and their children were more likely to be securely attached. The opposite was also found

to be true where mothers with low maternal RF were more likely to have children with ambivalent-resistant or disorganized attachment patterns (Slade et al., 2005) which are important risk factors for the development of psychopathology in later life (Cassidy et al., 2013). Psychological representations of early caregivers are difficult to access and therefore difficult to change; however, current psychological representations, such as those formed in a relationship with one's child are more easily accessible and more responsive to change (Slade & Cohen, 1996).

3.2.3 Maternal RF in mothers misusing substances

Generally, researchers report mothers misusing substances as having lower levels of maternal reflective functioning (Suchman et al, 2008; Pajulo et al., 2008; Suchman et al., 2016; Suchman et al., 2017). Pajulo et al. (2012) found pre- and postnatal maternal reflective functioning to be low in their sample of 34 mothers misusing substances living in three residential programme units. The rates of substance relapse were higher amongst mothers with lower RF and their children were more likely to be placed in foster care (Pajulo et al., 2012).

In a study exploring the use of language and its association with RF, substance use and parenting behaviour it was found that mothers using more positive feeling words had lower RF scores (Borelli et al., 2012). The authors argue that mothers were using positive feeling words to describe negative mothering experiences which indicated avoidance of negative emotions and was therefore a display of poor reflective ability. The more regular use of positive feeling words was also associated with more recent substance use and lower sensitivity to child cues (Borelli et al., 2012).

Handeland et al. (2019) examined the degree of *certain reflective functioning (RFQc)* and *uncertain reflective functioning (RFQu)* in a sample of 43 mothers with substance use disorders and compared these with maternal reflective functioning (RF) as measured by the Parent Development Interview (PDI). In their study they found mothers had high levels of uncertain RF (characterised by a concrete and inflexible way of mentalizing) which was associated with low maternal RF on the PDI (Handeland et al., 2019).

3.3.4 RF and caregiving sensitivity amongst mothers misusing substances

Mothers with substance use disorders have been found to have an increased risk for maladaptive or dysfunctional parenting behaviour and therefore often face more challenges than mothers without a substance abuse history (Barth, 2006; Mayes & Truman, 2002). What further complicates the mother-child interaction is the child's poorer capacity to regulate their emotional state as a result of *in utero* substance exposure (Beeghly & Tronick, 1994). These combined factors on the part of both mother and child lead to a repetitive negative cycle and often result in poorer caregiving sensitivity and maternal withdrawal which increases the risk of child neglect and abuse (Kalland & Sinkkonen, 2001).

When observing mothers with substance use disorders and their children it was found that these mothers often have poorer attunement (Burns et al., 1997) and poorer caregiving sensitivity. More specifically, these mothers struggle to accurately perceive and sensitively respond to their child's emotional cues (Mayes & Truman, 2002). Research has indicated that these mothers are less emotionally engaged, less resourceful, experience less pleasure in their interaction and are generally more intrusive (Mayes & Truman, 2002; Pajulo et al., 2001). Mother-baby pairs have

also shown less dyadic interaction and what little interaction there is has been shown to lack enthusiasm and mutual enjoyment with more conflict and less mutual arousal (Burns et al., 1997; Eiden, 2001).

Maternal substance use is further associated with poor maternal infant attachment and limited parenting effectiveness (Burns et al., 1997; Kettinger et al., 2000). Moreover, these mothers often have an overall sense of loss of control (Haight et al., 2009) and an inability to manage their children's behaviour (Baker & Carson, 1999).

However, not all mothers with substance use disorders are at risk for poor parenting styles. Some mothers who abuse illicit drugs recognize that their substance abuse presents risks to their children and express concern for the well-being of their children. These mothers attempt to protect their young children from risks associated with adult substance abuse (Kearney et al., 1994). A major concern of most of these mothers is that their children would go on to abuse substances themselves (Nurco et al., 1998 as in Haight, Carter-Black & Sheridan, 2009).

3.3 Attachment research

3.3.1 Attachment and parenting research in South Africa

Maternal mental health remains a challenge in South Africa. Rollins et al. (2007) report that in their sample of women, mainly living in rural KwaZulu Natal, as many as 30% of women do not access antenatal care. Furthermore, low socio-economic status has been linked to less maternal involvement and less positive parent-child interaction in South African studies (Lachman et al., 2014). To the author's knowledge, no studies have investigated the link between trauma,

attachment and caregiving sensitivity amongst mothers misusing substances in this context. However, some research has been conducted with mother-child cohorts amongst various population groups in this setting.

Tomlinson, Swartz and Landman (2003) reported on a successful intervention in Hanover Park (an impoverished community on the Cape Flats) which focused on supporting the parent-child relationship, promoting the health of the child, and encouraging a link to health care services. Rotheram-Borus et al. (2011) developed a home-visiting intervention programme (the *Philani Plus Intervention Programme*) to promote maternal and infant nutrition, address HIV as well as alcohol abuse and mental health in mothers in 24 neighbouring townships in Cape Town.

Cooper et al. (2009) conducted a home-based mother-infant intervention to improve attachment between mother and child in Khayelitsha (a poverty-stricken settlement on the outskirts of Cape Town). They found that mothers in the intervention group were significantly more sensitive in their interactions with their infants and less intrusive than mothers in the control group. Tomlinson et al. (2005) conducted a follow up study in the same area and investigated attachment patterns in infants at 2 and 18 month follow up post-partum. They found that at 18 months the majority of infants were securely attached (61.9%), 4.1% developed an avoidant attachment, 8.2% were resistant and 25.7% developed a disorganized attachment. Maternal factors mainly contributing to this were maternal intrusiveness, maternal remoteness and early maternal depression (Tomlinson et al., 2005).

The concept of reflective functioning has been given some attention in South African studies as well. Frost (2012) outlines results from one of the intervention programmes at *The Ububele Educational and Psychotherapy Trust*, a non-profit organization that focuses on the mental health of parents and children from pregnancy through to seven years of age. The *Ububele Baby Mat Project* was conducted in three primary health clinics in the township of Alexandra in Johannesburg (Frost, 2012). The aim of this project was to be supportive of the mother-infant relationship and help mothers mentalize the problems with which their babies present (shifting from a concrete to a more symbolic understanding of their child's difficulties). An additional aim was to identify at-risk mothers and babies (e.g., insecure attachment between mother and child, post-natal depression, etc.), and to increase the caregiver's awareness that their baby has a self and has the capacity to think and feel (Frost, 2012). Preliminary findings yielded positive results showing that mothers perceived the intervention as valuable with an increased number of mothers now accessing services (Bromley, 2010).

Another intervention study from *The Ububele Educational and Psychotherapy Trust* has similarly yielded positive results (Bain et al., 2017). In the *Ububele Mother-Baby Home Visiting Programme*, local women were trained to offer a 14-visit intervention, which aimed to support mothers and improve their reflective functioning (Bain et al., 2017). Findings indicated a significant increase in the mothers' levels of perceived support, levels of knowledge regarding the relational needs of their infants and an increase in maternal reflective functioning. A key finding in the study was the importance of the supportive relationship formed between home visitors and mothers and the crucial role it played in the success of the programme (Bain et al., 2017).

3.3.2 Attachment research in Africa

Berg (2003) highlights that professionals working the field of infant mental health in traditional communities in Africa are faced with many challenges. She states that those working in this field have to remain aware and be genuinely respectful of differences between the various cultural groups in this setting (Berg, 2003; Berg et al., 2018). A review of infant mental health publications between 1996 and 2001 by Tomlinson and Swartz (2003) revealed that 94% of articles published during this period were based on research in Europe (16%) or North America (78%). However, 90% of the global infant population live in LMIC (low to middle income countries) and the conditions of both infants and parents living in HIC (high income countries) differ vastly from those living elsewhere. Poverty, societal instability and multiple other psychosocial stressors impact greatly on the parental experience of those living in LMIC and are important factors to consider when applying knowledge generated in HIC to those living in these impoverished settings (Tomlinson & Swartz, 2003).

Findings from the first attachment study in Zambia was published as recently as 2016. In this study Mooya et al. (2016) used the Strange Situation Procedure (SSP) to observe the attachment relationship between mother and infant, infant and sibling and assessed the association between these relationships. In their sample of 88 dyads the SSP classification distribution between mother and infant was 46% secure, 20% avoidant, 5% resistant and 29% disorganized (Mooya et al., 2016). The infant-sibling distribution was 35% secure, 23% avoidant, 9% resistant and 33% disorganized (Mooya et al., 2016). However, there was no association between infant-mother and infant-sibling attachment (Mooya et al., 2016).

An attachment study with 42 mother-child dyads was conducted amongst the Dogon tribe in Mali, West Africa. In their study, True, Pisani and Oumar (2001) explored three hypotheses: (1) that the quality of communication between mother and infant contributes towards secure attachment, (2) mothers of infants who are securely attached respond more sensitively to their infants than those of infants who are insecurely attached, (3) and that disorganized attachment is associated with maternal frightened or frightening behaviour. The SSP distribution in this sample was 67% secure, 0% avoidant, 8% resistant and 25% disorganized (True et al., 2001). A significant association was found between infant attachment security and mother-infant communication as hypothesised (True et al., 2001). A link was found between infant attachment security and maternal sensitivity but this association was not significant (True et al., 2001).

The authors' third hypothesis was also found to be true as a significant link was found between disorganized attachment and maternal frightened or frightening behaviours (True et al., 2001). The complete absence of avoidant attachment styles in this sample was of particular interest. The authors proposed that none of the infants presented with avoidant attachment because the Dogon maternal caregiving practices are contrary to those parenting practices in Western samples which are typically associated with avoidant attachment (True et al., 2001). These typical practices include rejection of attachment seeking behaviour, lack of close physical contact and lack of tender holding and intrusion (True et al., 2001). The Dogon mothering practices involve constant close proximity to their infant, nursing when their infant shows signs of hunger or distress and prompt responsiveness (True et al., 2001). They further argue that these practices would therefore make it almost impossible for a Dogon infant to develop an avoidant attachment style (True et al., 2001).

3.4 Attachment as a moderator and mediator

Attachment has been found to moderate a variety of individual risk factors. Fowler et al. (2013) found that adult attachment partially moderated the relationship between interpersonal trauma and depression severity among psychiatric inpatients. According to Roche et al. (1999) attachment moderates the relationship between child sexual abuse and psychological adjustment. Tasca et al. (2013) explored the relationship between attachment, childhood trauma and eating disorders. They found that childhood trauma had a direct effect on eating disorder symptoms. Also, attachment anxiety and avoidance each equally mediated the childhood maltreatment to eating disorder psychopathology relationship. Gergely et al. (2000 as in Slade, 2005) found reflective functioning to moderate the effects of early trauma and prevent the development of psychopathology.

Borelli et al. (2016) explored attachment and parental RF in parents of older school going children, a rare demographic in parental RF related research. Their results suggest that parental RF with older children comprises both self- and child-focused components and that child-focused RF is associated with child attachment security but not with parent attachment. Child-focused RF was found to indirectly mediate the association between parent attachment avoidance and child attachment security which is consistent with previous research (Borelli et al., 2016).

Grienenberger et al. (2005) conducted a study with 45 mother-infant dyads exploring the link between mental representations and maternal behaviour within the intergenerational transmission of attachment. They found that mothers with higher levels of RF were less likely to present with significant disruptions in affective communication when interacting with their infant in the SSP as was expected (Grienenberger et al., 2005). Therefore, RF was seen to serve as a buffer against

affect dysregulation when infants were distressed. They also found a significant correlation between disrupted affective communication and infant attachment. They further state that while RF plays an important role in the intergenerational transmission of attachment its impact is mediated by maternal behaviour, specifically the mother's ability to regulate her infant's distress without causing additional fright or disruption to the infant (Grienenberger et al., 2005).

A study conducted by Alvarez-Monjarás et al. (2019) examined maternal RF and mental representations of caregiving and maternal sensitivity amongst mothers misusing substances. They found that the quality of mental representations of maternal experience of caregiving in their sample was significantly positively correlated with maternal sensitivity (Alvarez-Monjarás et al., 2019). This means that mothers with more overall coherence in their mental representations of their caregiving experiences often display more caregiving sensitivity. They also found a significant and positive correlation between the quality of mental representations and maternal RF (Alvarez-Monjarás et al., 2019). This is similar to previous findings that indicate that mothers with more coherent mental representations of caregiving are more attuned to their child's mental state. Other results from their sample further suggest that the level of maternal RF is significantly and positively correlated with the level of maternal sensitivity. This demonstrates that mothers who are more emotionally attuned to their child's mental states display more sensitive caregiving behaviours (Alvarez-Monjarás et al., 2019).

Their fourth and final hypothesis was also confirmed with results suggesting that maternal RF mediates the relationship between the quality of mental representations of caregiving experiences and maternal sensitivity (Alvarez-Monjarás et al., 2019). The authors argue that these findings

suggest that maternal RF has a greater impact than the quality of mental representations of caregiving on maternal sensitivity. They further argue that these findings support theories that mothers who have more secure attachment relationships are better able to look beyond their attachment needs, which are often activated when engaging with their children, and interact in more reflective ways with their children. This indicates that mothers misusing substances with more coherent and balanced mental representations of caregiving are better able to mentalize their children (Alvarez-Monjarás et al., 2019).

3.5 Associations between attachment and PTSD

Attachment has further been found to moderate the effects of PTSD on mother-child relations. Schechter et al. (2005) conducted a study with a clinical sample of violence-exposed mothers. In their study, they explored the mothers' mental representations of their child and her relationship with her child (Schechter et al., 2005). They found that more severe PTSD, irrespective of level of reflective functioning, was significantly associated with distorted mental representations of the child (Schechter et al., 2005). Higher levels of reflective functioning, irrespective of PTSD severity, were significantly associated with balanced maternal mental representations but the level of maternal reflective functioning and severity of PTSD were not significantly correlated (Schechter et al., 2005). These findings support the view that maternal reflective functioning serves as a possible resilience factor and supports affect regulation in traumatised mothers (Schechter et al., 2005).

A further study by Schechter et al. (2006) explored the use of a brief infant-parent psychotherapy intervention, video feedback, controlled exposure to child distress and stimulation of parental

reflective functioning amongst 32 interpersonal violence-exposed mothers with PTSD. The authors found that after a single session of the CAVES (Clinician Assisted Video feedback Exposure Session) mothers had significantly less negative attributions towards their children (Schechter et al., 2006). They also found that higher levels of RF at the time of initial assessment was associated with higher levels of reduction of negativity (Schechter et al., 2006). The authors proposed that RF might be a resilience factor at this stage and may have support the mother's ability to tolerate and integrate the negative, trauma-related emotions evoked by routine parenting stressors such as temper tantrums in their young children (Schechter et al., 2006).

3.6 Maternal PTSD, attachment and parenting

As discussed in the previous chapter, PTSD is more prevalent amongst women than men (Olff, 2017). Maternal PTSD has been found to have a wide range of negative outcomes for both mother and child including an adverse impact on attachment which leads to poorer parenting practices (Schechter et al., 2005). As noted previously, Nöthling et al. (2014) conducted a longitudinal study exploring maternal PTSD, depression and alcohol dependence in mother-child dyads infected with HIV. They found that maternal PTSD had the greatest descriptive power for child behaviour problems but did not significantly predict child outcomes.

Torrisi et al. (2018) explored the relationship between maternal interpersonal violence-related PTSD (IPV-PTSD) and delayed language development amongst toddlers. They collected data from 61 mother-toddler cohorts and the study assessed language development and maternal caregiving behaviour specifically (Torrisi et al., 2018). The authors found that maternal sensitivity was significantly and positively correlated with language development while there was a

significant negative correlation between controlling behaviour and language development (Torrisi et al., 2018). Their findings were therefore consistent with the current literature in that IPV-PTSD severity was not associated with child language delays. However, the quality of maternal interactive behaviour was significantly associated with child language development and with maternal IPV-PTSD severity (Torrisi et al., 2018).

Schechter et al. (2008) conducted a study with 41 mother-infant dyads that explored the relationship between PTSD, RF, mental representations of the child and atypical maternal behaviour. They aimed to determine whether maternal violence-related PTSD, RF and/or quality of mental representations of her child predicts the quality of maternal behaviour (Schechter et al., 2008). In their study they found that mothers with distorted mental representations of their child presented with significantly higher levels of atypical behaviour than mothers with balanced mental representations as was hypothesised. They argue that this finding suggests that a mother's mental representations of her child may have a regulatory effect on her interactive behaviour with her child (Schechter et al., 2008).

The distorted mental representations noted here involved mainly hostile, intrusive, frightening or frightened maternal behaviours (Schechter et al., 2008). They further argue that the characteristics of the mothers in their sample are consistent with the theory of the intergenerational transmission of interpersonal trauma as mothers are exposing their children to atypical maternal behaviour as a result of trauma to which they themselves had been exposed (Schechter et al., 2008). Arguably these children may then go on to develop distorted mental representations of their own caregiving relationship in which their interpersonal violence-exposed mother has demonstrated atypical

maternal behaviours. However, this is only hypothesised as the child's mental representations were not formally assessed in the study (Schechter et al., 2008).

Schechter et al. (2008) state that there was no significant relationship between maternal RF and atypical maternal behaviour in their sample of referred mothers which differs from other research findings with non-referred samples (Grienenberger et al., 2005). The reasoning proposed for this was that maternal RF is not directly associated with the quality of maternal behaviour in clinical samples presenting with significant levels of psychopathology (Schechter et al., 2008). They found that the more severe the mother's PTSD symptoms the more distant she was both psychically and psychologically from her child. They hypothesise that this may be due to the mother needing to protect herself from emotional dysregulation triggered by her child's distress, most notably during periods of separation and reunion (with mothers appearing withdrawn and inhibited upon reunion with their child) (Schechter et al., 2008).

However, although maternal PTSD and RF impacted mental representations no significant relationships were found between PTSD, RF and overall atypical caregiving behaviour (Schechter et al., 2008). There was also no direct correlation between the number of maternal PTSD symptoms and atypical maternal behaviour (Schechter et al., 2008). They attribute these findings in part to a limitation of power in the study, the use of an abbreviated version of the Working Model of the Child Interview (WMCI, used to measure mental representations), the use of additional probes to the WMCI to assess RF rather than the PDI itself as well as the lack of a non-PTSD control group (Schechter et al., 2008).

3.7 Conclusion

The above literature review presents the significance of attachment theory in reference to the caregiver-infant relationship. The evolution of the theory and its wide application in the field of psychology since its emergence was also discussed. Attachment research demonstrates the central role and importance of parental attunement to the infant's cues in healthy caregiving behaviour. The implications for poor parental attunement are far reaching and include a higher likelihood of the development of behavioural problems and difficulty in interpersonal relationships later in life (Sroufe et al., 1999).

Reflective functioning is a concept emerging from the rich scientific exploration of attachment and is defined as the ability to recognise the intentions and emotions underlying behaviour. The mother misusing substances has generally been found to have lower levels of maternal reflective functioning which often results in poorer parental attunement negatively impacting on the mother-infant relationship. Attachment has also been found to serve as a moderator of different types of pathologies, meaning that it decreases the negative impact adverse events or circumstances would typically have on an individual and reduces the likelihood and/or severity of psychopathology. Of particular interest in the current study is that RF has also been found to moderate the negative effects of PTSD on the quality of the mother-infant relationship.

The following chapter will outline the methodology utilised in this study.

CHAPTER 4

METHODOLOGY

4.1 Study Design

The current study is a sub-study of the Safe Passage Study (SPS). The SPS was initiated by the Prenatal Alcohol in SIDS (sudden infant death syndrome) and Stillbirth (PASS) Network as a community-linked prospective study to investigate the role of prenatal alcohol exposure in the risk for SIDS and stillbirth, as well as other adverse pregnancy outcomes including Foetal Alcohol Spectrum Disorder (www.safepassagestudy.org). The PASS Network was formed in 2003 through a cooperative granting mechanism jointly supported by two NIH Institutes – Eunice Kenney Shriver National Institute for Child Health and Development (NICHD) and the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The study involved recruitment and analysis of a prospective cohort of 12 000 maternal/foetal pairs (7 000 in the Western Cape, South Africa and 5000 in the Northern Plains in the USA) in a longitudinal and multidisciplinary study design. The current study was limited to the South African part of the study.

This study was an analytical observational study based on a quantitative cross-sectional research design within a positivist research paradigm. All participants had a history of trauma and substance use but those who presented with PTSD (as measured by the CAPS-5) were assigned to the exposed group. Mothers who, according to the CAPS-5 assessment, did not meet full DSM-5 diagnostic criteria for PTSD were assigned to the non-exposed group. Thereby, controlling for the effects of PTSD on outcome variables in an attempt to assess associations between variables. However, it is important to note that mothers in the non-exposed group may have presented with

a number of PTSD symptoms despite not meeting full diagnostic criteria for PTSD. Therefore the non-exposed group presented with sub-threshold PTSD. This distinction between clinically significant PTSD and sub-threshold PTSD is discussed in more detail at a later stage.

4.2 Study Sample

Participants in the current study were recruited from the SPS sample of the approximately 7000 mother/child cohorts included in the Western Cape division of the study. The SPS team recruited these participants from the prenatal clinic at Belhar and Bishop Lavis Midwife Obstetrical Unit (MOU). Research material collected on these mothers included interviews on alcohol, tobacco and drug exposure (e.g., marijuana, amphetamines, methamphetamines), nutrition, demographics, pregnancy history, psychological measures (e.g., depression, anxiety, PTSD, resilience), related services and infant care practices.

The primary investigator met with the PASS Network Steering Committee and the Steering Committee of the Safe Passage Study and made a formal application to the committee to access their data set. The SPS team was requested to send data of only those mothers who reported a history of substance use. This SPS sub-sample data set included over 500 participants. Only the contact details and date of birth of both mother and child was given in the data set provided.

Mothers were eligible to participate in the study if they (a) were participants in the Safe Passage Study, (b) gave consent to be contacted for future research, (c) had a history of substance use, (d) had a history of trauma exposure, (e) were the primary caregiver of their child aged 2 months to 9 years, (f) had an acceptable level of verbal fluency in English or Afrikaans. The current study was

limited to English and Afrikaans speakers only because the vast majority of participants in the umbrella study, the Safe Passage Study, had either English or Afrikaans as their first language. The specific age range was based on the fact that the assessment of mother-child interaction using the Coding Interactive Behaviour (CIB) starts at the age of 2 months and continues with child of school-going age.

Women were excluded if they (a) were not participants in the Safe Passage Study, (b) were unable to communicate fluently in English or Afrikaans, (c) were acutely psychotic, (d) were actively suicidal or homicidal, (e) presented with poorly managed co-morbid psychiatric illness, (f) presented with gross cognitive or intellectual impairment and, (f) if their child had gross developmental impairment. None of the participants or their children presented with intellectual disability and none of the mothers were illiterate. Mothers and/or children who presented with psychopathology were referred to their nearest appropriate mental health service provider.

A sample size of approximately 62 mothers was initially calculated as a feasible size. This number was calculated a priori before recruitment began and was done by a consultant statistician using PASS software achieving 90% statistical power (Hahn & Meeker, 1991). Since the information on which to base the assumptions for sample size calculation was very sparse, once the required sample size was reached, the consultant statistician recommended that an interim data analysis be undertaken to assess whether the assumptions made were accurate. This interim analysis was done in May 2019 on a total of 70 participants. These calculations revealed that the originally estimated sample size of 62 would not yield adequate statistical power. The sample size required for this was estimated to be over 200 participants.

There were many factors that would have made the pursuit of such a large sample size impractical. The initial recruitment process was challenging for many reasons. In discussion with the SPS team it was advised that research not be conducted after work hours or over weekends as according to their experience these were times when mothers were most unavailable and/or unwilling to participate (often intoxicated or recovering from intoxication, or busy with other household duties). For this reason, data collection was limited to work hours only. However, the primary investigator worked as a full time clinician and was only allowed to do research work for approximately 3 hours per week. This meant that she was only able to see a total of 2 participants per week as the CAPS-5 alone was a very time-consuming assessment taking on average 90 to 120 minutes to complete. Due to these limitations, it took approximately 4 years to recruit the 70 participants assessed by this point. Upon consultation, it was therefore decided that data collection would continue until the end of June 2019. The total sample in the current study consisted of 72 mother/child dyads.

4.3 Research procedure

All eligible mothers were initially contacted telephonically by the primary investigator and a research assistant. However, this proved to be quite challenging as mothers' contact numbers had changed by the time of contact. Therefore, towards the end of the study, a research assistant drove out to participants to arrange an initial assessment appointment. Assessments consisted of 2 sessions of approximately 2 hours each and were conducted on 2 different days to mitigate the effects of fatigue on mother and child. The first assessment session was a screening session to determine eligibility, explain the nature of the study, obtain informed consent and collect basic

demographic information (including an assessment of past and/or current substance use). This was then followed by an assessment of trauma exposure with the use of the Life Events Checklist (LEC) and an assessment of PTSD using the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5). This initial assessment was conducted by a research assistant as the primary investigator needed to remain blind to this part of the assessment.

The second assessment session was conducted by the primary investigator and comprised of the shortened version of the Parental Development Interview (PDI-S) which was used to determine the level of parental reflective functioning. This was then followed by an interactive play session between mother and child, termed the curiosity box paradigm developed by Mayes et al (1993). The curiosity box paradigm was designed to elicit curiosity and collaboration between mother and child and in the current study each dyad was asked to explore a box with a pre-selected collection of 12 toys in 2 separate 5-minute sessions. The first session made use of a set of familiar toys and was meant to create a measure of comfort with the research exercise. The second session involved unfamiliar toys particularly selected to create uncertainty in the child creating an opportunity to observe how the dyad manages under these conditions. Each assessment session was video and /or audio recorded with the consent of the mothers for purposes of scoring and coding of the assessment measures. To avoid researcher effect, the play sessions were video-recorded in a one-way mirror observation room at Stikland Hospital. The researcher was therefore able to observe the interaction without creating unnecessary anxiety to mother and child by being physically present in the room.

Mothers were given a choice to be interviewed in either English or Afrikaans. They were compensated R50 per assessment session and were offered refreshments during breaks. All assessments and interviews were conducted at Stikland Hospital, Bellville, South Africa. Transport arrangements were made prior to assessment sessions for mothers and/or their children to be collected from home and transported to the research site. They were also transported home after the session was complete to minimise inconvenience for mother and child.

4.3.1 Research Instruments

All instruments were available in both English and Afrikaans. Instruments were conducted in English or Afrikaans depending on participant preference. All instruments were originally in English and were translated into Afrikaans for the purpose of the study. The translation from English to Afrikaans was done by an experienced translator at the Language Centre at Stellenbosch University. It was important for instruments to be translated as most of the participants were Afrikaans speaking.

4.3.1.1 Demographics Questionnaire

A demographics questionnaire was included to obtain relevant information of the mother, child and child's father. Information gathered included date of birth, relationship status, current living situation, level of education and employment, prenatal care, delivery information and substance use history before, during and after pregnancy up to and including current substance use.

4.3.1.2 Life Events Checklist (LEC)

Trauma exposure was assessed using the Life Events Checklist (LEC) which is a list of potentially traumatic events (PTEs). The LEC was developed concurrently with the CAPS and was designed to be administered prior to the CAPS to screen for any PTEs participants might have experienced which could then be more fully explored in the CAPS interview (Gray et al., 2004). It consists of 16 closed-ended questions that assess the occurrence of 16 different categories of traumatic events including questions about natural disasters, fires, transportation accidents, serious accidents, exposure to toxic substances, physical assaults, sexual assaults, other unwanted sexual experiences, captivity, combat, life-threatening illness, human suffering, sudden violent death, other types of death, causing harm to someone else and other very stressful events. The LEC ends with a single open-ended question regarding "any other stressful event or experience", which may not qualify as a 'criterion A' event. The LEC takes approximately 5-10 minutes to administer.

Participants have 5 response options: 1) happened to me 2) witnessed it 3) heard about it 4) learned about it 5) doesn't apply. The LEC has been used in many South African studies and has been found to be reliable. In a study by Gray et al. (2004) the LEC revealed good convergence with an established measure of trauma history, namely the Traumatic Life Events Questionnaire. The mean kappa coefficients for all items on the LEC was .61, and the retest correlation was $r = .82$, $p < .001$ (Gray et al., 2004).

4.3.1.3 Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)

The CAPS-5 was used to assess PTSD symptoms. It is a 30-item structured interview used to diagnose PTSD. It is considered the gold standard of PTSD assessment as it explores each PTSD

symptom as outlined in the DSM-5 in great detail and takes approximately 60-120 minutes to administer.

In addition, the CAPS has been extensively validated and widely used as a structured diagnostic interview for PTSD (Weathers et al., 2018). Weathers et al. (2018) present results of an initial psychometric evaluation of the CAPS-5 in 2 samples of military veterans (Ns = 165 and 207). The CAPS-5 diagnosis demonstrated strong interrater reliability (κ = .78 to 1.00). The CAPS-5 total severity score demonstrated high internal consistency (α = .88) and interrater reliability (ICC = .91) as well as good test–retest reliability (ICC = .78). Overall, Weathers et al. (2018) found that the CAPS-5 is a psychometrically sound measure of DSM–5 PTSD diagnosis and symptom severity. The CAPS has also been previously been used in local research and has been found to be a reliable measure of PTSD (Martenyi et al., 2002).

The CAPS-5 provides different means of assessing a final PTSD score depending on the scoring rule used. According to the CAPS-5 participants may be assessed as having PTSD based on 1) the number of total symptoms they present with (ranging from 1 to 20) or 2) the severity of these symptoms (ranging from 1-4 per symptom). These symptoms are recorded both for the past month and the worst month where the worst month is defined as the month in which the participant experienced the worst symptoms which may have been many months or years ago. The worst month may also be concurrently the past month. Both these options present as continuous variables as they have a wide range of numerical possibilities.

Based on statistical analyses, the number of PTSD symptoms reported in the past month instead of in the worst month were proven to be a more reliable indication of symptomatology. This may be due to factors such as participant recall of symptoms experienced long ago versus those experienced in the past month (except in rare cases where the past month was also reportedly the worst month). The total number of symptoms reported as well as the severity of the symptoms had a high correlation with the dichotomous categorization of PTSD versus No PTSD groups (which is the third scoring option). This means that participants who reported a higher number of symptoms with greater severity of symptoms were more likely to meet strict diagnostic criteria for PTSD (i.e., criterion A must be met, one symptom from criterion B, one symptom from criterion C, etc.). This is considered to be the gold standard of PTSD diagnosis where all diagnostic criteria as outlined in the DSM-V are met.

A ROC curve analysis of the gold standard of PTSD was used to determine the relationship between PTSD dichotomous gold standard assessment versus the past month severity and symptoms (Figure 1).

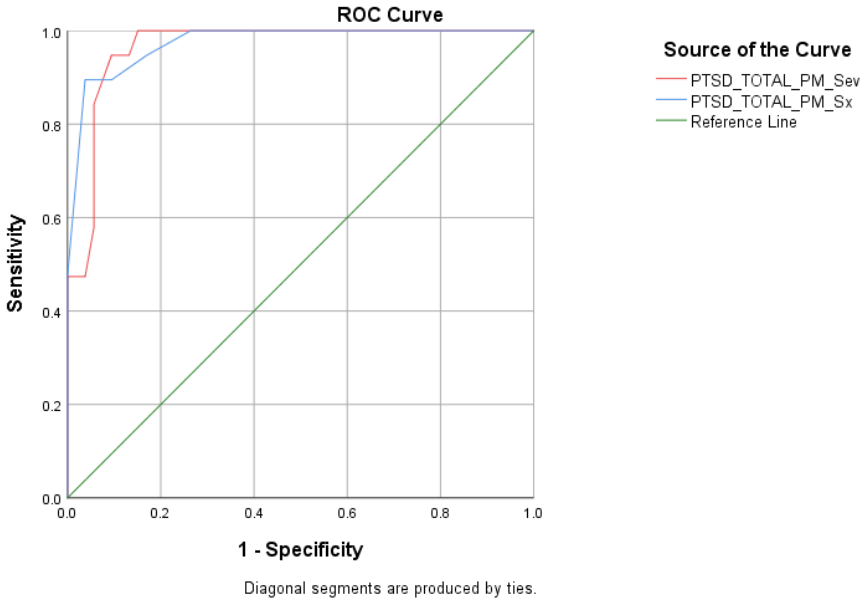

Figure 1 ROC curve analysis of PTSD gold standard vs PTSD past month severity and symptoms

The ROC curve analysis demonstrates that the area under the curve is very high at 0.965 and 0.974 with very significant p values (<0.001; Table 1). This shows that past month severity and past month symptoms were both good predictors of the gold standard. For this reason, it was decided to use the gold standard definition of PTSD. Based on this strict dichotomous categorization (PTSD diagnosis versus No PTSD diagnosis regardless of the total number and severity of symptoms), the number of participants in the current sample presenting without a diagnosis of PTSD is 53 (n=53) and those presenting with a PTSD diagnosis is 19 (n=19).

Table 1 Area under the ROC curve

Test Variable(s)	Result	Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
					Lower Bound	Upper Bound
PTSD Past month severity		.965	.019	<.001	.927	1.000
PTSD Past month symptoms		.974	.016	<.001	.942	1.000

a. Under the nonparametric assumption
b. Null hypothesis: true area = 0.5

The CAPS was designed to be administered by clinicians and clinical researchers, but can also be administered by appropriately trained paraprofessionals. The primary investigator trained research assistants to administer both the LEC and CAPS-5 assessment to participants. This was a requirement in the study as the primary investigator had to remain blind to the details related to the trauma exposure and PTSD symptoms experienced by the participant.

4.3.1.4 The Revised Parent Development Interview – Shortened Version (PDI-S)

To assess parental reflective functioning, the revised, shortened version of the Parent Development Interview (PDI-S) was used (Slade et al., 2012). The PDI-S is a 29-item, semi-structured, autobiographical memory-based interview. It was developed as a direct measure of parental representations of the child and the mother's developing relationship with the child. It is coded to yield an assessment of the parental reflective function, which can be understood as the mother's capacity to take a psychological perspective on her child. The interview is scored on a continuum between -1, which denotes "bizarre" or negative reflective function and 9, which denotes full reflective functioning (Slade, 2005). The PDI has previously been used in local research and has been found to be a reliable measure of reflective functioning in this setting (Bain et al., 2017; Suchman et al., 2019).

A score of ≤3 indicates "pre-mentalizing" or a poor awareness of mental states beyond imprecise references to mother and/or child underlying thoughts. A score of 5 indicates adequate mentalizing where the mother is able to demonstrate a capacity to understand mental states and how they influence observable behaviour and relational interactions. Scores higher than 5 are an indication of more nuanced understanding of mental states. The interview is designed to include questions that seek to elicit the mother's mental state (e.g., "Tell me about a time when you felt really angry as a parent"), while others explore the child's mental states (e.g., "What effect do these feelings (i.e., mother's anger) have on your child?"). There are also questions of a more general nature which are termed *permit* questions. These questions are designed to permit rather than *demand* mentalizing from the mother (Slade, 2005).

The interviews took approximately 30-60 minutes to administer and were audio-recorded for transcription and coding purposes. Each interview was transcribed and coded by reliable PDI coders who were blind to certain details such as the date of the interview and other relevant information about the mother/child pair. Both coders were trained by Michelle Sleed, an accredited PDI trainer and supervisor from the Anna Freud National Centre for Children and Families in London. They completed the required Reliability Test successfully and are therefore both accredited to code the PDI for clinical and/or research purposes.

4.3.1.5 Coding Interactive Behaviour (CIB)

Caregiving sensitivity was assessed using the Coding Interactive Behaviour system (CIB). The CIB is a global system for rating mother-child interaction, which has been used across a variety of cultures. It has good psychometric properties, has been validated in studies of normative and high-risk children and has demonstrated sensitivity to age, cultural background and social-emotional risk (Feldman & Eidelman, 2009; Feldman & Masalha, 2010). The CIB has been used by local clinicians/researchers and was found to be a reliable measure of mother-child interaction and caregiver sensitivity (Suchman et al., 2019). The system consists of 42 adult, child and dyadic codes which are rated on a scale of 1 (low) to 5 (high) (Feldman, 2010).

For each code, the coder/observer assigns a single score after viewing the entire interaction, and several viewings are required to complete the coding (Feldman & Masalha, 2010).

The coding system comprises of:

- four composite *Maternal Scales* (an 11-item Sensitivity Scale, a 7-item Intrusiveness Scale, a 3-item Limit Setting Scale, and a 4-item Negative Emotionality Scale);
- three composite *Child Scales* (an 8-item Involvement Scale, a 4-item Withdrawal Scale, and a 3-item Compliance Scale) and
- two composite *Dyadic Scales* (a 3-item Reciprocity Sale and a 2-item Negative State Scale).

The CIB was used to assess the video-recorded mother-child interaction session using the curiosity box paradigm. These recorded sessions were coded by 2 local coders who were trained by a member of a research team at the Yale Child Study Center. The trainer was herself trained by the CIB author, R. Feldman, and trained the local coders with the CIB author's permission. The 2 coders each achieved 85% item reliability which is the reliability threshold proposed by the measure author.

4.4 Data analysis

All data were analysed using the IBM Statistical Package for the Social Sciences (SPSS) for Windows (version 25). A 95% confidence interval and a p value of <0.05 were used to interpret statistical significance.

Relevant demographic information was presented to provide context to the overall study including details regarding the participant, the participant's child and child's father. Numerical data was

summarised as means (with standard deviation), while categorical variables were summarised using frequencies and percentages.

All participants had a history of trauma (as assessed by the Life Events Checklist) but those presenting with PTSD were assigned to the exposed group and those without PTSD were assigned to the non-exposed group. The criteria for the 2 groups are described above. To compare characteristics between the groups, the means and standard deviations were reported by group in the case of continuous normally distributed variables, while participant numbers and percentages were reported in the case of categorical variables. Independent samples t-tests were used to test hypotheses of group differences for continuous variables. In the case of categorical variables, if the assumptions for the chi square test were met then the chi square asymptotic p values were used. If the assumptions were not met then the 2 sided Fisher's exact was used. The same analyses were done for differences between exposed and non-exposed groups with regards to substance use, pregnancy and clinic data and the LEC. Scatter plots and graphs were included where indicated.

The independent samples t-test was used to compare RF scores between the exposed and non-exposed group. This entailed a comparison of means and standard deviations of RF scores between groups. Subsequently RF was binarised into two groups representing poor (≤4) and adequate (≥5) RF. This was cross-tabulated against exposed and non-exposed groups and the percentages were compared using a chi square test.

Independent samples t-tests were used to assess the difference in CIB scores between the exposed and non-exposed group. These comparisons included the difference in means and standard

deviations between groups according to the 9 scale scores and the overall total CIB score. Cohen's *d* was calculated as effect sizes.

Spearman's correlation coefficients (rho) were used to compare levels of RF and CIB scores in the sample overall and Cohen's guidelines for effect size cut offs were used to determine small, medium and large effect size (Cohen, 1988).

One way ANOVA was used to illustrate the differences in means of the PTSD and RF groups (i.e., Group 1 = PTSD and poor RF, Group 2 = PTSD and adequate RF, Group 3 = PTSD and poor RF) and the outcome variable, the various CIB scales. Eta squared was used to estimate effect sizes.

Univariate ANOVA models with main effects of PTSD and RF category as well as the interaction between PTSD and adequate RF were used to test the hypothesis that RF moderates the effect of PTSD on CIB scores. Partial eta squared values were estimated as effect sizes. This was done for each CIB scale individually.

For all the analyses pertaining specifically to the main objectives and hypotheses, the analysis of effect sizes were of particular interest to estimate the magnitude of the standardised differences between means. According to Cohen (1988) $d = 0.20$ represents a small effect size, $d = 0.50$ is a medium effect size and a $d = 0.80$ is a large effect size. Cohen's *d* is not calculated directly by most statistical packages including SPSS, therefore these were calculated manually where appropriate by dividing the difference between the means by the pooled SD (Brown, 2008). In other instances Eta squared was used to calculate the proportion of variance in a dependent variable

that is explained by an independent variable as in the calculation of the relationships between and within RF groups (groups 1-3) and CIB outcomes (Vache-Haas & Thompson, 2004). Partial Eta squared was used to calculate the size of effect of interaction between RF and PTSD on the various CIB outcomes (i.e., maternal sensitivity, maternal intrusiveness, etc.) (Vache-Haas & Thompson, 2004). Marginal means profile plots were used to visualise interactions between RF, PTSD and CIB outcomes.

4.5 Ethical considerations

This study received ethical approval from the Health Research Ethics Committee of the University of Stellenbosch (Ethics Approval number S15/09/188 dated 13 November 2015). A copy of the ethical approval letter is attached (Appendix F). This approval was renewed with each year of thesis registration.

This study was conducted in accordance with the International Committee for Harmonization (ICH) Good Clinical Practice Guidelines and the SA GCP as well as the Declaration of Helsinki (2000). Therefore, every effort was made to maintain the privacy and respect for human dignity of each participant.

Permission to conduct the study at Stikland Hospital was obtained from the Stikland Hospital Executive Committee. Approval was also obtained from the SPS Follow-up Study Committee and the SPS Steering Committee. Informed voluntary consent was obtained from all participants for study participation and participants were informed that they were free to decline participation as

well as leave the study at any point without fear of any adverse consequences or disruption to their continued services at their local clinic.

All participants' identifying information such as name and contact details were linked to a unique participant number and kept in a separate file that was not directly attached to the dataset (paper or electronic) at any stage. All information obtained from participants in the study was kept confidential. Procedures to maintain patient confidentiality were maintained throughout the coding process. Only the primary investigator, and to an extent research collaborators (research assistants, coders, etc.), had access to the information. Only mothers who gave written consent to have their video/audio recordings used for presentation purposes were utilised. Video recordings, audio recordings and all gathered information is stored in a secure room in the Department of Psychology at Stikland Hospital and will be archived for a period of up to 10 years. Access was granted to only collaborators of the study (PDI-S and CIB raters and coders). Data were sent to coders via secure physical delivery/courier.

All questionnaires and interviews were administered by the primary investigator and trained research assistants. Research assistants were advised to offer breaks if needed as well as any containment should the mother require it. The primary investigator was available in instances where additional containment was needed. All participants were offered referral for counselling. The mothers who agreed were referred to their closest community clinic for further psychiatric management.

CHAPTER 5

RESULTS

5.1 Hypotheses and objectives

The main aim of the current study was to investigate the relationship between PTSD, reflective functioning and caregiving sensitivity in mothers with substance abuse.

The hypotheses this study set out to test are as follows:

- *Hypothesis 1*: Lower levels of reflective functioning will be associated with decreased caregiving sensitivity irrespective of the degree of PTSD symptoms and substance abuse.
- *Hypothesis 2:* Mothers with higher levels of PTSD *and* lower levels of reflective functioning will have poorer caregiving sensitivity than mothers who present only with higher levels of PTSD *or* lower levels of reflective functioning.
- *Hypothesis 3:* Levels of reflective functioning and care-giving sensitivity of mothers in the exposed group will differ from those in the non-exposed group.
- *Hypothesis 4:* Higher levels of reflective functioning will have a moderating effect on the relationship between PTSD and caregiving sensitivity (i.e., the negative impact of PTSD on caregiving sensitivity will be moderated by higher levels of reflective functioning.)

The objectives of the current study include the following:

- To evaluate the levels of reflective functioning of mothers in both the exposed group and the non-exposed group.

- To assess the caregiving sensitivity of mothers in both the exposed group and the non-exposed group.
- To compare the levels of reflective functioning and caregiving sensitivity in the exposed group with those found in the non-exposed group.

The results will be discussed according to the study objectives as described above. A broader context will be provided by outlining the demographic characteristics of the total sample included in the study.

5.2 Demographic characteristics

5.2.1 Maternal sample

The current sample consisted of 72 mother-child dyads. The demographic characteristics of the total sample of mothers are summarised in Table 1. The average age of the mothers was 29 (M=28.99, SD=5.44) and the average years of schooling was 10 years (M=9.65, SD=1.82). Most mothers identified themselves as coloured or mixed race (N=71, 98.6%) with only 1 participant identifying herself as black. Mothers were mostly unemployed (95.8%) and living mainly in the Bishop Lavis (38.9%) and Valhalla Park area (33.3%) on the Cape Flats. Their living arrangements were mainly inter-dependent (living with extended family or other persons for economic/cultural reasons, 88.9%). Mothers were mainly single (36.1%) and of those in a relationship were most likely to be cohabiting with their partners (26.4%).

Table 1: Demographic characteristics of total maternal sample (N=72)

	N	%
Maternal age	71	M=28.99; SD=5.44
Education in years	71	M=9.65; SD=1.82
Ethnicity		
Coloured/mixed race	71	98.6
Black	1	1.4
Employment		
Unemployed	68	95.8
Employed full time	2	2.8
Employed part time	1	1.4
Address		
Valhalla Park	24	33.3
Bishop Lavis	28	38.9
Kalksteenfontein	4	5.6
Belhar	9	12.5
Nyanga	1	1.4
Delft	2	2.8
Kuils River	2	2.8
Living situation		
Independent	7	9.7
Inter-dependent	64	88.9
Not indicated	1	1.4
Marital status		
Single	26	36.1
Cohabitating	19	26.4
Married	10	13.9
Divorced	1	1.4
Non-cohabitating partner	15	20.8
Not indicated	1	1.4
Duration of relationship		
<12 months	4	5.6
1-5 years	17	23.6
5-10 years	15	20.8
>10 years	9	12.5

5.2.2 Maternal demographic characteristics by exposed and non-exposed group

With regards to demographic characteristics, the participants in the exposed and non-exposed groups were fairly homogenous as noted in Table 2. Women with a diagnosis of PTSD (exposed group) were slightly older than those without PTSD (M=29.16; SD=5.68 versus M=28.92; SD=5.40 with p=0.873), were more likely to be unemployed (100% compared to 94.2% in the non-exposed group; p=0.706) and were more likely to be living in the Bishop Lavis area (47.4% compared to 35.8% in the non-exposed group; p=0.829). However, none of these differences were

statistically significant. Both groups were fairly equally likely to be single but of those in a relationship the participants in the exposed group were more likely to be cohabiting with their partners (31.6% compared to 24.5% in the non-exposed group; p=0.837) and were more likely to be married but these were not statistically significant differences (15.8% compared to 13.2% in the non-exposed group; p=0.753). Participants in the exposed group were also more likely to be in relationships lasting between 5 to 10 years (45.5% compared to 29.4% in the non-exposed group; p=0.136). These differences were also not statistically significant. However, the number of participants requesting counselling services were significantly higher in the PTSD group (42.1%) than the No PTSD group (18.9%) with p=0.045.

Table 2: Demographic characteristics of sample by exposed d non-exposed group

	Unexposed group NO PTSD (n=53)		**Exposed group PTSD (n=19)**		
	n	%	n	%	p
Maternal age	53	M=28.92; SD=5.40	19	M=29.16; SD=5.68	0.873
Education in years	53	M=9.62; SD= 1.91	19	M=9.72; SD=1.56	0.843
Ethnicity					1.000
Coloured/mixed race	52	98.1	19	100.0	
Black	1	1.9	0	0.0	
Language					0.444
Afrikaans	47	88.7	18	94.7	
English	6	11.3	1	5.3	
Employment status					0.706
Unemployed	49	94.2	19	100.0	
Employed full time	2	3.8	0	0.0	
Employed part time	1	1.9	0	0.0	
Address					0.829
Valhalla Park	19	35.8	5	26.3	
Bishop Lavis	19	35.8	9	47.4	
Kalksteenfontein	3	5.7	1	5.3	
Belhar	8	15.1	1	5.3	
Nyanga	1	1.9	0	0.0	
Delft	1	1.9	1	5.3	
Kuils River	1	1.9	1	5.3	
Living situation					0.837
Independent	5	9.4	2	10.5	
Inter-dependent	48	90.6	16	84.2	
Not indicated	0	0.0	1	5.3	
Marital status					0.753

Single	19	35.8	7	36.8	
Cohabitating	13	24.5	6	31.6	
Married	7	13.2	3	15.8	
Divorced	1	1.9	0	0.0	
Non-cohabitating partner	13	24.5	2	10.5	
Not indicated	0	0.0	1	5.3	
Duration of relationship					0.136
<12 months	2	5.9	2	18.2	
1-5 years	14	41.2	3	27.3	
5-10 years	10	29.4	5	45.5	
>10 years	8	23.5	1	9.1	
Counselling required					0.045*
No	43	81.1	11	57.9	
Yes	10	18.9	8	42.1	

* Statistically significant p values

5.3 Maternal substance use history

5.3.1 Cannabis and Methamphetamine

With reference to Table 3, women in the PTSD group were significantly more likely to have used cannabis (94.7%) compared to those in the No PTSD group (73.1%) with p=0.048. However, of those using, the frequency of use seemed fairly similar between the groups. The most common frequency of use in both groups was daily use of cannabis (45.9% in the non-exposed group, 44.4% in the exposed group and 45.5% in the total sample). There appeared to be a trend showing that women with PTSD were more likely to have used methamphetamines than those without PTSD (84.2% versus 63.5% in the non-exposed group) but this difference was not statistically significant with p=0.094. Participants with PTSD were more likely to use methamphetamines 2-4 times per week (26.7% in the non-exposed group and 60.0% in the exposed group with p=0.13) although overall the frequency of use between the 2 groups were similar.

Table 3 Maternal substance use history: Cannabis and Methamphetamine

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	N	%	N	%	N	%	p
No Cannabis use	14	26.9	1	5.3	15	21.1	
Cannabis use	38	73.1	18	94.7	56	78.9	0.048*
Frequency of use							
Once a week	5	13.5	5	27.8	10	18.2	0.391
2-4 times a week	4	10.8	3	16.7	7	12.7	
5-6 times a week	5	13.5	0	0.0	5	9.1	
7 times a week	17	45.9	8	44.4	25	45.5	
other	6	16.2	2	11.1	8	14.5	
No Methamphetamine use	19	36.5	3	15.8	22	31.0	
Methamphetamine use	33	63.5	16	84.2	49	69.0	0.094
Frequency of use							0.174
Once a week	6	20.0	2	13.3	8	17.8	
2-4 times a week	8	26.7	9	60.0	17	37.8	
5-6 times a week	3	10.0	1	6.7	4	8.9	
7 times a week	7	23.3	3	20.0	10	22.2	
other	6	20.0	0	0.0	6	13.3	

* Statistically significant p values

5.3.2 Cannabis and Methamphetamine first and last use

The age of first use of cannabis was very similar between the PTSD (M=15.0; SD=2.4) and No PTSD (M=16.0; SD=3.2) group as well as for age of first use for methamphetamines (PTSD M=18.8; SD=4.6 and No PTSD M=19.4; SD=4.7) as seen in Table 6.

Table 4 Maternal substance use history: Cannabis and Methamphetamine First Use

		NO PTSD	PTSD	p
Cannabis	Valid n	38	17	0.269
First use	Mean age in years	16.0	15.0	
	SD	3.2	2.4	
Methamphetamines	Valid n	33	16	0.653
First Use	Mean age in years	19.4	18.8	
	SD	4.7	4.6	

* Statistically significant p values

As seen in Table 5, the percentage of participants who last used cannabis within the past 6 days in the PTSD group was 23.5% and 24.3% in the No PTSD group. With regards to last use of

methamphetamines 18.8% of participants in the PTSD group used within the past 6 days and 11.8% in the No PTSD group. Most participants in the PTSD group (37.5%) last used within the past 6 months and 29.4% of those in the no PSTD group last used within this period.

Table 5 Maternal substance use history: Cannabis and Methamphetamine Last Use

		NO PTSD		PTSD		Total		
		n	%	n	%	n	%	p
Cannabis	0-6 days	9	24.3	4	23.5			0.632
Last Use	1week - 6 months	8	21.6	3	17.6			
	6-12months	1	2.7	0	0.0			
	1-5years	9	24.3	6	35.3			
	> 5 years	10	27.0	4	23.5			
Methamphetamines	0-6days	4	11.8	3	18.8			0.651
Last Use	1week - 6 months	10	29.4	6	37.5			
	6-12months	2	5.9	1	6.3			
	1-5years	10	29.4	4	25.0			
	> 5 years	8	23.5	2	12.5			

* Statistically significant p values

5.3.3 Alcohol

The drinking patterns between the exposed and non-exposed group was very similar (Table 6). When asked about alcohol consumption only 7.4% of the total sample reported that they had never used alcohol before. Of those who reported use the most common frequency of use for both groups was monthly or less with 62% of those in the No PTSD group and 55.6% of those in the PTSD group. The percentage of participants who reported drinking 10 or more units on a typical using day was 33.3% for the No PTSD group and 41.2% for the PTSD group. The percentage of participants drinking more than 6 units on 1 day on a weekly basis was higher in the PTSD group at 29.4% versus 16.7% in the No PTSD group.

Table 6 Maternal substance use history: Alcohol

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	n	%	n	%	n	%	p
Frequency of use							0.542
Never	4	8.0	1	5.6	5	7.4	
Monthly or less	31	62.0	10	55.6	41	60.3	
2-4 times a month	12	24.0	4	22.2	16	23.5	
2-3 times a week	1	2.0	0	0.0	1	1.5	
4 or more times a week	2	4.0	3	16.7	5	7.4	
Units consumed on typical using day							0.094
1-2 drinks	11	22.9	2	11.8	13	20.0	
3-4 drinks	11	22.9	1	5.9	12	18.5	
5-6 drinks	5	10.4	6	35.3	11	16.9	
7-8 or 9 drinks	5	10.4	1	5.9	6	9.2	
10 or more drinks	16	33.3	7	41.2	23	35.4	
More than 6 units consumed on 1 day							0.719
Never	10	20.8	3	17.6	13	20.0	
Less than monthly	21	43.8	7	41.2	28	43.1	
Monthly	9	18.8	2	11.8	11	16.9	
Weekly	8	16.7	5	29.4	13	20.0	
Daily or almost daily	0	0.0	0	0.0	0	0.0	

* Statistically significant p values

5.3.4 Alcohol first and last use

The mean age of first use of alcohol was again very similar between the 2 groups with a mean age of 15.8 (SD=2.7) in the PTSD group and a mean age of 16.7 (SD=3.1) in the No PTSD group (Table 7). The percentage of participants who last used alcohol within the past 6 days in the PTSD group was more than double than that in the No PTSD group at 41.2% versus 20.8% in the No PTSD group as seen in Table 8. Last alcohol use in the *1 week to 6-month* category was slightly higher in the No PTSD group at 50.0% and 47.1% in the PTSD group. However, overall there was no significance in the difference of use between the 2 groups.

Table 7 Maternal substance use history: Alcohol First Use

		NO PTSD (n=53)	PTSD (n=19)	p
Alcohol First Use	Valid n	48	17	0.297
	Mean	16.7	15.8	
	SD	3.1	2.7	

* Statistically significant p values

As seen in Table 8 most of the participants in both the PTSD group (47.1%) and No PTSD group (50%) last used alcohol within the past 6 months.

Table 8 Maternal substance use history: Alcohol Last Use

		NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
		n	%	n	%	n	%	p
Alcohol Last Use	0-6days	10	20.8	7	41.2	17	26.2	0.589
	1week - 6 months	24	50.0	8	47.1	32	49.2	
	6-12months	1	2.1	1	5.9	2	3.1	
	1-5years	7	14.6	0	0.0	7	10.8	
	> 5 years	6	12.5	1	5.9	7	10.8	

* Statistically significant p values

5.4 Pre and Postnatal History

5.4.1 Maternal substance use during pregnancy

With reference to Table 9, 80% of participants reported using substances during pregnancy. Of those who reported using substances during pregnancy the percentage of mothers using was higher in the PTSD group (94.4%) than those in the No PTSD group (75%) but this difference was not statistically significant with p=0.075.

Table 9 Maternal substance use during pregnancy

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	n	%	n	%	n	%	p
No substance use during pregnancy	13	25.0	1	5.6	14	20.0	0.075
Substance use during pregnancy	39	75.0	17	94.4	56	80.0	

* Statistically significant p values

5.4.2 Frequency of use during pregnancy in total sample

Reportedly, the most common substance used during pregnancy was methamphetamine (60.7%), followed by cannabis (28.6%), alcohol (26.8%) and nicotine (3.6%) as seen in Table 10. Substances were mainly used on a daily basis (*7 times per week*=31.9%). The lowest percentage of frequency of use was for the *once a month* frequency (1.4%).

Table 10 Substances used and frequency of use during pregnancy in total sample

	N	%
Methamphetamine	34	60.7
Cannabis	16	28.6
Alcohol	15	26.8
Nicotine	2	3.6
Frequency of use during pregnancy		
Once per week	8	11.1
2-4 times per week	14	19.4
5-6 times per week	2	2.8
7 times per week	23	31.9
every 3rd weekend	6	8.3
Once a month	1	1.4

* Statistically significant p values

5.4.3 Frequency of use during pregnancy by exposed and non-exposed group

With reference to Table 11, nearly double the percentage of mothers in the PTSD group were using methamphetamine during pregnancy at 88.2% versus 48.7% in the No PTSD group and this difference was statistically significant with p=0.005. However, a significantly larger percentage of mothers in the No PTSD group were using cannabis at 38.5% versus only 5.9% of mothers in the PTSD group with p=0.013. The percentage of alcohol use was similar between the 2 groups (No PTSD=28.2% versus PTSD=26.8% with p=0.716) and only 2 mothers (in the No PTSD group) in the total sample reported using nicotine during pregnancy with p=0.342.

Table 11 Substance use during pregnancy by exposed and non-exposed group

		NO PTSD		PTSD		Total		
		n	%	n	%	n	%	p
Methamphetamine	no	20	51.3	2	11.8	22	39.3	0.005*
	yes	19	48.7	15	88.2	34	60.7	
Cannabis	no	24	61.5	16	94.1	40	71.4	0.013*
	yes	15	38.5	1	5.9	16	28.6	
Alcohol	no	28	71.8	13	76.5	41	73.2	0.716
	yes	11	28.2	4	23.5	15	26.8	
Nicotine	no	37	94.9	17	100.0	54	96.4	0.342
	yes	2	5.1	0	0.0	2	3.6	

* Statistically significant p values

5.4.4 Pregnancy and clinic data

The current sample was similarly quite homogenous with reference to pregnancy and clinic data as seen in Table 12. Approximately, 86.1% of pregnancies in the current sample were unplanned. Most participants attended the Bishop Lavis Midwife Obstetrical Unit (MOU) (76.4%). A small percentage of mothers was considered having high-risk pregnancies or deliveries and therefore attended either Tygerberg Hospital or Karl Bremer Hospital for prenatal care and/or delivery (Table 13). Mothers mostly visited clinics on a monthly basis (90.1%), had normal vaginal delivery (83.1%), had no complications during delivery (67.6%) and had children born without any complications (62.9%).

Table 12 Pregnancy and clinic data

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	n	%	n	%	n	%	p
Planning of pregnancy							0.621
Pregnancy planned	8	15.1	2	10.5	10	13.9	
Unplanned	45	84.9	17	89.5	62	86.1	
Clinic/Hospital attended							0.774
Bishop Lavis	39	73.6	16	84.2	55	76.4	
Belhar	7	13.2	1	5.3	8	11.1	
Bishop Lavis & TBH[a]	2	3.8	2	10.5	4	5.6	
Bishop Lavis & KBH[b]	1	1.9	0	0.0	1	1.4	
TBH & KBH	1	1.9	0	0.0	1	1.4	
TBH	2	3.8	0	0.0	2	2.8	
Valhalla park	1	1.9	0	0.0	1	1.4	
Frequency of clinic visit							0.602
Monthly	49	92.5	15	83.3	64	90.1	
Every 2nd Month	1	1.9	0	0.0	1	1.4	
Once	1	1.9	1	5.6	2	2.8	
Every 2nd week	2	3.8	2	11.1	4	5.6	
Route of delivery							0.858
Vaginal	44	84.6	15	78.9	59	83.1	
C-section	5	9.6	3	15.8	8	11.3	
Missing data	3	5.8	1	5.3	4	5.6	
Delivery complications							0.628
No	36	69.2	12	63.2	48	67.6	
Yes	16	30.8	7	36.8	23	32.4	
Child complications							0.600
No	33	64.7	11	57.9	44	62.9	
Yes	18	35.3	8	42.1	26	37.1	

* Statistically significant p values
[a]Tygerberg Hospital
[b]Karl Bremer Hospital

As seen in Table 13, the mean gestational age of the foetus at the point of mother's first visit to the clinic was slightly higher in the PTSD group at 18 weeks (SD=8) versus a mean of 13 weeks (SD=7) in the No PTSD group. The point during pregnancy at which mothers first learned they were pregnant was similar between the PTSD (M=11.21; SD=4.5) and No PTSD group (M=11.51; SD=5.4). The infant birth weight of mothers in the PTSD group was slightly lower than those in the No PTSD group at 2.8kgs (SD=1.07) versus 3.44kgs (SD=4.45) but this difference was not statistically significant.

Table 13 Pregnancy and clinic data continued

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	Mean	SD	Mean	SD	Mean	SD	p
First clinic visit in weeks[a]	13	7	18	8	15	7	0.009*
First learned of pregnancy in weeks	11.51	5.40	11.21	4.50	11.43	5.14	0.830
Infant birth weight[b]	3.44	4.45	2.80	1.07	3.30	3.95	0.614

* Statistically significant p values
[a]Gestational age of foetus
[b]Weight in kilograms

5.5 Demographic characteristics of child's father

The mean age of the child's father in the total sample was 33.23 (SD=10.7) and was similar between the 2 groups as seen in Table 14.

Table 14 Mean age of child's father

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	Mean	SD	Mean	SD	Mean	SD	p
Age	33.16	11.71	33.41	7.37	33.23	10.70	0.935

* Statistically significant p values

With reference to Table 15, the percentage of fathers who were unemployed in the total sample was 45.7% and those who were employed full time was 45.7%. Most fathers were living separately from the mother and child (56.3%) but were reportedly mostly still involved in their child's life (67.6%).

Table 15 Demographic characteristics of child's father

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	n	%	n	%	n	%	p
Employment							0.871
Unemployed	24	47.1	8	42.1	32	45.7	
Employed full time	25	49.0	7	36.8	32	45.7	
Employed part time	1	2.0	1	5.3	2	2.9	
Not applicable	1	2.0	3	15.8	4	5.7	
Living circumstances							0.412
Living at home	20	38.5	8	42.1	28	39.4	
Living separately	32	61.5	8	42.1	40	56.3	
Not applicable	0	0.0	3	15.8	3	4.2	
Father involved in child's life							1.000
Involved	36	69.2	12	63.2	48	67.6	
Uninvolved	14	26.9	4	21.1	18	25.4	

* Statistically significant p values

5.6 Demographic characteristics of child

The mean age in months of children in the total sample is 63.12 (SD=27.52). Child ages were similar between the 2 groups as seen in Table 16.

Table 16 Mean age of child

	NO PTSD (N=53)		PTSD (N=19)		Total (N=72)		
	Mean	SD	Mean	SD	Mean	SD	p
Age in months	61.51	25.79	67.63	32.17	63.13	27.52	0.355

* Statistically significant p values

The percentage of female children was 44.4% and the percentage of male children was 55.6%. With regards to the total number of children, 25% of mothers only had 1 child, 25% had 2, 25% had 3 and 25% had either 4 or more children. The total number of children mothers were caring for was also similar between groups (Table 17).

Table 17 Demographic characteristics of the child

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	n	%	n	%	n	%	p
Gender							0.169
Female	21	39.6	11	57.9	32	44.4	
Male	32	60.4	8	42.1	40	55.6	
Total number of children							0.416
1	14	26.4	4	21.1	18	25.0	
2	13	24.5	5	26.3	18	25.0	
3	13	24.5	5	26.3	18	25.0	
4	7	13.2	2	10.5	9	12.5	
>4	6	11.3	3	15.9	9	12.5	
Total number of children caring for							0.869
1	15	28.3	5	26.3	20	27.8	
2	17	32.1	6	31.6	23	31.9	
3	10	18.9	5	26.3	15	20.8	
4	8	15.1	3	15.8	11	15.3	
>4	3	5.7	0	0.0	3	4.2	

* Statistically significant p values

5.7 Traumatic life events

According to the Life Events Checklist (LEC) as seen in Table 18, the most common traumatic life events experienced by the total sample was physical assault where participants were either attacked, hit, slapped, kicked or beaten up (63.9%). This was followed by assault with a weapon (45.8%) which is described in the questionnaire as either being shot, stabbed, threatened with a knife, gun or bomb). The third most common traumatic life event was experiencing the sudden and unexpected death of someone close to you which was experienced by 38.9% of the total sample.

For physical assault the percentage of participants in the PTSD group was higher than that in the No PTSD group (78.9% versus 58.5%). The percentage of participants assaulted with a weapon in the PTSD group was also higher than those in the No PTSD group at 63.2% versus 39.6%.

However, the percentage of participants between the 2 groups with reference to the sudden and unexpected death of someone close to them was slighter higher in the No PTSD group at 39.6% than in the PTSD group at 36.8%.

The most common traumatic life event amongst participants in the PTSD group was sexual assault (55.6% versus 17% in the No PTSD group) which is described as rape, attempted rape or where participants have been made to perform any type of sexual act through force or threat of harm. This difference was statistically significant with p=0.014. The second most common traumatic event in the PTSD group was the experience of any other unwanted or uncomfortable sexual experience at 42.1% versus 11.3% in the No PTSD group. This difference was also statistically significant with p=0.016. Another very common traumatic event amongst participants in the PTSD group was transportation accidents (for example, car accident, boat accident, train wreck, plane crash) with 33.3% in the PTSD group reporting first-hand experience as opposed to only 9.4% in the No PTSD group.

There were 2 other statistically significant differences between the 2 groups. With regards to witnessing a fire or explosion the percentage of participants in the PTSD group was 42.1% versus 22.6% in the No PTSD group with p=0.010. Then in the "learned about it" category for the captivity item (referring to being kidnapped, abducted, held hostage or prisoner of war) the percentage of participants in the PTSD group (33.3%) was significantly higher than those in the No PTSD group (7.5%) with p=0.018.

Life events that least affected the total sample were causing serious injury, harm or death to someone else (4.2%; 0.0% in the PTSD group and 5.7% in the No PTSD group). This is followed by natural disasters (6.9%; 10.5% in the PTSD group and 5.7% in the No PTSD group) and exposure to toxic substances (for example, dangerous chemicals, radiation at 7.2% in the total sample, 5.9% in the PTSD group and 7.7% in the No PTSD group.

Table 18 Traumatic Exposure (Life Events Checklist)

	NO PTSD		**PTSD**		**Total**		
	n	%	n	%	n	%	p
Natural disaster							0.153
Learned about	4	7.5	4	21.1	8	11.1	
Witnessed it	0	0.0	0	0.0	0	0.0	
Happened to me	3	5.7	2	10.5	5	6.9	
Fire or explosion							0.010*
Learned about	2	3.8	4	21.1	6	8.3	
Witnessed it	12	22.6	8	42.1	20	27.8	
Happened to me	11	20.8	4	21.1	15	20.8	
Transport accident							0.006*
Learned about	10	18.9	7	38.9	17	23.9	
Witnessed it	8	15.1	0	0.0	8	11.3	
Happened to me	5	9.4	6	33.3	11	15.5	
Accident at work/home							0.073
Learned about	5	9.6	6	35.3	11	15.9	
Witnessed it	5	9.6	1	5.9	6	8.7	
Happened to me	5	9.6	2	11.8	7	10.1	
Exposure to toxic substance							0.822
Learned about	1	1.9	1	5.9	2	2.9	
Witnessed it	1	1.9	1	5.9	2	2.9	
Happened to me	4	7.7	1	5.9	5	7.2	
Physical assault							0.148
Learned about	3	5.7	1	5.3	4	5.6	
Witnessed it	7	13.2	3	15.8	10	13.9	
Happened to me	31	58.5	15	78.9	46	63.9	
Assault with weapon							0.272
Learned about	8	15.1	3	15.8	11	15.3	
Witnessed it	8	15.1	2	10.5	10	13.9	

Happened to me	21	39.6	12	63.2	33	45.8	
Sexual assault							0.014*
Learned about	12	22.6	3	16.7	15	21.1	
Witnessed it	3	5.7	0	0.0	3	4.2	
Happened to me	9	17.0	10	55.6	19	26.8	
Other sexual experience							0.016*
Learned about	6	11.3	3	15.8	9	12.5	
Witnessed it	2	3.8	1	5.3	3	4.2	
Happened to me	6	11.3	8	42.1	14	19.4	
Exposure to a war zone							0.163
Learned about	3	5.8	3	15.8	6	8.5	
Witnessed it	5	9.6	4	21.1	9	12.7	
Happened to me	5	9.6	3	15.8	8	11.3	
Captivity							0.018*
Learned about	4	7.5	6	33.3	10	14.1	
Witnessed it	1	1.9	0	0.0	1	1.4	
Happened to me	5	9.4	3	16.7	8	11.3	
Life threatening illness/injury							0.553
Learned about	9	17.0	2	11.1	11	15.5	
Witnessed it	7	13.2	5	27.8	12	16.9	
Happened to me	6	11.3	2	11.1	8	11.3	
Severe human suffering							0.031
Learned about	3	5.7	0	0.0	3	4.3	
Witnessed it	5	9.4	6	35.3	11	15.7	
Happened to me	5	9.4	3	17.6	8	11.4	
Violent death							0.083
Learned about	14	26.4	8	42.1	22	30.6	
Witnessed it	5	9.4	5	26.3	10	13.9	
Happened to me	9	17.0	1	5.3	10	13.9	
Unexpected death							0.147
Learned about	9	17.0	6	31.6	15	20.8	
Witnessed it	10	18.9	0	0.0	10	13.9	
Happened to me	21	39.6	7	36.8	28	38.9	
Serious injury you caused							0.227
Learned about	2	3.8	3	16.7	5	7.0	
Witnessed it	3	5.7	1	5.6	4	5.6	
Happened to me	3	5.7	0	0.0	3	4.2	
Any other stressful event							0.310
Learned about	0	0.0	0	0.0	0	0.0	
Witnessed it	0	0.0	1	5.3	1	1.4	
Happened to me	17	32.1	5	27.8	22	31.0	

* Statistically significant p values

5.8 Objective I: To evaluate the levels of reflective functioning of mothers in both the exposed group and the non-exposed group

As seen in Table 19 the scores obtained by mothers in the PTSD group and the No PTSD group as a measure of maternal reflective functioning assessed by the Parent Development Interview (PDI)

were almost identical (M=3.47; SD=1.22 in the non-exposed group compared to M=3.47; SD=1.31 in the exposed group) with p=0.995.

Table 19 Overall PDI scores by exposed and non-exposed group

	NO PTSD		PTSD		Total		
	M	SD	M	SD	M	SD	p
Overall PDI score	3.47	1.22	3.47	1.31	3.47	1.23	0.995

* Statistically significant p values

As seen in Table 20, the percentage of participants presenting with poor and adequate RF between the PTSD and No PTSD groups were very similar. 79.2% of participants in the No PTSD group presented with poor RF scores and 20.8% presented with adequate RF. 78.9% of those in the PTSD group presented with poor RF and 21.8% presented with adequate RF. In the total sample, only 15 participants presented with adequate RF (20.8%) while the remaining 57 (79.2%) presented with poor RF, indicating that most of the participants presented with poor or inadequate RF. Results also indicate that with reference to poor and adequate RF there was no significant difference between the PTSD and No PTSD groups with p = 0.978.

Table 20 Poor and Adequate RF scores by exposed and non-exposed group

	NO PTSD (n=53)		PTSD (n=19)		Total (N=72)		
	n	%	n	%	n	%	p
Poor RF[a]	42	79.2	15	78.9	57	79.2	.978
Adequate RF[b]	11	20.8	4	21.0	15	20.8	

[a] = an RF score ≤4
[b] = an RF score ≥5

Conclusion

Hypothesis 3a: Levels of reflective functioning of mothers in the non-exposed group will differ from those in the exposed group. According to these findings, the levels of reflective functioning

in the non-exposed group did *not* differ from those in the exposed group. Therefore, the null-hypothesis cannot be rejected.

5.9 Objective II: To assess the caregiving sensitivity of mothers in both the exposed group and the non-exposed group.

As seen in Table 21 the caregiving sensitivity scores obtained by mothers in the exposed group and the non-exposed group as assessed by the Child Interactive Behaviour scale (CIB) were mostly similar. The only statistically significant score between the 2 groups was for the withdrawal scale where mothers without PTSD scored significantly higher than those with PTSD (No PTSD M=1.21; SD=0.31 versus PTSD M=1.05; SD=0.12 with p=0.04). However, several items showed small to medium effect sizes namely, sensitivity (0.328 = small), intrusiveness (0.268 = small), negative emotionality (0.272 = small), child involvement (0.411 = small), child withdrawal (0.680 = medium), dyadic reciprocity (0.215), dyadic negative states (0.580 = medium) and total CIB score (0.322 = small).

Conclusion

Hypothesis 3b: Levels of caregiving sensitivity of mothers in the exposed group will differ from those in the non-exposed group. This hypothesis is comprised of 10 separate hypotheses as caregiving sensitivity is measured by 10 separate scales as listed in Table 21. According to these findings, the levels of caregiving sensitivity in the exposed group mostly did *not* differ from those in the non-exposed group (i.e., 9 of the 10 hypotheses). For these 9 items, the null-hypothesis cannot be rejected. However, for the 1 item, namely, the withdrawal scale, the null-hypothesis can be rejected based on the p-value of 0.04.

Table 21 Caregiving sensitivity by exposed and non-exposed group

		PTSD	n	M	SD	Std. Error Mean	p	*d*
Maternal								
	Sensitivity	no	53	2.97	.63	.08	0.254	
		yes	19	3.16	.52	.12		0.328**
	Intrusiveness	no	53	1.94	.47	.06	0.385	
		yes	19	1.83	.34	.07		0.268**
	Limit setting	no	53	4.14	.67	.09	0.490	
		yes	19	4.27	.64	.14		0.198
	Negative	no	53	1.20	.40	.05	0.366	
	emotionality	yes	19	1.11	.24	.05		0.272**
Child								
	Involvement	no	53	3.41	.51	.07	0.157	
		yes	19	3.59	.35	.08		0.411**
	Withdrawal	no	53	1.21	.31	.04	0.040*	
		yes	19	1.05	.12	.02		0.680***
	Compliance	no	53	3.14	.68	.09	0.682	
		yes	19	3.21	.52	.11		0.115
Dyadic								
	Reciprocity	no	53	3.12	.96	.13	0.438	
		yes	19	3.31	.80	.18		0.215**
	Negative	no	53	1.33	.59	.08	0.080	
	States	yes	19	1.07	.23	.05		0.580***
		no	53	3.41	.57	.07	0.254	
TOTAL SCORE		yes	19	3.58	.48	.11		0.322**

* Statistically significant p values
Effect size *d:* 0.20 = **small, 0.50 = ***medium, 0.80 = large (Cohen, 1988)

5.10 Objective III: To compare the levels of reflective functioning and caregiving sensitivity in the exposed group with those found in the non-exposed group.

As seen in Table 22, reflective functioning is showing very little evidence of correlation with caregiving sensitivity. The only item with a statistically significant relationship is the relationship between reflective functioning and limit setting (d = 0.254; p = 0.031 shown in Figure 1). For this item, results suggest a weak positive correlation between reflective functioning and limit setting in the CIB.

Conclusion

Hypothesis 1: Lower levels of reflective functioning will be associated with decreased caregiving sensitivity irrespective of the degree of PTSD symptoms and substance abuse.

This hypothesis is comprised of 10 separate hypotheses as caregiving sensitivity is measured by 10 separate scales as listed in Table 22. According to these findings, the levels of reflective functioning are mostly *not* associated with caregiving sensitivity (i.e., 9 of the 10 items). Therefore, for these items the null-hypothesis cannot be rejected. However, results suggest a significant correlation between reflective functioning and the limit setting scale. Therefore, for this item the null hypothesis can be rejected. Although there is only 1 statistically significant difference 3 scales are showing small effect sizes (i.e., limit setting d = 0.25; child involvement d = 0.20 and child withdrawal d = -0.21).

Table 22 Correlation between reflective functioning (PDI) and caregiving sensitivity (CIB)

		Overall PDI score
Spearman's rho	Overall PDI score	1.000
		.
Maternal	Sensitivity	.173
		.145
	Intrusiveness	-.075
		.530
	Limit setting	.254**
		.031*
Child	Negative emotionality	-.116
		.331
	Involvement	.205**
		.083
	Withdrawal	-.210**

Dyadic		.077
	Compliance	.132
		.270
	Reciprocity	.095
		.427
	Negative states	-.098
		.413
	CIB Total score	.180
		.130

*. Correlation is significant at the 0.05 level (2-tailed); Spearman's rho (*r*) is equal to *d* (Ferguson, 2009).
Effect size *d:* 0.20 = **small, 0.50 = medium, 0.80 = large (Cohen, 1988)

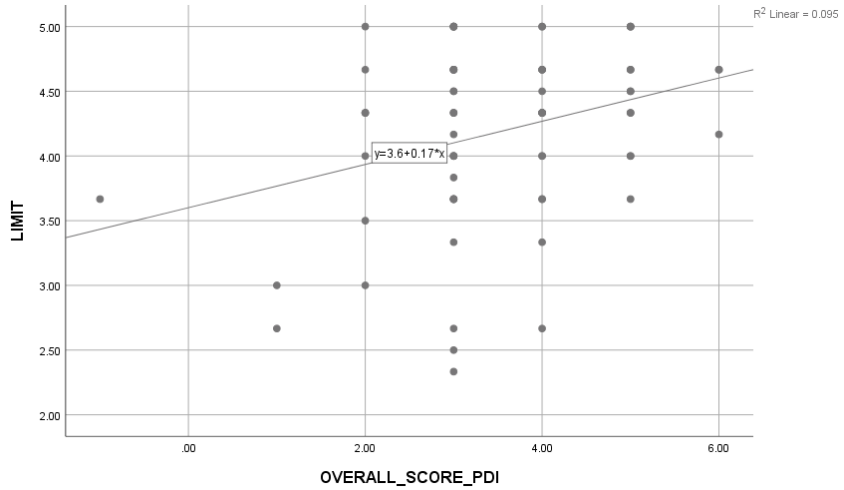

Figure 2 Correlation between reflective functioning and limit setting

Table 23 illustrates the differences in means and standard deviations of the PTSD and RF groups (i.e., Group 1 = PTSD and poor RF (n=15), Group 2 = PTSD and adequate RF (n=4), Group 3 = No PTSD and poor RF (n=42) and the outcome variable, the various CIB scales. The fourth group (i.e., No PTSD and adequate RF with the remaining 11 participants) is not included here as the

hypothesis under discussion refers to higher levels of PTSD (Groups 1 and 2) and lower levels of RF (Groups 1 and 3) only.

Table 23 Means and SDs of PTSD and RF groups by CIB scores

			n	Mean	SD	Std. Error	Min	Max
Maternal	Sensitivity	Group 1	15	3.13	.56	.14	1.91	3.86
		Group 2	4	3.25	.39	.19	2.95	3.82
		Group 3	42	2.91	.61	.09	1.59	4.27
		Total	61	2.99	.59	.07	1.59	4.27
	Intrusiveness	Group 1	15	1.86	.28	.07	1.29	2.29
		Group 2	4	1.71	.56	.28	1.07	2.29
		Group 3	42	1.95	.48	.07	1.21	3.29
		Total	61	1.91	.44	.05	1.07	3.29
	Limit setting	Group 1	15	4.13	.63	.16	2.67	5.00
		Group 2	4	4.79	.41	.20	4.17	5.00
		Group 3	42	4.09	.73	.11	2.33	5.00
		Total	61	4.14	.70	.09	2.33	5.00
	Negative Emotionality	Group 1	15	1.08	.12	.03	1.00	1.25
		Group 2	4	1.25	.50	.25	1.00	2.00
		Group 3	42	1.24	.43	.06	1.00	3.25
		Total	61	1.20	.39	.05	1.00	3.25
Child	Involvement	Group 1	15	3.54	.34	.08	2.60	3.90
		Group 2	4	3.80	.34	.17	3.40	4.20
		Group 3	42	3.37	.51	.07	1.95	4.35
		Total	61	3.44	.47	.06	1.95	4.35
	Withdrawal	Group 1	15	1.05	.12	.03	1.00	1.38
		Group 2	4	1.06	.12	.06	1.00	1.25
		Group 3	42	1.24	.33	.05	1.00	2.25
		Total	61	1.18	.29	.03	1.00	2.25
	Compliance	Group 1	15	3.13	.37	.09	2.33	3.67
		Group 2	4	3.54	.89	.44	2.50	4.67
		Group 3	42	3.10	.72	.11	1.00	5.00
		Total	61	3.14	.66	.08	1.00	5.00
Dyadic	Reciprocity	Group 1	15	3.24	.82	.21	1.67	4.67
		Group 2	4	3.58	.75	.37	3.00	4.67
		Group 3	42	3.07	.95	.14	1.33	5.00

		Total	61	3.14	.91	.11	1.33	5.00
	Negative States	Group 1	15	1.08	.26	.06	1.00	2.00
		Group 2	4	1.06	.12	.06	1.00	1.25
		Group 3	42	1.33	.57	.08	1.00	3.00
		Total	61	1.25	.50	.06	1.00	3.00
	CIB Total Score	Group 1	15	3.51	.49	.12	2.35	4.05
		Group 2	4	3.85	.38	.19	3.59	4.42
		Group 3	42	3.36	.57	.08	2.33	4.56
		Total	61	3.43	.55	.07	2.33	4.56

Group 1 = PTSD & Poor RF
Group 2 = PTSD & Adequate RF
Group 3 = No PTSD & Poor RF

The results in Table 24 indicate the relationships between and within groups (groups 1-3 only as described in table 23 above) and CIB scores. The data outlined in table 24 show that there are no significant differences between PTSD and RF groups and CIB outcomes. However, there were small effect sizes between and within groups and all 10 CIB scores.

Table 24 Relationships within and between groups 1, 2 and 3 and CIB scores

			Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**	**Eta²**
Maternal	Sensitivity	Between Groups	.830	2	.415	1.164	.320	0.038**
		Within Groups	20.694	58	.357			
		Total	21.524	60				
	Intrusiveness	Between Groups	.249	2	.124	.606	.549	0.020**
		Within Groups	11.898	58	.205			
		Total	12.147	60				
	Limit setting	Between Groups	1.796	2	.898	1.846	.167	0.059**
		Within Groups	28.210	58	.486			
		Total	30.005	60				
	Negative Emotionality	Between Groups	.304	2	.152	.993	.377	0.033**

		Within Groups	8.880	58	.153			
		Total	9.184	60				
Child	Involvement	Between Groups	.855	2	.428	1.949	.152	0.062**
		Within Groups	12.728	58	.219			
		Total	13.583	60				
	Withdrawal	Between Groups	.433	2	.216	2.595	.083	0.082**
		Within Groups	4.836	58	.083			
		Total	5.269	60				
	Compliance	Between Groups	.691	2	.346	.770	.468	0.025**
		Within Groups	26.022	58	.449			
		Total	26.713	60				
Dyadic	Reciprocity	Between Groups	1.144	2	.572	.681	.510	0.022**
		Within Groups	48.695	58	.840			
		Total	49.839	60				
	Negative States	Between Groups	.848	2	.424	1.700	.192	0.055**
		Within Groups	14.464	58	.249			
		Total	15.311	60				
	CIB Total Score	Between Groups	1.021	2	.510	1.683	.195	0.054**
		Within Groups	17.583	58	.303			
		Total	18.604	60				

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Conclusion

Hypothesis 2: Mothers with higher levels of PTSD *and* lower levels of reflective functioning (Group 1) will have poorer caregiving sensitivity than mothers who present only with higher levels of PTSD (Group 2) *or* lower levels of reflective functioning (Group 3). The results show that there is no significant difference between mothers with higher levels of PTSD and lower levels of RF and their caregiving sensitivity. Therefore, the null-hypothesis cannot be rejected.

As seen in Table 25 there was no statistically significant effect of RF on PTSD and the CIB outcome, maternal sensitivity. However, a small effect size was found for the relationship between RF and maternal sensitivity.

Table 25 Moderating effect of RF on PTSD and CIB outcome, Maternal Sensitivity

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.271[a]	3	.424	1.159	.332	.049
Intercept	363.180	1	363.180	993.406	.000	.936
PTSD	.159	1	.159	.435	.512	.006
RF	.380	1	.380	1.038	.312	.015**
PTSD x RF	.078	1	.078	.213	.646	.003
Error	24.860	68	.366			
Total	685.636	72				
Corrected Total	26.131	71				

a. R Squared = ,049 (Adjusted R Squared = ,007)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 2 demonstrates that maternal sensitivity scores were lower in the PTSD group than the No PTSD group. Participants with adequate RF in both the PTSD and No PTSD group scored higher than those with poor RF. However, this difference was not statistically significant but a small effect size was found.

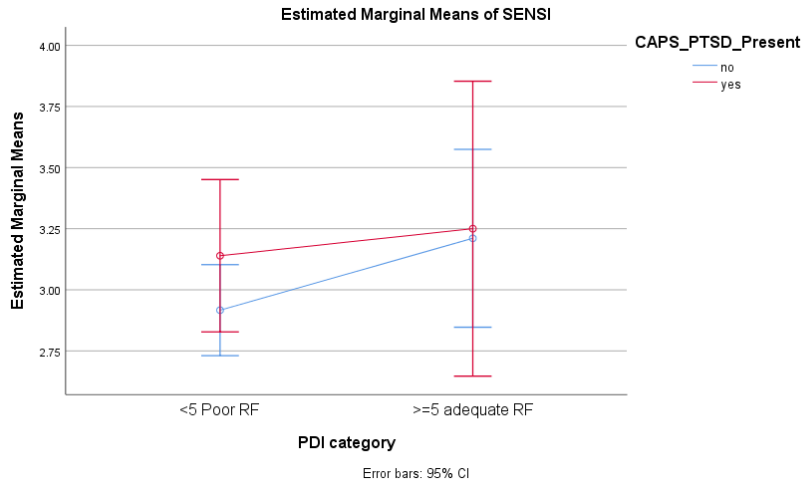

Figure 3 Means of Maternal Sensitivity scores by RF and PTSD

Table 26 indicates the moderating effect of RF on PTSD and the CIB outcome, maternal intrusiveness. As seen below the effect of RF on these variables was not statistically significant but a small effect size was found for the interaction between PTSD and maternal intrusiveness.

Table 26 Moderating effect of RF on PTSD and CIB outcome – Maternal Intrusiveness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.251[a]	3	.084	.413	.744	.018
Intercept	128.053	1	128.053	630.600	.000	.903
PTSD	.165	1	.165	.812	.371	.012**
RF	.100	1	.100	.490	.486	.007
PTSD x RF	.024	1	.024	.117	.733	.002
Error	13.808	68	.203			
Total	277.484	72				
Corrected Total	14.060	71				

a. R Squared = ,018 (Adjusted R Squared = -,025)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 4 demonstrates that intrusiveness scores were higher in the No PTSD group than the PTSD group and that with adequate RF intrusiveness scores decreased. However, this difference was not statistically significant but a small effect size was found for PTSD and intrusiveness.

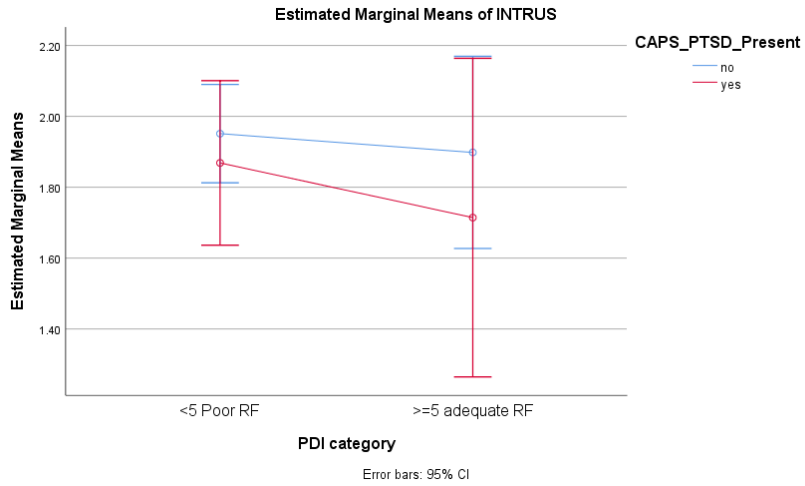

Figure 4 Means of Maternal Intrusiveness scores by RF and PTSD

Table 27 indicates the moderating effect of RF on PTSD and the CIB outcome, maternal limit setting. The effect of RF on these variables is not statistically significant. However, there is a statistically significant difference between RF and maternal limit setting only without taking PTSD into account with p = 0.035. Small effect sizes were also found for the interactions between PTSD and limit setting, between RF and limit setting and the effect of RF on PTSD and the CIB outcome.

Table 27 Moderating effect of RF on PTSD and CIB outcome – Maternal Limit Setting

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2.231[a]	3	.744	1.722	.171	.071
Intercept	700.212	1	700.212	1621.390	.000	.960
PTSD	.512	1	.512	1.186	.280	.017**
RF	2.008	1	2.008	4.650	.035*	.064**
PTSD x RF	.345	1	.345	.800	.374	.012**
Error	29.366	68	.432			
Total	1289.944	72				
Corrected Total	31.597	71				

a. R Squared = ,071 (Adjusted R Squared = ,030)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 5 demonstrates that maternal limit setting scores were higher in the PTSD group than the No PTSD group. It further demonstrates the participants with high RF had statistically significant higher scores on maternal limit setting. Furthermore, small effect sizes were found for interactions between all the variables.

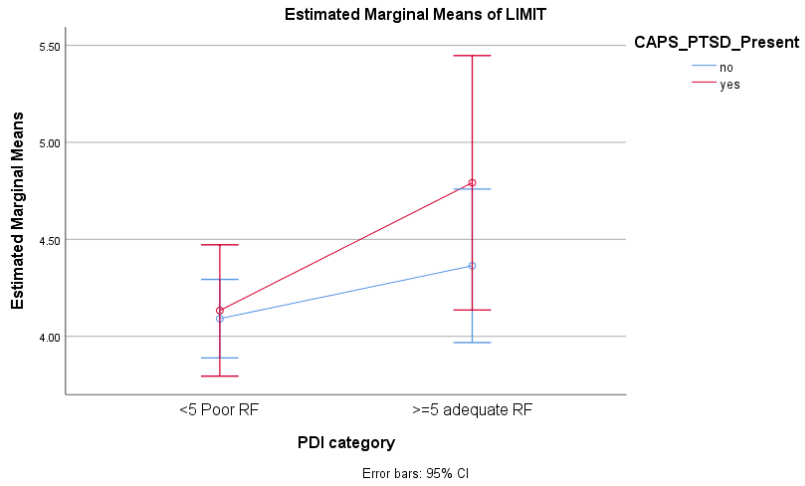

Figure 5 Means of Maternal Limit Setting scores by RF and PTSD

Table 28 indicates the moderating effect of RF on PTSD and the CIB outcome, maternal negative emotionality. As seen below the effect of RF on these variables was not statistically significant. However, a small effect size was found for the effect of RF on PTSD and the CIB outcome.

Table 28 Moderating effect of RF on PTSD and CIB outcome – Maternal Negative Emotionality

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.514[a]	3	.171	1.297	.283	.054
Intercept	49.847	1	49.847	377.255	.000	.847
PTSD	.002	1	.002	.015	.902	.000
RF	.001	1	.001	.010	.922	.000
PTSD x RF	.295	1	.295	2.234	.140	.032**
Error	8.985	68	.132			
Total	110.438	72				
Corrected Total	9.499	71				

a. R Squared = ,054 (Adjusted R Squared = ,012)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 6 indicates that maternal negative emotionality scores were higher in the PTSD group than the No PTSD group. Participants with No PTSD and high RF obtained lower scores on maternal negative emotionality. On the contrary, participants with PTSD and high RF scores obtained higher scores on maternal negative emotionality. These differences however were not statistically significant but a small significant effect size was evident for the overall interaction between PTSD, RF and negative emotionality.

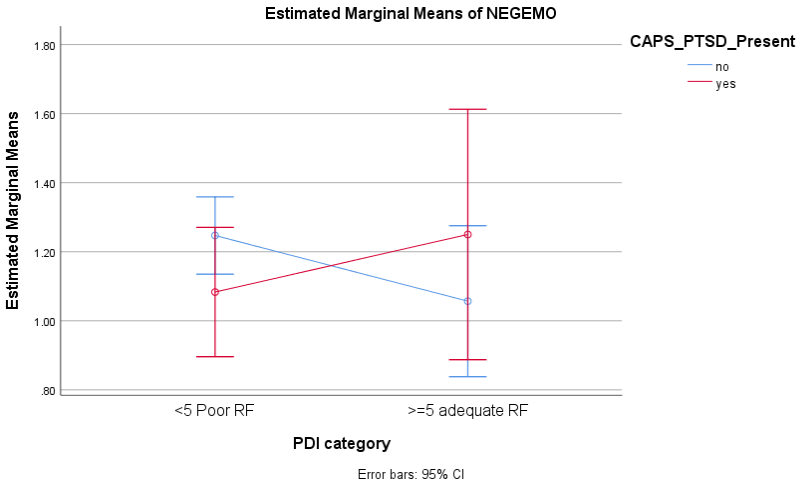

Figure 6 Means of Maternal Negative Emotionality scores by RF and PTSD

Table 29 indicates the moderating effect of RF on PTSD and the CIB outcome, child involvement. As seen below there were no statistically significant differences between variables but small effect sizes were achieved for the interaction between PTSD and child involvement and RF and child involvement.

Table 29 Moderating effect of RF on PTSD and CIB outcome – Child Involvement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.993[a]	3	.331	1.472	.230	.061
Intercept	472.498	1	472.498	2102.287	.000	.969
PTSD	.377	1	.377	1.676	.200	.024**
RF	.470	1	.470	2.092	.153	.030**
PTSD x RF	.011	1	.011	.050	.824	.001
Error	15.283	68	.225			
Total	878.615	72				
Corrected Total	16.276	71				

a. R Squared = ,054 (Adjusted R Squared = ,012)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 7 indicates the child involvement scores were higher in the PTSD group than the No PTSD. Adequate RF had a similar effect on both groups with higher RF scores resulting in higher child involvement scores. However, none of these differences were statistically significant but small significant effect sizes were found. There was also no statistically significant difference or effect size achieved in the overall interaction between RF, PTSD and child involvement.

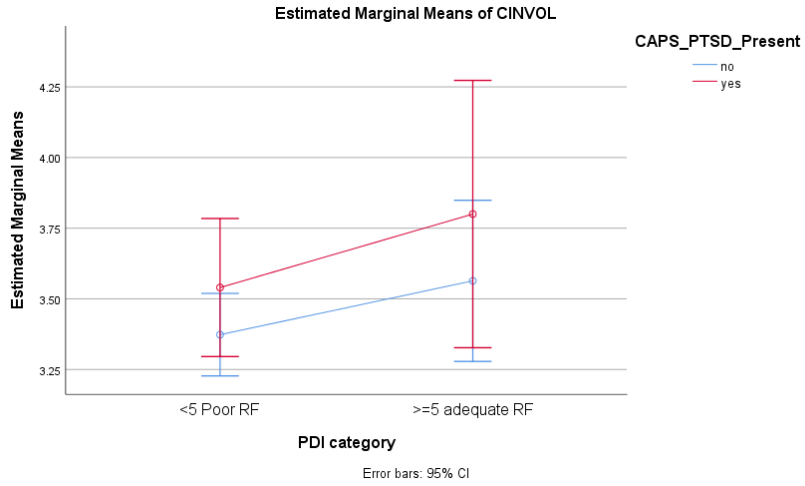

Figure 7 Means of Child Involvement scores by RF and PTSD

Table 30 indicates the moderating effect of RF on PTSD and the CIB outcome, child withdrawal. As seen below there were no statistically significant differences between variables. However, a small effect size was found between PTSD and child withdrawal.

Table 30 Moderating effect of RF on PTSD and CIB outcome – Child Withdrawal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.479[a]	3	.160	2.067	.113	.084
Intercept	46.433	1	46.433	600.651	.000	.898
PTSD	.127	1	.127	1.640	.205	.024**
RF	.035	1	.035	.456	.502	.007
PTSD x RF	.040	1	.040	.519	.474	.008
Error	5.257	68	.077			
Total	104.906	72				
Corrected Total	5.736	71				

a. R Squared = ,054 (Adjusted R Squared = ,012)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 8 indicates that participants with No PTSD obtained higher scores on child withdrawal than participants in the PTSD group. This finding was not statistically significant but a small effect size was achieved. In the No PTSD group, the level of RF affected the child withdrawal score where poor RF resulted in higher scores and adequate RF resulted in lower scores. For the PTSD group however, RF seemingly had no effect on child withdrawal scores. There were no statistically significant relationships between variables.

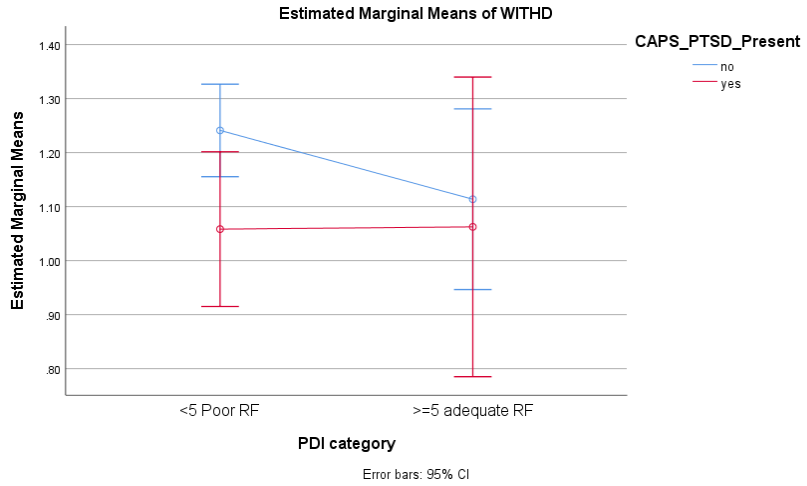

Figure 8 Means of Child Withdrawal scores by RF and PTSD

Table 31 indicates the moderating effect of RF on PTSD and the CIB outcome, child compliance. There were no statistically significant differences but a small effect size was found for the interaction between RF and child compliance.

Table 31 Moderating effect of RF on PTSD and CIB outcome – Child Compliance

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.933[a]	3	.311	.736	.534	.031
Intercept	396.911	1	396.911	939.300	.000	.932
PTSD	.163	1	.163	.385	.537	.006
RF	.846	1	.846	2.003	.162	.029**
PTSD x RF	.105	1	.105	.248	.620	.004
Error	28.734	68	.423			
Total	751.667	72				
Corrected Total	29.667	71				

a. R Squared = ,054 (Adjusted R Squared = ,012)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 9 indicates the child compliance scores were higher with adequate RF and this was true for both the PTSD and the No PTSD group. This finding was not statistically significant but a small effect size was achieved. The overall child compliance scores were higher for the PTSD group than the No PTSD group. However, these differences were not statistically significant with no effect sizes found.

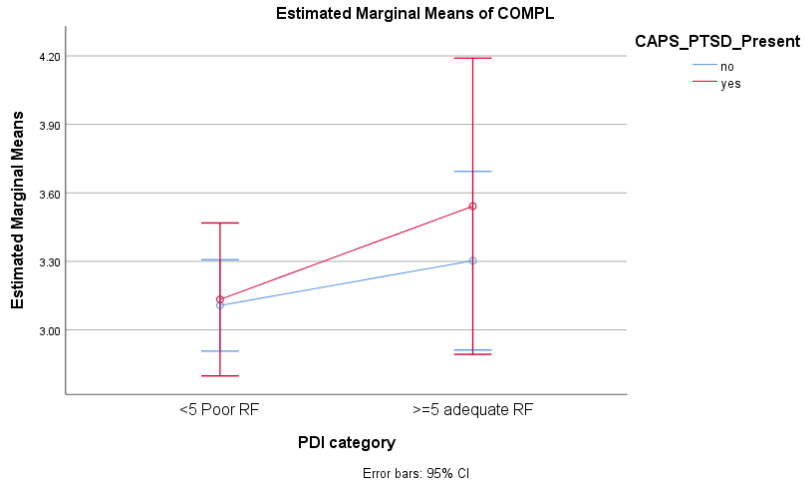

Figure 9 Means of Child Compliance scores by RF and PTSD

Table 32 indicates the moderating effect of RF on PTSD and the CIB outcome, dyadic reciprocity. As seen below the interaction between these variables was not statistically significant but a small effect size was found between RF and the CIB outcome.

Table 32 Moderating effect of RF on PTSD and CIB outcome – Dyadic Reciprocity

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.415[a]	3	.472	.543	.655	.023
Intercept	404.973	1	404.973	465.887	.000	.873
PTSD	.445	1	.445	.512	.477	.007
RF	.795	1	.795	.915	.342	.013**
PTSD x RF	.020	1	.020	.023	.881	.000
Error	59.109	68	.869			
Total	785.694	72				
Corrected Total	60.524	71				

a. R Squared = ,054 (Adjusted R Squared = ,012)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 10 indicates that dyadic reciprocity scores were higher for the PTSD group than the No PTSD group. Dyadic reciprocity scores were higher for both groups when RF was higher and a small effect size was found for this relationship. However, none of the interactions were statistically significant and no effect sizes were achieved.

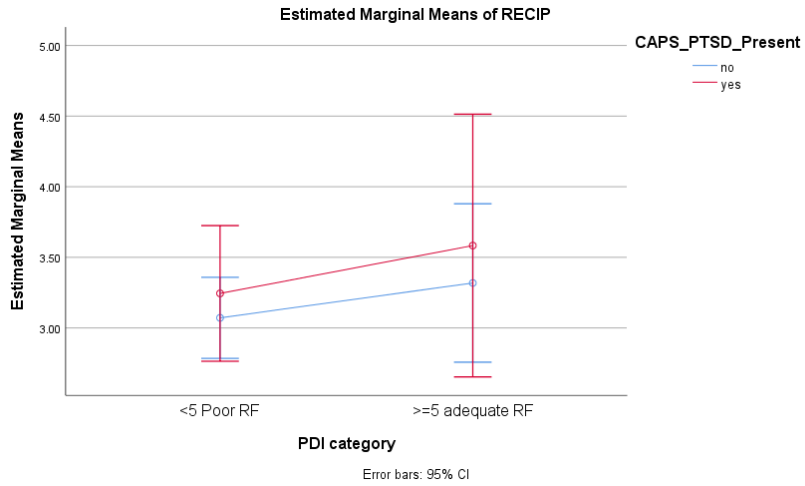

Figure 10 Means of Dyadic Reciprocity scores by RF and PTSD

Table 33 indicates the moderating effect of RF on PTSD and the CIB outcome, dyadic negative states. As seen below the effect of RF on these variables was not statistically significant but a small effect size was achieved for the interaction between PTSD and negative states.

Table 33 Moderating effect of RF on PTSD and CIB outcome – Dyadic Negative States

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.886[a]	3	.295	1.025	.387	.043
Intercept	53.350	1	53.350	185.094	.000	.731
PTSD	.593	1	.593	2.057	.156	.029**
RF	.003	1	.003	.010	.919	.000
PTSD x RF	7.484E-5	1	7.484E-5	.000	.987	.000
Error	19.600	68	.288			
Total	135.500	72				
Corrected Total	20.486	71				

a. R Squared = ,054 (Adjusted R Squared = ,012)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 11 indicates that dyadic negative state scores were higher in the No PTSD group than the PTSD group. A small significant effect size was found for this interaction. RF did not appear to affect scores in any way in both groups. The almost perfectly parallel lines seen below indicate that scores in both groups were more similar than different irrespective of RF score.

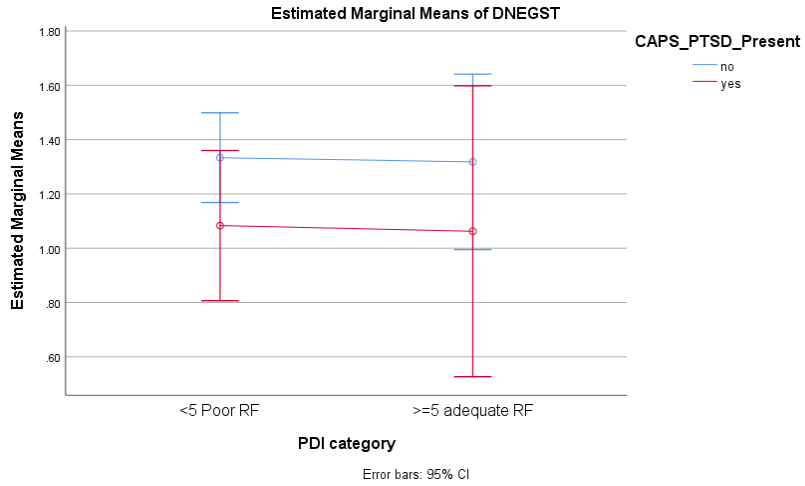

Figure 11 Means of Dyadic Negative State scores by RF and PTSD

Table 34 indicates the moderating effect of RF on PTSD and the CIB outcome, CIB total score. As seen below the effect of RF on these variables was not statistically significant but small effect sizes were found for the interaction between PTSD and total CIB score and RF and total CIB score.

Table 34 Moderating effect of RF on PTSD and CIB outcome – CIB Total score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.327[a]	3	.442	1.450	.236	.060
Intercept	477.201	1	477.201	1563.491	.000	.958
PTSD	.359	1	.359	1.175	.282	.017**
RF	.815	1	.815	2.670	.107	.038**
PTSD x RF	.019	1	.019	.063	.803	.001
Error	20.755	68	.305			
Total	884.218	72				
Corrected Total	22.082	71				

a. R Squared = ,054 (Adjusted R Squared = ,012)

*. Statistically significant p-value
Effect size η^2: 0.01 = **small, 0.1 = medium, 0.25 = large (Vache-Haas & Thompson, 2004)

Figure 12 indicates that CIB total scores were higher in the PTSD group than the No PTSD group. RF had a similar effect on both groups with adequate RF increasing CIB total score and poor RF lowering the total CIB score. However, these differences were not statistically significant but small effect sizes were found for the interactions between PTSD and total CIB score as well as RF and total CIB.

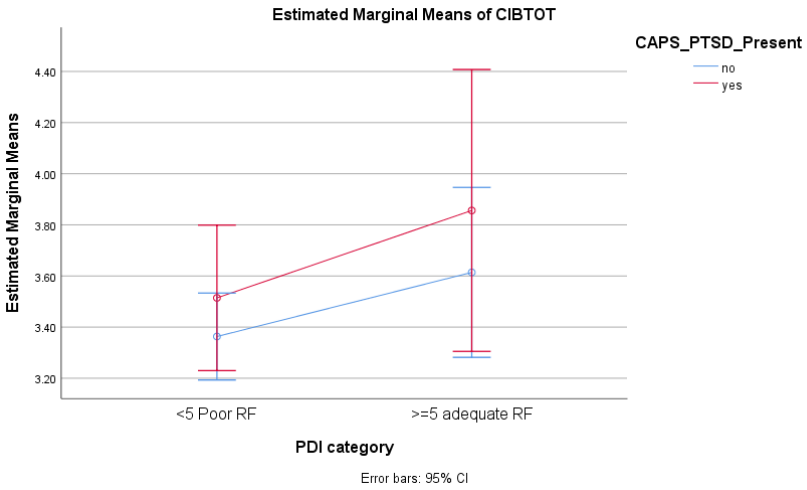

Figure 12 Means of CIB Total scores by RF and PTSD

Conclusion

Hypothesis 4: Higher levels of reflective functioning will have a moderating effect on the relationship between PTSD and caregiving sensitivity (i.e., the negative impact of PTSD on caregiving sensitivity will be moderated by higher levels of reflective functioning).

The above findings indicate that reflective functioning does not have a moderating effect on the relationship between PTSD and caregiving sensitivity (which includes all 10 CIB scales). Therefore, the null-hypothesis cannot be rejected.

5.11 Summary of findings

The demographic characteristics of the sample between the exposed and non-exposed group were very similar with only few statistically significant differences between the groups with reference to demographics. The percentage of participants requiring counselling in the PTSD group was significantly higher than those in the No PTSD group. Regarding substances, participants in the PTSD group were significantly more likely to use cannabis than those in the No PTSD group. However, cannabis use during pregnancy was significantly higher in the No PTSD group than those in the PTSD group while participants in the PTSD group were significantly more likely to use methamphetamine during pregnancy.

Mothers in the PTSD group were significantly more likely to delay their first visit to their local clinic than mothers in the No PTSD group. With regards to the LEC, the number of participants in the PTSD group was significantly more likely to have a direct experience with sexual assault than mothers in the No PTSD group. Regarding the objectives and hypotheses for the current study, findings mainly suggest no statistically significant difference between groups but small to medium effect sizes were found throughout which has clinical merit. These results will be discussed more specifically in the following chapter.

CHAPTER 6

DISCUSSION

6.1 Introduction

The principal aim of the current study was to investigate the relationship between PTSD, reflective functioning and caregiving sensitivity in mothers with substance abuse. The objectives deriving from this were as follows:

1. To evaluate the levels of reflective functioning of mothers in both the exposed group and the non-exposed group.
2. To assess the caregiving sensitivity of mothers in both the exposed group and the non-exposed group.
3. To compare the levels of reflective functioning and caregiving sensitivity in the exposed group with those found in the non-exposed group.

From these objectives the following hypotheses were tested:

- *Hypothesis 1*: Lower levels of reflective functioning will be associated with decreased caregiving sensitivity irrespective of the degree of PTSD symptoms and substance abuse.
- *Hypothesis 2:* Mothers with higher levels of PTSD *and* lower levels of reflective functioning will have poorer caregiving sensitivity than mothers who present only with higher levels of PTSD *or* lower levels of reflective functioning.
- *Hypothesis 3:* Levels of reflective functioning and care-giving sensitivity of mothers in the exposed group will differ from those in the non-exposed group.

- *Hypothesis 4:* Higher levels of reflective functioning will have a moderating effect on the relationship between PTSD and caregiving sensitivity (i.e., the negative impact of PTSD on caregiving sensitivity will be moderated by higher levels of reflective functioning.)

The results of these objectives and hypotheses will now be discussed.

6.2 Statistical versus clinical significance

The current study is underpowered meaning that the sample size (N=72) was not large enough to yield statistical power or to determine with significant certainty that findings are not the result of chance alone (Turner et al., 2013). This is known as a Type II error which is defined as a failure to reject a false null hypothesis (a false negative or missing true effects or associations) (Lieberman & Cunningham, 2009). This means that there is a greater chance of incorrectly failing to reject the null hypothesis when a difference actually does exist between variables of study (Lieberman & Cunningham, 2009).

However, there is a trend amongst statisticians and researchers to move away from overemphasizing the importance of statistical significance and dichotomizing research results as either statistically significant or non-significant (Amrhein et al., 2019). Furthermore, statisticians have considered null-hypothesis significance testing (NHST) insufficient for interpreting social science data (Ferguson, 2009). Researchers are encouraged to not believe an association or effect does not exist simply because it was not statistically significant (Wasserstein et al., 2019). The argument is that just because a finding is statistically non-significant, this does not mean it is not clinically significant or that findings may not have a significant impact on clinical practice or

understanding of the subject for researchers and practitioners in the relevant field. For this reason, this study examined both statistical significance and effect sizes as effect sizes are not affected by sample size and therefore considered a truer measure of the extent of effect between variables (Cohen, 1988; Ferguson, 2009).

6.3 PTSD versus sub-threshold PTSD

When discussing PTSD assessment Weathers et al. (1999) distinguish between those who just exceed the diagnostic threshold for PTSD versus those with sub-threshold but clinically significant symptoms. The current sample was diagnosed according to strict diagnostic criteria meaning that only those who met full diagnostic criteria for PTSD were placed in the PTSD group. Those in the No PTSD group mostly presented with sub-threshold PTSD meaning that even though they did not meet full diagnostic criteria, their symptoms were still clinically significant.

Although the number of symptoms reported by mothers in the No PTSD group were not as many as those in the PTSD group, pathology was still present and they too experienced psychological distress as a result of this pathology. Therefore, it may be argued that the comparison between the exposed and non-exposed group in the current study was an assessment of those presenting with pathology versus those with more severe pathology. Women in both groups were experiencing psychological distress; the only difference was the severity of the distress between them. The discussion below will highlight some of the major findings between the exposed and non-exposed group.

6.4 Demographic characteristics

With regards to demographic characteristics, there was very little difference between the exposed and non-exposed group. Mothers were mainly from the same living area with a similar socio-economic status and living under very similar conditions of poverty and adversity.

6.4.1 Substance use

Substance use in the total sample was high. Regarding cannabis use, women in the PTSD group were significantly more likely to have used cannabis (94.7%) compared to those in the No PTSD group (73.1%) with p=0.048. The most common frequency of use in both groups was daily use of cannabis (45.9% in the non-exposed group, 44.4% in the exposed group). However, the inverse was true for cannabis use during pregnancy with the percentage of mothers in the No PTSD group (38.5%) being significantly higher than those in the PTSD group (5.9%) with p=0.013. With regards to methamphetamine use, 69% of the total sample admitted to using and the most common frequency of use in the total sample was 2-4 times per week (37.8%). The percentage of methamphetamine use during pregnancy amongst mothers in the PTSD group was nearly double the percentage of use in the No PTSD group (88.2% versus 48.7% in the No PTSD with p=0.005).

These findings tend to fit current substance use trends in South Africa. As stated previously, SACENDU data reports that patients attending treatment centres report cannabis to be their primary or secondary substance of choice. The prevalence of use ranges from 20% to 55% (Dada et al., 2018). Cannabis has recently replaced methamphetamine (MA) as the primary drug of choice for patients admitted for treatment in the Western Cape, with a prevalence of use at 27.3% versus 26.1%, respectively (Dada et al., 2018). It has been argued that this increase in recent cannabis

use may be related to the ruling by the Western Cape High Court in March 2017 and subsequent support for the ruling by the Constitutional High Court in September 2018 legalising cannabis for private use, possession and cultivation (Evans, 2017; Lindeque, 2018).

The high number of mothers reporting MA use is also supported by current data indicating high percentages of MA use in the Western Cape. A qualitative study by Hobkirk et al. (2016) regarding MA initiation in Cape Town related high prevalence rates of MA use to the easy accessibility of the substance, that it was still considered a "trendy" drug in the Western Cape, and that it was associated with a lack of recreation and employment opportunities (an apparent feature of the living conditions of mothers in the current study). A close association between MA use and distribution and gang membership has also been found (also evident in areas such as Valhalla Park, Bishop Lavis, etc.) but that it is also seen as a means to cope with psychological distress (Hobkirk et al., 2016).

Mothers in the PTSD group were more likely to have used methamphetamine (84.2% versus 63.5% in the non-exposed group with p=0.094) and cannabis (94.7% versus 73.1% in the No PTSD group with p=0.048. This trend for mothers in the PTSD group to have higher rates of substance use than those in the No PTSD group may be an indication of the greater intensity and severity of pathology and associated distress these mothers need to deal with compared to those in the No PTSD group. The use of substances to help manage psychological distress is well documented in the literature (Joe, 1996; Klee, 2002 as in Haight et al., 2009; Newcomb, 1995) and is consistent with the current findings.

The levels of substance use in the No PTSD group was lower than those found in the PTSD group but the levels of use in this group was still quite high (63.5% admitted to using methamphetamines and 73.1% admitted to using cannabis). From the above discussion regarding sub-threshold PTSD, it may be argued that mothers in the No PTSD group were using substances to self-medicate and help cope with psychological distress associated with PTSD symptoms. As stated previously, although these women formed part of the No PTSD group, they still reported several PTSD symptoms and experienced a measure of psychological distress as a result of these symptoms.

6.4.2 Trauma exposure

With regards to the Life Events Checklist (LEC), there was a significantly higher number of participants in the PTSD group who had direct experience with sexual assault than mothers in the No PTSD group (55.6% versus 17% in the No PTSD group with $p=0.014$). Here sexual assault is described as rape, attempted rape or where participants have been made to perform any type of sexual act through force or threat of harm. In addition to this, the experience of any other unwanted or uncomfortable sexual experience was significantly higher in the PTSD group at 42.1% versus those in the No PTSD group at 11.3% with $p=0.016$.

These findings are consistent with reports by local studies which document that nearly half of South African women experience physical or sexual assault from a male partner in their lifetime (Dunkle et al., 2004; Jewkes et al., 2002). Kaminer et al. (2008) further report that rape is the form of violence that is most strongly associated with a lifetime diagnosis of PTSD amongst women (Kaminer, et al., 2008). Therefore, findings in the current sample which show significantly higher rates of sexual assault and/or unwanted and uncomfortable sexual experiences in the PTSD group

and reveal a greater association between PTSD and sexual trauma, appear to be consistent with other local research.

6.5 Levels of RF between the exposed and non-exposed group

It was hypothesised that the levels of RF in the exposed group would differ from those in the non-exposed group. However, it was found that the levels of RF between the 2 groups were almost identical.

The sample was further divided into adequate (RF score ≥5) and poor RF (RF score ≤4). The percentage of participants presenting with poor and adequate RF between the PTSD and No PTSD groups were also very similar. In the total sample of 72 participants, only 15 participants presented with adequate RF (20.8%) irrespective of PTSD while the remaining 57 (79.2%) presented with poor RF, indicating that most of the participants in this study presented with poor or inadequate RF.

According to the literature, mothers misusing substances are generally found to have lower levels of maternal reflective functioning (Suchman et al, 2008; Pajulo et al., 2008; Suchman et al., 2016; Suchman et al., 2017). All mothers in the current sample have a history of substance use, therefore these findings appear to agree with the current literature. The association between RF and PTSD has yielded some conflicting findings in previous research. Maternal PTSD has been found to have an adverse impact on attachment (Schechter et al., 2005) but maternal RF and severity of PTSD were also found to have a non-significant correlation (Schechter et al., 2005).

The current study found a lack of statistically significant difference in RF between the exposed and non-exposed group and is consistent with some of the literature. This finding could perhaps be an indication of the level of PTSD pathology present in both the PTSD and No PTSD group. In other words, even though the level of pathology in the PTSD group is more severe than that in the No PTSD group, it could be argued that the level of pathology in the No PTSD group is severe enough to warrant disturbance in RF similar to that which was found in the PTSD group.

Schechter et al. (2008) found no significant relationship between maternal RF and atypical maternal behaviour in their sample of referred mothers which differs from other research findings with non-referred samples (Grienenberger et al., 2005). They argue that a possible reason for this is that maternal RF is not directly associated with the quality of maternal behaviour in clinical samples presenting with *significant levels of psychopathology* (Schechter et al., 2008). Even though these authors focused on the association between RF and the quality of maternal behaviour, perhaps a similar argument can be made for levels of RF. In other words, the levels of RF might not be different between groups where a significant level of pathology is present in both groups, even when the one presents with greater pathology than the other. This could possibly account for the findings in the current sample.

An unexpected finding in the current sample was the PTSD overlap between the 2 groups. This study was designed with the expectation of finding a group of women who presented with PTSD and a group of women who were trauma-exposed but who presented with No PTSD symptoms or very low numbers of symptoms. However, upon closer examination of the 2 groups it was found that the 19 participants in the PTSD group presented with a median of 10 symptoms and a symptom

range of 6-18. The 53 participants in the No PTSD group had a median of 2 symptoms but a symptom range of 0-10 clearly showing an overlap between the 2 groups. The No PTSD group was not symptom free and looking at the symptom range between them one can see that there could not be a distinct comparison between these 2 groups. In this particular population it was hard to find participants without any symptoms of PTSD. Therefore, the unexpected finding of such high PTSD levels in this population resulting in an overlap between the 2 binarized groups led to a lack of expected distinction regarding certain variables between them.

6.6 Levels of caregiving sensitivity between the exposed and non-exposed group

It was hypothesised that the levels of caregiving sensitivity as measured by the CIB in the exposed group would differ from those in the non-exposed group. However, the current findings suggest that the level of caregiving sensitivity in the exposed group were mostly similar to those in the non-exposed group. The only statistically significant CIB score between the 2 groups was for the child withdrawal scale where mothers without PTSD scored significantly higher than those with PTSD.

The child withdrawal scale refers to the level of withdrawal from interaction with the mother displayed by the child. Scores range from 1 (where the child shows no withdrawal) to 5 (where the child is consistently withdrawn with flattened affect and does not initiate or respond to bids for interaction with the mother) (Feldman, 1998). Therefore, high scores on this scale are an indication of a poor relationship between mother and child. Schechter et al. (2008) found that the more severe a mother's PTSD symptoms the more distant she was both psychically and psychologically from her child.

The current measure focuses on the child's and not the mother's withdrawal, but it may be argued that high withdrawal in the mother may result in high withdrawal from the child. It would therefore be expected for mothers in the PTSD group to have higher scores on this scale but here the opposite is true. In other words, children of mothers in the No PTSD group were significantly more likely to withdraw from their mothers than children of mothers in the PTSD group. This finding may again be indicative of the high level of pathology in both the PTSD and No PTSD group in the current sample. Even though a statistically significant difference was only found in 1 scale, several items showed small-medium effect sizes namely, sensitivity, intrusiveness, negative emotionality, child involvement, child withdrawal, dyadic reciprocity, dyadic negative states and total CIB score.

For all the scales reflecting poor quality of the mother/child relationship (namely, maternal intrusiveness, maternal negative emotionality, child withdrawal, and dyadic negative states) there appeared to be a trend of higher scores in the No PTSD group than in the PTSD group. CIB scores for mothers in the PTSD group were higher for the more positive scales (namely, maternal sensitivity, child involvement, dyadic reciprocity and overall CIB score). This suggests that mothers in the No PTSD group presented with a poorer quality of maternal behaviour and interaction with her child than those in the PTSD group. This finding may again be indicative of the high level of pathology in both the PTSD and No PTSD group in the current sample or perhaps there are other confounding variables at play which were not assessed in the current study.

6.7 Correlation between RF and caregiving sensitivity

It was hypothesized that RF would be associated with caregiving sensitivity irrespective of PTSD. The current findings however show little evidence of such a correlation. The only item with a statistically significant relationship is the relationship between RF and limit setting. As scores in RF increased so too did scores in limit setting displaying a positive correlation between the 2 variables.

Limit setting refers to the mother's ability to set appropriate limits for her child. A score of 1 represents a parent who does not set appropriate limits while a score of 5 is an indication of a mother who provides appropriate structure and there is no need for constant negotiation of limits between mother and child. This finding is consistent with the literature as it has been found that RF affects the quality of maternal behaviour in relation to her child (Suchman et al., 2013).

Although there is only 1 statistically significant difference, 3 scales showed small effect sizes and therefore warrant discussion. Similarly, higher scores in RF were associated with better scores in child involvement representing a positive correlation between the 2 variables. The small effect size between RF and child withdrawal suggested a negative correlation meaning that high scores in RF resulted in lower scores in child withdrawal. However, since child withdrawal represents poor quality of interaction between mother and child this finding is still consistent with the current literature.

The sample was divided into different groups dependent on PTSD and RF category. Group 1 = PTSD and poor RF, Group 2 = PTSD and adequate RF, Group 3 = No PTSD and poor RF. It was

hypothesized that mothers with higher levels of PTSD *and* lower levels of reflective functioning would have poorer caregiving sensitivity than mothers who present only with higher levels of PTSD *or* lower levels of reflective functioning. In the current study, no significant difference was found between mothers with higher levels of PTSD and lower levels of RF and their caregiving sensitivity. However, small effect sizes were found between and within groups and all 10 CIB scores. This trend is consistent with literature suggesting that high RF and low levels of PTSD are associated with better quality of maternal behaviour towards her child (Schechter et al., 2005; Suchman et al., 2013).

6.8 Moderating effect of RF on PTSD and caregiving sensitivity

It was expected that RF would moderate the negative effects of PTSD on the outcome variable caregiving sensitivity. However, the current results found no statistically significant indications of such a moderating effect. However, small effect sizes were found on 2 of the 10 CIB scales, namely, limit setting and maternal negative emotionality. These findings suggest that RF had a small moderating effect on PTSD and these 2 CIB scales.

Some research has found attachment to moderate the effects of PTSD on mother-child relations (Schechter et al., 2005). However, in a study by Schechter et al. (2008) no significant relationships were found between PTSD, RF and overall atypical caregiving behaviour (Schechter et al., 2008). These authors attributed these findings in part to a limitation of power in their study, the use of a non-optimal RF measure (namely of an abbreviated version of the WMCI rather than the PDI) and the lack of a non-PTSD control group (Schechter et al., 2008). The lack of statistically significant results in the current study may similarly be due to a lack of statistical power.

6.9 Limitations of the study

The following may be considered as limitations of the study:

1) The current study was underpowered and vulnerable to Type II error.
2) The sample may have been too homogenous and therefore did not allow for enough difference between the exposed and non-exposed group in order to find statistically significant differences between them. It may be possible that differences do not exist in the identified sample. That is, it is possible that a study with a significantly larger sample size from this region may still not yield significant differences between an exposed and non-exposed group based within the same region. The pathology present in the overall sample may be too severe to warrant differences in the variables of interest.
3) The exposed group was much smaller (n = 19) compared to the non-exposed group (n = 53). Not only does the overall small sample size affect precision of the estimate sub-group analyses but would also have a compounding effect on the precision of population mean estimation and power. This led to wide confidence intervals making inference regarding a population mean less precise (i.e., an inference can be made but not with much precision).
4) All participants were from similar areas in the Western Cape. These findings may therefore not be valid for or generalizable to individuals living in other provinces or even other parts of the Western Cape.
5) Responses to the CAPS-5 were retrospective and therefore susceptible to recall bias.
6) Most of the instruments were self-report and under-reporting or over-reporting may have been evident with some of the instruments utilised in the study.

7) The current study did not assess for comorbid psychopathology therefore results may be susceptible to confounding variables as other forms of psychopathology may have been present in the mothers participating in the study.

8) Individuals who were unable to communicate fluently in Afrikaans or English were not included in the study. This is because there are currently no reliable isiXhosa speaking coders available to code the PDI-S. The PDI-S questionnaire itself may be translated into isiXhosa, but with no reliable isiXhosa speaking coder available the interpretation of findings would be unreliable. Should respondent content be translated to English in order to be coded by a reliable English-speaking coder, the nuances of the respondent feedback would be lost and would therefore be invalid.

CHAPTER 7

CONCLUSION AND RECOMMENDATIONS

This study aimed to investigate the relationship between PTSD, reflective functioning and caregiving sensitivity in mothers with substance abuse. The conclusions derived from this investigation are listed below.

7.1 Conclusion

1) A significantly larger percentage of mothers in the PTSD group used cannabis.
2) A higher percentage of women in the PTSD group used methamphetamine.
3) 80% of the total sample used substances during pregnancy but there was no statistically significant difference between the 2 groups regarding substance use in general.
4) A significantly larger percentage of mothers in the No PTSD group used cannabis during pregnancy.
5) Nearly double the percentage of mothers in the PTSD group used methamphetamine during pregnancy.
6) There was a significantly higher percentage of participants in the PTSD group who had direct experience with sexual assault and unwanted and/or uncomfortable sexual experiences.
7) There was no statistically significant difference in levels of RF between the exposed and non-exposed groups.
8) In the total sample of 72 participants, only 15 participants presented with adequate RF (20.8%) and the remaining 57 (79.2%) presented with poor RF with no statistically significant difference between the 2 groups.

9) The level of caregiving sensitivity between the exposed group and non-exposed group were mostly similar. The only statistically significant CIB score between the 2 groups was for the child withdrawal scale where mothers without PTSD scored significantly higher than those with PTSD. However, several items showed small-medium effect sizes namely, sensitivity, intrusiveness, negative emotionality, child involvement, child withdrawal, dyadic reciprocity, dyadic negative states and total CIB score.

10) These effect sizes between groups tend to suggest that mothers in the No PTSD group present with a poorer quality of maternal behaviour and interaction with her child than those in the PTSD group.

11) The current findings show little evidence of correlation between RF and caregiving sensitivity. The only item with a statistically significant relationship is the relationship between RF and limit setting. Small effect sizes were found between RF and 3 CIB scales namely, limit setting, child involvement and child withdrawal.

12) No significant difference was found between mothers with higher levels of PTSD and lower levels of RF and their caregiving sensitivity. However, small effect sizes were found between and within PTSD/RF groups and all 10 CIB scores.

13) No statistically significant results were found suggesting a moderating effect of RF on PTSD and the outcome variable caregiving sensitivity. Small effect sizes were however found on 2 of the 10 CIB scales, namely, limit setting and maternal negative emotionality.

7.2 Recommendations for practice

The high prevalence of substance use in the current sample is of great concern particularly the high percentage of mothers using substances during pregnancy. Health workers are therefore

encouraged to continue screening for substance use during pregnancy. Furthermore, women misusing substances should be offered substance use intervention prior to pregnancy and should be well educated about the effects substance use could have on their infant *in utero* and throughout the lifespan as a means of motivating women to at least refrain from using substances in the event of pregnancy. Once pregnant, mothers misusing substances should be offered ongoing treatment for their addiction. These interventions may include inpatient and/or outpatient treatment programmes for addiction offered by addiction treatment centres throughout the Western Cape. The main therapeutic modality in these programmes include Motivational Interviewing, Rational Emotive Behavioural Therapy, Cognitive Behavioural Therapy, The Matrix Model and Life Skills Training, among others.

In addition to this, women should be offered an attachment-based intervention to improve an emotional bond with their child even before birth and increase their reflective functioning to improve mother-infant interactions. This early intervention may aid in preventing attachment pathology in mother-child cohorts. Moreover, it may aid in preventing the intergenerational transmission of attachment trauma between mother and child and prevent the development of psychopathology in the child. The PIO programme (Parenting from the Inside Out), an attachment-based parenting intervention, has been pre-piloted in various clinical settings in the Western Cape and has shown promise in its feasibility and acceptability for use in this setting (Suchman et al., 2019).

Given the high rates of trauma exposure, diagnosable PTSD and PTSD symptoms in the current sample, women should also be routinely screened for PTSD. The high rates of sexual trauma,

particularly in the PTSD group, is also very concerning. These rates are consistent with previous studies conducted in South Africa and unfortunately these rates do not seem to be diminishing. Women experiencing such high rates of trauma exposure and PTSD symptoms should receive ongoing treatment such as Trauma-Focused CBT or Brain Working Recursive Therapy to help deal with the distress related to such pathology but also to prevent further engagement in addictive behaviour.

Substances are often used to medicate psychological distress but could expose women to high risk situations in which traumatic events may reoccur. This is a complex problem that requires well-coordinated and well-planned evidence-informed interventions from multiple relevant stakeholders. It is therefore recommended that multiple governmental departments (SA Police Department, Department of Social Development, and Department of Health) collaborate and combine resources to address this significant problem in our society. Non-governmental Organizations (NGO's) and faith-based organisation also have a role to play in combatting the challenges within these communities.

7.3 Recommendations for future studies

It is recommended that future studies explore PTSD, RF and caregiving sensitivity with a larger sample in the living areas focused on in this study but also within different communities in the Western Cape and other provinces in South Africa. A larger sample should also contain equal numbers between the exposed and non-exposed group – this may possibly provide greater clarity regarding significant differences between the 2 groups. Future research should also assess a wider range of psychopathology within the sample. Women in these communities may also be

experiencing psychological distress related to other diagnosable illnesses such as Major Depressive Disorder, Anxiety Disorder, etc. A greater understanding of possible comorbid pathology may improve insight into variance or lack of variance in the levels of RF and caregiving sensitivity in the sample.

It is also recommended that future research assess the mother's adult attachment style. This assessment could explore the type of attachment the mother developed with her caregivers in early childhood and the attachment style utilised later in life as a result of these early relationships. Evidence suggests that attachment and mentalization/reflective functioning are closely linked but still separate as attachment is seen as the foundational basis upon which mentalization is built. It would therefore be interesting to see the link between the mother's attachment style as compared to her levels of reflective functioning. Qualitative research could also offer more in-depth explorative research and further deepen the understanding of the interactions between PTSD, reflective functioning and caregiving sensitivity.

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APPENDIX A

PARTICIPANT INFORMATION LEAFLET

TITLE OF THE RESEARCH PROJECT:
"An investigation of the relationship between PTSD, reflective functioning and caregiving sensitivity amongst mothers misusing substances"

REFERENCE NUMBER:

PRINCIPAL INVESTIGATOR:
A. Adams

ADDRESS:
Department of Psychiatry
Faculty of Medicine & Health Sciences
University of Stellenbosch
Tygerberg Campus

CONTACT NUMBERS:
021 940 8922/4504 (A. Adams)

Dear participant

My name is Amy Adams and I am a Clinical Psychologist. I would like to invite you to take part in a research project that aims to help mothers in their relationship with their children.

Please take some time to read the information given, which will explain the details of this project and contact me if you have any questions. Also, your participation is **entirely voluntary** and you are free to not take part. If you say no, this will not have any negative consequences for you. You are also free to leave the study at any point, even if you do agree to take part.

This study has been approved by the **Health Research Ethics Committee (HREC) at Stellenbosch University** and will be conducted according to accepted and applicable National and International ethical guidelines and principles, including those of the international Declaration of Helsinki 2013.

Description of the Research Project

This study aims to understand the relationship between mothers and their children better and how trauma may play a role in this. I will be working with mothers who have been exposed to trauma and who use drugs (either now or in the past). A research assistant and I will be talking to about 72 mothers who have children aged 9 years and younger in 2 assessment sessions. This project is part of a larger study, namely, the Safe Passage Study which you are still a part of.

The sessions will take place at Stikland Hospital, Bellville. The time of these sessions will be arranged between you and the researchers. The sessions will last about 60-120 minutes each and we will provide you with transport to get to these sessions.

Over the 2 sessions, we will ask you about any trauma you may have had and about trauma symptoms you may or may not have had after this trauma. We will do an interview where we talk to you about your relationship with your child. This interview will last about 60 minutes. This interview may take some time, but you will be offered a break if you become too tired. We will also watch an interaction between you and your child, which should take about 15 minutes.

We would like your permission to video record and audio record all assessment interviews so that we can understand and learn about what is helpful and what is not so helpful to you. We will keep all recordings and documents safely locked in a cupboard and your name will not appear on tapes or on these written documents.

You can leave this study at any time you wish; you do not have to explain why you want to leave and it will not affect your treatment at Tygerberg Hospital or your involvement in the Safe Passage Study. If you have any concerns about your own health or that of your child, we will make sure that they are seen to.

To make sure that all aspects of this research is conducted in the right way, the research records may be inspected by auditors or members of the Research Ethics Committee. If you would like to make contact with the Research Ethics Committee, you may call Elvira Rohland at 021 938 9677 or email ethics@sun.ac.za.

If you would like to know more about the study or have some questions, please do not hesitate to ask.

The contact details are:
021 940 8922/4504 (A. Adams)
If you are willing to participate in this study please sign the attached Declaration of Consent.

Yours sincerely
Amy Adams
Principal Investigator

Declaration by participant

By signing below, I ……..……. agree to take part in a research study entitled: "An investigation of the relationship between PTSD, reflective functioning and caregiving sensitivity amongst mothers misusing substances"

I declare that:

- I understand what is written in this form. I have had a chance to ask questions and all my questions have been answered.
- I understand that taking part in this study is **voluntary** and I have not been forced to take part.
- I can leave the study at any time and nothing bad will happen to me if I leave the study.
- I may be asked to leave the study before it has finished, if the researcher feels it is best for me, or if I do not follow the study plan, as agreed to.

I hereby give consent to the following (please tick ✔ the appropriate box):

- I plan to participate in both assessment sessions.

Yes		**No**	

- To have my interviews with the researchers and the observation sessions between me and my child video recorded and audio recorded.

Yes		**No**	

- To have recordings of my interviews and interaction with my child sent to coders.

Yes		**No**	

- To allow these video recordings to be used for presentations and conferences.

Yes		**No**	

Signed at (*place*) .....……. On (*date*) ……...…….. 201….

.....

Signature of participant

APPENDIX B

I have been granted permission to use this questionnaire but have not been granted permission to distribute it to others.

REVISED PDI-S

PARENT DEVELOPMENT INTERVIEW REVISED

SHORT VERSION

Arietta Slade
J. Lawrence Aber
Brenda Berger
Ivan Bresgi
Merryle Kaplan
August, 2012

This interview is an adaptation of the Parent Development Interview (Aber, Slade, Berger,
Bresgi, & Kaplan, 1985). This protocol may not be used or adapted without written permission from Arietta Slade, Ph.D., 8 Hodge Road, Roxbury, CT 06783, arietta.slade@gmail.com

APPENDIX C

LIFE EVENTS CHECKLIST (LEC)	**Participant ID#:**
Date of interview:	**Interviewer name:**
Time interview began:	**Time interview ended:**

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) it *happened to you* personally, (b) you *witnessed it* happen to someone else, (c) you *learned about it* happening to someone close to you, (d) you're *not sure* if it fits, or (e) it *doesn't apply* to you. Be sure to consider your *entire life* (growing up as well as adulthood) as you go through the list of events.

Event	**Happened to me**	**Witnessed it**	**Learned about it**	**Not Sure**	**Doesn't apply**
1. Natural disaster (for example, flood, hurricane, tornado, earthquake)					
2. Fire or explosion					
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)					
4. Serious accident at work, home, or during recreational activity					
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)					
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)					
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)					
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)					
9. Other unwanted or uncomfortable sexual experience					
10. Combat or exposure to a war-zone (in the military or as a civilian)					
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)					
12. Life-threatening illness or injury					
13. Severe human suffering					
14. Sudden, violent death (for example, homicide, suicide)					
15. Sudden, unexpected death of someone close to you					
16. Serious injury, harm, or death you caused to someone else					
17. Any other very stressful event or experience					

Blake, Weathers, Nagy, Kaloupek, Charney, & Keane, 1995

APPENDIX D
DEMOGRAPHICS QUESTIONNAIRE

Participant ID#:	**Participant's DOB:**
Participant's first language:	**Identified child's age:**
Contact number:	**Counselling needed:**
Address:	
Date of interview:	**Interviewer name:**
Time interview began:	**Time interview ended:**

Interviewer's Script
Now, I am going to ask you some questions about your pregnancy and your baby. Because these questions are personal, any information you share with me will be kept confidential. You will be identified by a number only, not by name. Your name will not be placed on this form.

Current Living Situation:

☐ 1 Independent

☐ 2 Inter-dependent (living with extended family or other persons for economic/ cultural reasons)…….

☐ 3 Dependent Living (includes living in supervised settings, e.g.. halfway houses, and group homes, with family, friends, relatives)

☐ 4 Homeless (no fixed address, includes shelters)

Mother's Information

Current Relationship Status:

☐ 1 Single ☐ 2 Cohabiting ☐ 3 Divorced ☐ 4 Married ☐ 5 Separated

☐ 6 Widowed 7 ☐ Non-cohabitating partner 8 ☐Other (can we tick more than one?)

Duration of relationship:

☐ 1 ≤ 6m ☐ 2 6-12m ☐ 3 1-5yrs ☐ 4 5-10yrs ☐ 5 10-15yrs

☐ 6 15-20yrs 7 ☐ >20yrs

Are you largely/mostly satisfied with your relationship with your partner/spouse?

☐ 1 Yes ☐ 0 No ☐ 2 n/a

Ethnicity/Race:

☐ 1 Coloured	☐ 3 White	☐ 5 Asian
☐ 2 Black	☐ 4 Indian	☐ 6 Other Ethnicity _____

Education and Employment:

Highest level of Education: …… Are you employed? ☐ 1Yes ☐ 0 No 2 ☐ Part time

Target Child's Information

Date of Birth: …….. Age: …….. (in months)

Gender: 1 Female 2 Male

Other Children

How many children do you have? …….. How many children are you caring for?.....

Target Child's Father

Target Child Father's Age: (in years)

Does he live with you and target child?

☐ 1 Yes ☐ 0 No

Is he involved in caring for target child?

☐ 1 Yes ☐ 0 No

Target Child's Father: Education and Employment

Highest level of Education:……. Are you employed? ☐ 1Yes ☐ 0 No 2 ☐ Part time

PRENATAL CARE

1. When did you first learn you were pregnant? ……. (week of pregnancy)
2. Was the pregnancy planned or unplanned? 1 planned 0 unplanned
3. Where did you receive your prenatal care?.....
5. When did you first receive prenatal care?.....(weeks in pregnancy)
6. How often were your prenatal care visits?.....

DELIVERY INFORMATION

7. Delivery due date: ……..

8. Date of birth: ……..

9. Infant's weight: ……..(kgs)

10. Route of delivery: 1 Vaginal 0 C-Section

MEDICAL COMPLICATIONS

11. Did you have any complications during delivery? 1 Yes 0 No

Please specify:

_____

_____

12. Did (child's name) have any medical complications/ problems at birth? 1 Yes 0 No

Please specify:

_____

_____

13. Did you use any substances during your pregnancy? 1 Yes 0 No

14. If so, which substance/s did you use?.....

15. How often did you use?

1 - 1 time per week

2 - 2-4 times per week

3 - 5-6 times per week

4 - 7 times per week

5 - Other……..

16. Did (child's name) need to detox off any substances? 1 Yes 0 No 2 N/A

POSTNATAL DEVELOPMENT

23. At what age did (child's name) start:

- Crawling……
- Walking…….
- First words…….
- First sentences……..

28. What is (child's name) dominant language?

1 English 2 Afrikaans 3 Xhosa 4 Other……

29. Do you have any concerns about (child's name) development? 1 Yes 0 No

If yes, describe:

_____

_____

Interviewer's Script

Now, I am going to ask you some questions about drug use. Because these questions are personal, any information you share with me will be kept confidential.

DRUG USE

30. Have you ever used:

a) Marijuana (weed, dope or dagga) ……. 0 NO 1 YES

If never, skip to next question

31. When did you first use……..

32. When did you last use……..

33. How often do you use within a week…….

1 - 1 time per week

2 - 2-4 times per week

3 - 5-6 times per week

4 - 7 times per week

5 - Other……..

b) Methamphetamines (crank, uppers, tik, chalk, meth, crystal meth, ice, glass, speed or quick)…… ……. 0 NO 1 YES

34. When did you first use…….

35. When did you last use……

34. How often do you use within a week……

1 - 1 time per week

2 - 2-4 times per week

3 - 5-6 times per week

4 - 7 times per week

5 - Other……..

c) Any other substance……..0 NO 1 YES

If never, skip to next question

35. Which substance/substances:

When did you last use?

Other #1…… → ……

Other #2…… → ..……

Other #3…… → ……

Other #4…… → ……

Other #5…… → ……

Other #6…… → ……

Interviewer's Script

Now, I am going to ask you some questions about alcohol use. Because these questions are personal, any information you share with me will be kept confidential.

ALCOHOL USE

36. How often do you have a drink containing alcohol?

0 - Never

1 - Monthly or less

2 - 2 – 4 times a month

3 - 2 – 3 times a week

4 - 4 or more times a week ***If never, end interview.***

37. When did you first start drinking?.....

38. When did you have your last drink?.....

39. How many units of alcohol do you drink on a typical day when you are drinking?

1 - 1 or 2 drinks

2- 3 or 4 drinks

3 - 5 or 6 drinks

4 - 7 or 8 or 9 drinks

5 - 10 or more drinks

40. How often have you had 6 or more units of alcohol on a single occasion in the last year?

0 - Never

1 - Less than monthly

2 - Monthly

3 - Weekly

4 - Daily or almost daily

Thank you very much.

APPENDIX E

National Center for PTSD

CLINICIAN-ADMINISTERED PTSD SCALE FOR DSM-5

PAST MONTH VERSION

Participant ID#:_____ Date: _____

Interviewer:_____

Study: _____

Frank W. Weathers, Dudley D. Blake, Paula P. Schnurr,
Danny G. Kaloupek, Brian P. Marx, & Terence M. Keane

National Center for Posttraumatic Stress Disorder
May 1, 2015

Criterion A: Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
1. Directly experiencing the traumatic event(s).
2. Witnessing, in person, the event(s) as it occurred to others.
3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

I'm going to ask you about the stressful experiences questionnaire that you spoke about before. First I'll ask you to tell me a little bit about the event you said was the worst for you. Then I'll ask how that event may have affected you. In general I don't need a lot of information – just enough so I can understand any problems you may have had. Please let me know if you find yourself becoming upset as we go through the questions so we can slow down and talk about it. Also, let me know if you have any questions or don't understand something. Do you have any questions before we start?

The event you said was the worst was (EVENT). What I'd like for you to do is briefly describe what happened.

Index event (specify)

What happened? *(How old were you?* *When did it happen?* *How were you involved?* *Who else was involved?* *Was anyone seriously injured or killed?* *Was anyone's life in danger?* *How many times did this happen?)*	*Exposure type:* *Experienced ___* *Witnessed ___* *Learned about ___* *Exposed to aversive details___* ***Life threat?*** *NO YES [self ___ other ___]* ***Serious injury?*** *NO YES [self ___ other ___]* ***Sexual violence?*** *NO YES [self ___ other ___]* ***Criterion A met?*** *NO PROBABLE YES*

Since (EVENT) has there been a time when it was causing you more problems than it has over the past month? *[If yes:]* ***When was (EVENT) causing you the most problems?*** *[If not clear:]* ***Did it last at least a month?***

For the rest of the interview, I want you to keep (EVENT) in mind as I ask you about different problems it may have caused you. For this interview we're going to focus on the *past month***. For each problem I'll ask if you had it at all, and if so, how often and how much it bothered you.**

Criterion B: Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. (B1) Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

a) **In the *past month*, have you had any unwanted memories of (EVENT) while you were awake, so not counting dreams?** [Rate 0=Absent if only during dreams] b) **How does it happen that you start remembering (EVENT)?** [If not clear:] ***(Are these unwanted memories, or are you thinking about [EVENT] on purpose?)*** [Rate 0=Absent unless perceived as involuntary and intrusive] c) **How much do these memories bother you?** **Are you able to put them out of your mind and think about something else?** [If not clear:] ***(Overall, how much of a problem is this for you? How so?)*** d) Circle: **Distress** = *Minimal ("It's upsetting but I can go on with my day")* *Clearly Present ("I find it hard to focus. Will take me a minute to get back to my day")* *Pronounced (Multiple efforts to calm down, wash my face, talk to someone, etc.")* *Extreme ("Not able to function, have to leave work, lie in bed, sleep, etc.")* e) **How often have you had these memories in the *past month*?** *# times* _____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of distress Moderate = at least 2 x month / distress clearly present, (some difficulty dismissing memories) Severe = at least 2 x week / pronounced distress, (considerate difficulty dismissing memories)	

2. (B2) Recurrent distressing dreams in which the content and/or affect of the dream are related to the event(s). Note: In children, there may be frightening dreams without recognizable content.

a) **In the *past month*, have you had any unpleasant dreams about (EVENT)?** b) **Describe a typical dream.** *(What happens?)* [If not clear:] ***(Do they wake you up?)*** [If yes:] ***(What do you experience when you wake up? How long does it take you to get back to sleep?)*** [If reports not returning to sleep:] ***(How much sleep do you lose?)*** c) **How much do these dreams bother you?** d) Circle: **Distress** = *Minimal ("It's upsetting but it doesn't disturb my sleep")* *Clearly Present ("It will take me a few minutes to get back to sleep")* *Pronounced (Multiple efforts to get back to sleep. Takes a long time to return to sleep.")*	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

Extreme ("Not able to return to sleep at all.") e) **How often have you had these dreams in the *past month*?** *# of times_____*	
Key rating dimensions = frequency / intensity of distress Moderate = at least 2 X month / distress clearly present, less than 1 hour sleep loss Severe = at least 2 X week / pronounced distress, more than 1 hour sleep loss	

3. (B3) Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Note: In children, trauma-specific reenactment may occur in play.

a) **In the *past month*, have there been times when you suddenly acted or felt as if (EVENT) were actually happening again?** [If not clear:] ***(This is different than thinking about it or dreaming about it – now I'm asking about flashbacks, when you feel like you're actually back at the time of [EVENT], actually reliving it.)*** b) **How much does it seem as if (EVENT) were happening again?** *(Are you confused about where you actually are?)* c) **What do you do while this is happening?** *(Do other people notice your behavior? What do they say?)* d) **How long does it last?** e) Circle: **Distress** = *Minimal ("It's upsetting but it doesn't disturb my day")* *Clearly Present ("It's upsetting, will take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Takes a long time to return to my day.")* *Extreme ("Not able to return to my day")* e) **How often has this happened in the *past month*?** *# of times_____*	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of dissociation Moderate = at least 2 X month / dissociative quality clearly present, may retain some awareness of surroundings but relives event in a manner clearly distinct from thoughts/memories Severe = at least 2 X week / pronounced dissociative quality, reports vivid reliving, e.g., with images, sounds, smells	

4. (B4) Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

a) **In the *past month*, have you gotten emotionally upset when something reminded you of (EVENT)?** b) **What kinds of reminders make you upset?** c) **How much do these reminders bother you?** d) **Are you able to calm yourself down when this happens?** *(How long does it take?)* [If not clear:] ***(Overall, how much of a problem is this for you? How so?)*** e) Circle: **Distress** = *Minimal ("It's upsetting but it doesn't disturb my day")* *Clearly Present ("It's upsetting, will take a few minutes to get back to my day")*	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

Pronounced (Multiple efforts to get back to my day. Takes a long time to return to my day.") *Extreme ("Not able to return to my day")* f) **How often has this happened in the *past month*?** *# of times_____*	
Key rating dimensions = frequency / intensity of distress Moderate = at least 2 X month / distress clearly present, some difficulty recovering Severe = at least 2 X week / pronounced distress, considerable difficulty recovering	

5. (B5) Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

a) **In the *past month*, have you had any physical reactions when something reminded you of (EVENT)?** b) **Can you give me some examples?** *(Does your heart race or your breathing change? What about sweating or feeling really tense or shaky?)* c) **What kinds of reminders trigger these reactions?** d) **How long does it take you to recover?** e) Circle: **Physiological reactivity** = *Minimal ("It's upsetting but it doesn't disturb my day")* *Clearly Present ("It's upsetting, will take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Takes a long time to return to my day.")* *Extreme ("Not able to return to my day")* f) **How often has this happened in the *past month*?** *# of times_____*	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of physiological arousal Moderate = at least 2 X month / reactivity clearly present, some difficulty recovering Severe = at least 2 X week / pronounced reactivity, sustained arousal, considerable difficulty recovering	

Criterion C: Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

6. (C1) Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

a) **In the *past month*, have you tried to avoid thoughts or feelings about (EVENT)?** b) **What kinds of thoughts or feelings do you avoid?** c) **How hard do you try to avoid these thoughts or feelings?** *(What kinds of things do you do?)* [If not clear:] ***(Overall, how much of a problem is this for you? How would things be different if you didn't have to avoid these thoughts or feelings?)*** d) Circle: **Avoidance** = *Minimal ("It's upsetting but it doesn't disturb my day")* *Clearly Present ("It's upsetting, will take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Takes a long time to return to my day.")* *Extreme ("Not able to return to my day")* e) **How often in the *past month*?** *# of times_____*	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

Key rating dimensions = frequency / intensity of avoidance Moderate = at least 2 X month / avoidance clearly present Severe = at least 2 X week / pronounced avoidance	

7. (C2) Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

a) **In the *past month*, have you tried to avoid things that remind you of (EVENT), like certain people, places, or situations?** b) **What kinds of things do you avoid?** c) **How much effort do you make to avoid these reminders?** *(Do you have to make a plan or change your activities to avoid them?)* [If not clear:] ***(Overall, how much of a problem is this for you? How would things be different if you didn't have to avoid these reminders?)*** d) Circle: **Avoidance** = *Minimal ("It's upsetting but it doesn't disturb my day")* *Clearly Present ("It's upsetting, will take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Takes a long time to return to my day.")* *Extreme ("Not able to return to my day")* e) **How often in the *past month*?** *# of times*_____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of avoidance Moderate = at least 2 X month / avoidance clearly present Severe = at least 2 X week / pronounced avoidance	

Criterion D: Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

8. (D1) Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, **alcohol, or drugs**).

a) **In the *past month*, have you had difficulty remembering some important parts of (EVENT)?** *(Do you feel there are gaps in your memory of [EVENT]?)* b) **What parts have you had difficulty remembering?** c) **Do you feel you should be able to remember these things?** [If not clear:] ***(Why do you think you can't? Did you have a head injury during [EVENT]? Were you knocked unconscious? Were you intoxicated from alcohol or drugs?)*** [Rate 0=Absent if due to head injury or loss of consciousness or **intoxication** during event] [If still not clear:] ***(Is this just normal forgetting? Or do you think you may have blocked it out because it would be too painful to remember?)***	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

[Rate 0=Absent if due only to normal forgetting]

d) Circle: **Difficulty remembering** =
Minimal ("I only have some difficulty remembering.")
Clearly Present ("I don't think it's just normal forgetting and it bothers me.")
Pronounced ("I have forgotten quite a substantial proportion of the event.")
Extreme ("I can't remember anything about the event.")

e) **In the *past month*, how many of the <u>important parts</u> of (EVENT) have you had difficulty remembering?** *(What parts do you still remember?)* # *of aspects*____

f) **Would you be able to recall these things if you tried?**

Key rating dimensions = amount of event not recalled / intensity of inability to recall
Moderate = at least one important aspect / difficulty remembering clearly present, some recall possible with effort
Severe = several important aspects / pronounced difficulty remembering, little recall even with effort

9. (D2) Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous," "My whole nervous system is permanently ruined").

a) **In the *past month*, have you had strong negative beliefs about yourself, other people, or the world?**

b) **Do you think these beliefs are linked to the (EVENT)?**
Circle: **Trauma-relatedness** = *Definite* *Probable* *Unlikely*
<u>If unrelated to event, skip to next question.</u>

c) **Can you give me some examples?** *(What about believing things like "I am bad," "there is something seriously wrong with me," "no one can be trusted," "the world is completely dangerous"?)*

d) **How strong are these beliefs?** *(How convinced are you that these beliefs are actually true? Can you see other ways of thinking about it?)*

e) Circle: **Conviction** =
Minimal ("Vague idea that beliefs are linked to event.")
Clearly Present ("I think the beliefs are linked to the event.")
Pronounced ("I'm fairly sure the beliefs are linked to the event.")
Extreme ("I know the beliefs are linked to the event.")

f) **How much of the time in the *past month* have you felt that way, as a percentage?** % *of time* _____

Key rating dimensions = frequency / intensity of beliefs
Moderate = some of the time (20-30%) / exaggerated negative expectations clearly present, some difficulty considering more realistic beliefs
Severe = much of the time (50-60%) / pronounced exaggerated negative expectations, considerable difficulty considering more realistic beliefs

0 ***Absent***

1 ***Mild / subthreshold***

2 ***Moderate / threshold***

3 ***Severe / markedly elevated***

4 ***Extreme / incapacitating***

10. (D3) Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.

a) **In the *past month*, have you blamed yourself for (EVENT) or what happened as a result of it? Tell me more about that.** *(In what sense do you see yourself as having caused [EVENT]?* b) **What about blaming someone else for (EVENT) or what happened as a result of it? Tell me more about that.** *(In what sense do you see [OTHERS] as having caused [EVENT]?* c) **How convinced are you that [YOU OR OTHERS] are truly to blame for what happened?** *(Can you see other ways of thinking about it?)* [Rate 0=Absent if only blames perpetrator, i.e., someone who deliberately caused the event and intended harm] ***If absent skip to next question.*** d) **How much do you blame (YOURSELF OR OTHERS)?** e) Circle: **Conviction** = *Minimal ("I have a vague idea that myself or another is to blame for the event.")* *Clearly Present ("I think myself or another is to blame for the event.")* *Pronounced ("I quite sure that I or another are to blame for the event.")* *Extreme ("I'm convinced that I or another am to blame and there's no other way of thinking about it.")* f) **How much of the time in the *past month* have you felt that way, as a percentage?** % *of time* _____ ***Key rating dimensions = frequency / intensity of blame*** Moderate = some of the time (20-30%) / distorted blame clearly present, some difficulty considering more realistic beliefs Severe = much of the time (50-60%) / pronounced distorted blame, considerable difficulty considering more realistic beliefs	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

11. (D4) Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).

a) **In the *past month*, have you had any strong negative feelings such as fear, horror, anger, guilt, or shame?** b) **Are these negative feelings are related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **Can you give me some examples?** *(What negative feelings do you experience?)* d) **How strong are these negative feelings?** e) **How well are you able to manage them?** [If not clear:] ***(Overall, how much of a problem is this for you? How so?)*** f) Circle: **Negative emotions** = *Minimal ("I have only had some negative feelings.")* *Clearly Present ("I have had strong negative feelings.")* *Pronounced ("I have had very strong negative feelings and I've been struggling to manage them.")* *Extreme ("I have had very strong negative feelings and I haven't been able to manage them at all.")* g) **How much of the time in the *past month* have you felt that way, as a percentage?** % *of time* _____ ***Key rating dimensions = frequency / intensity of negative emotions*** Moderate = some of the time (20-30%) / negative emotions clearly present, some difficulty managing Severe = much of the time (50-60%) / pronounced negative emotions, considerable difficulty managing	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

12. (D5) Markedly diminished interest or participation in significant activities.

a) **In the *past month*, have you been less interested in activities that you used to enjoy?** b) **Is this loss of interest related to the (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **What kinds of things have you lost interest in or don't do as much as you used to?** *(Anything else?)* d) **Why is that?** [Rate 0=Absent if diminished participation is due to lack of opportunity, physical inability, or developmentally appropriate change in preferred activities] ***Skip to next question.*** e) **How strong is your loss of interest?** f) Circle: **Loss of interest** = *Minimal ("I have only had some loss of interest.")* *Clearly Present ("I have definitely loss interest in certain activities but still enjoy others.")* *Pronounced ("I have lost interest in most if not all activities and enjoy very few others.")* *Extreme ("I have lost interest in all activities and do not enjoy any others.")* g) **Overall, in the *past month*, how many of your usual activities have you been less interested in, as a percentage?** % *of activities* _____ h) **What kinds of things do you still enjoy doing?**	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = percent of activities affected / intensity of loss of interest Moderate = some activities (20-30%) / loss of interest clearly present but still has some enjoyment of activities Severe = many activities (50-60%) / pronounced loss of interest, little interest or participation	

13. (D6) Feelings of detachment or estrangement from others.

a) **In the *past month*, have you felt distant or cut off from other people?** b) **Is this feeling of distance related to the (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **How strong are your feelings of being distant or cut off from others?** *(Who do you feel closest to? How many people do you feel comfortable talking with about personal things?)* d) Circle: **Detachment or estrangement** = *Minimal ("I have only had some estrangement from others.")* *Clearly Present ("I have definitely experienced estrangement from others.")* *Pronounced ("I feel distant and estranged from others most of the time.")* *Extreme ("I feel distant and estranged from others all of the time.")* e) **How much of the time in the *past month* have you felt that way, as a percentage?** % *of time* _____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of detachment or estrangement Moderate = some of the time (20-30%) / feelings of detachment clearly present but still feels some interpersonal connection Severe = much of the time (50-60%) / pronounced feelings of detachment or estrangement from most people, may feel close to only one or two people	

14. (D7) Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

a) **In the *past month*, have there been times when you had difficulty experiencing positive feelings like love or happiness?** b) **Is this trouble experiencing positive feelings related to the (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **How much difficulty do you have experiencing positive feelings?** *(Are you still able to experience any positive feelings?)* d) Circle: **Reduction of positive emotions** = *Minimal ("I have only had some reduction in positive emotions.")* *Clearly Present ("I have definitely experienced reduction in positive emotions.")* *Pronounced ("I experience reduced positive emotions most of the time.")* *Extreme ("I experience reduced positive emotions all of the time.")* e) **How much of the time in the *past month* have you felt that way, as a percentage?** % *of time* _____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of reduction in positive emotions Moderate = some of the time (20-30%) / reduction of positive emotional experience clearly present but still able to experience some positive emotions Severe = much of the time (50-60%) / pronounced reduction of experience across range of positive emotions	

Criterion E: Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

15. (E1) Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.

a) **In the past month, have there been times when you felt especially irritable or angry and showed it in your behavior? Can you give me some examples?** *(How do you show it? Do you raise your voice or yell? Throw or hit things? Push or hit other people?)* b) **Do you think this behavior is linked to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) Circle: **Aggression** = *Minimal ("I have only experienced some irritability.")* *Clearly Present ("I have definitely been more irritable.")* *Pronounced ("I have been very irritable with others.")* *Extreme ("I have been extremely irritable with others.")* d) **How often in the past month?** *# of times* _____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of aggressive behavior Moderate = at least 2 X month / aggression clearly present, primarily verbal Severe = at least 2 X week / pronounced aggression, at least some physical aggression	

16. (E2) Reckless or self-destructive behavior.

a) **In the past month, have there been times when you were taking more risks or doing things that might have caused you harm?** b) **Do you think this behavior is linked to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **How much of a risk do you take?** *(How dangerous are these behaviors? Were you injured or harmed in some way?)* d) Circle: **Risk** = *Minimal ("I have only taken some risks.")* *Clearly Present ("I have definitely taken risks.")* *Pronounced ("I have taken risks and have done things to cause myself harm on a regular basis.")* *Extreme ("I have been taken risks and have done things to cause myself harm on a daily basis.")* d) **How often have you taken these kinds of risks in the past month?** *# of times* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / degree of risk Moderate = at least 2 X month / risk clearly present, may have been harmed Severe = at least 2 X week / pronounced risk, actual harm or high probability of harm	

17. (E3) Hypervigilance.

a) **In the past month, have you been especially alert or watchful, even when there was no specific threat or danger?** *(Have you felt as if you had to be on guard?)* b) **Do you think this behavior is linked to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **Can you give me some examples?** *(What kinds of things do you do when you're alert or watchful?)* [If not clear:] ***(What causes you to react this way? Do you feel like you're in danger or threatened in some way? Do you feel that way more than most people would in the same situation?)*** d) Circle: **Hypervigilance** = *Minimal ("I have only been slightly more alert.")* *Clearly Present ("I have definitely been more alert.")* *Pronounced ("I have been especially alert and watchful.")* *Extreme ("I have been constantly alert and watchful.")*	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***

d) **How much of the time in the past month have you felt that way, as a percentage?** % *of time* _____	
Key rating dimensions = frequency / intensity of hypervigilance Moderate = some of the time (20-30%) / hypervigilance clearly present, e.g., watchful in public, heightened awareness of threat Severe = much of the time (50-60%) / pronounced hypervigilance, e.g., scans environment for danger, may have safety rituals, exaggerated concern for safety of self/family/home	

18. (E4) Exaggerated startle response.

a) **In the past month, have you had any strong startle reactions?** b) **Do you think they're related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **How strong are these startle reactions?** *(How strong are they compared to how most people would respond? Do you do anything other people would notice?)* d) **How long does it take you to recover?** e) Circle: **Startle** = *Minimal ("I have only had some startle reactions.")* *Clearly Present ("I have definitely had startle reactions.")* *Pronounced ("I have had strong startle reactions on a regular basis.")* *Extreme ("I have had severe startle responses on a daily basis.")* d) **How much of the time in the past month have you felt that way, as a percentage?** % *of time* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / intensity of startle Moderate = at least 2 X month / startle clearly present, some difficulty recovering Severe = at least 2 X week / pronounced startle, sustained arousal, considerable difficulty recovering	

19. (E5) Problems with concentration.

a) **In the past month, have you had any problems with concentration?** b) **Do you think they're related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **Can you give me some examples?** d) **Are you able to concentrate if you really try?** [If not clear:] ***(Overall, how much of a problem is this for you? How would things be different if you didn't have problems with concentration?)*** e) Circle: **Problem concentrating** = *Minimal ("I have only had some trouble concentrating.")* *Clearly Present ("I have definitely had difficulty concentrating.")* *Pronounced ("I have had regular difficulty concentrating and it has caused problems for me.")* *Extreme ("I have not been able to concentrate on even simple things and it has caused significant problems for me.")* d) **How much of the time in the past month have you had problems with concentration, as a percentage?** *% of time* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / intensity of concentration problems Moderate = some of the time (20-30%) / problem concentrating clearly present, some difficulty but can concentrate with effort Severe = much of the time (50-60%) / pronounced problem concentrating, considerable difficulty even with effort	

20. (E6) Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

a) **In the past month, have you had any problems falling or staying asleep?** b) **Do you think this is related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **What kinds of problems?** *(How long does it take you to fall asleep? How often do you wake up in the night? Do you wake up earlier than you want to?)* d) **How many total hours do you sleep each night?** e) **How many hours do you think you should be sleeping?** f) Circle: **Problem sleeping** = *Minimal ("I have only had some trouble sleeping.")* *Clearly Present ("I have definitely had trouble sleeping.")* *Pronounced ("I have been struggling to sleep on a regular basis.")* *Extreme ("I only manage to get a few hours' sleep each night.")* g) **How often in the past month have you had sleep problems?** *% of time* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / intensity of sleep problems Moderate = at least 2 X month / sleep disturbance clearly present, clearly longer latency or clear difficulty staying asleep, 30-90 minutes loss of sleep Severe = at least 2 X week / pronounced sleep disturbance, considerably longer latency or marked difficulty staying asleep, 90 min to 3 hrs loss of sleep	

Criterion F: Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

21. Onset of symptoms

[If not clear:] **When did you first start having (PTSD SYMPTOMS) you've told me about?** *(How long after the trauma did they start? More than six months?)*	***Total # months delay in onset*** _____ ***With delayed onset (> 6 months)? NO YES***

22. Duration of symptoms

[If not clear:] **How long have these (PTSD SYMPTOMS) lasted altogether?**	***Total # months duration*** _____ ***Duration more than 1 month? NO YES***

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

23. Subjective distress

Overall, in the past month, how much have you been bothered by these (PTSD SYMPTOMS) you've told me about? [Consider distress reported on earlier items]	**0** ***None*** **1** ***Mild, minimal distress*** **2** ***Moderate, distress clearly present but still manageable*** **3** ***Severe, considerable distress*** **4** ***Extreme, incapacitating distress***

24. Impairment in social functioning

In the past month, have these (PTSD SYMPTOMS) affected your relationships with other people? How so? [Consider impairment in social functioning reported on earlier items]	**0** ***No adverse impact*** **1** ***Mild impact, minimal impairment in social functioning*** **2** ***Moderate impact, definite impairment but many aspects of social functioning still intact*** **3** ***Severe impact, marked impairment, few aspects of social functioning still intact*** **4** ***Extreme impact, little or no social functioning***

25. Impairment in occupational or other important area of functioning

[If not clear:] **Are you working now?** [If yes:] **In the past month, have these (PTSD SYMPTOMS) affected your work or your ability to work? How so?** [If no:] **Why is that?** *(Do you feel that your [PTSD SYMPTOMS] are related to you not working now? How so?)* [If unable to work because of PTSD symptoms, rate at least 3=Severe. If unemployment is not due to PTSD symptoms, or if the link is not clear, base rating only on impairment in other important areas of functioning] **Have these (PTSD SYMPTOMS) affected any other important part of your life?** [As appropriate, suggest examples such as parenting, housework, schoolwork, volunteer work, etc.] **How so?**	**0** ***No adverse impact*** **1** ***Mild impact, minimal impairment in occupational or other functioning*** **2** ***Moderate impact, definite impairment but many aspects of occupational and other functioning still intact*** **3** ***Severe impact, marked impairment, few aspects of occupational and other functioning still intact***

	4 ***Extreme impact, little or no occupational and other functioning***

Global Ratings

26. Global validity

Estimate the overall validity of responses. Consider factors such as compliance with the interview, mental status (e.g., problems with concentration, comprehension of items, dissociation), and evidence of efforts to exaggerate or minimize symptoms.	**0** ***Excellent, no reason to suspect invalid responses*** **1** ***Good, factors present that may adversely affect validity*** **2** ***Fair, factors present that definitely reduce validity*** **3** ***Poor, substantially reduced validity*** **4** ***Invalid responses, severely impaired mental status or possible deliberate "faking bad" or "faking good"***

27. Global severity

Estimate the overall severity of PTSD symptoms. Consider degree of subjective distress, degree of functional impairment, observations of behaviors in interview, and judgment regarding reporting style.	**0** ***No clinically significant symptoms, no distress and no functional impairment*** **1** ***Mild, minimal distress or functional impairment*** **2** ***Moderate, definite distress or functional impairment but functions satisfactorily with effort*** **3** ***Severe, considerable distress or functional impairment, limited functioning even with effort*** **4** ***Extreme, marked distress or marked impairment in two or more major areas of functioning***

28. Global improvement

Rate total overall improvement since the previous rating. Rate the degree of change, whether or not, in your judgment, it is due to treatment.	**0** ***Asymptomatic*** **1** ***Considerable improvement*** **2** ***Moderate improvement*** **3** ***Slight improvement*** **4** ***No improvement*** **5** ***Insufficient information***

Specify whether with dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:

29. (1) Depersonalization: Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).

a) **In the past month, have there been times when you felt as if you were separated from yourself, like you were watching yourself from the outside or observing your thoughts and feelings as if you were another person?**

[If no:] ***(What about feeling as if you were in a dream, even though you were awake? Feeling as if something about you wasn't real? Feeling as if time was moving more slowly?)***

b) **Do you think It's related to (EVENT)?**
Circle: **Trauma-relatedness** = *Definite Probable Unlikely*
If absent skip to next question.

c) If not clear:] ***(Was this due to the effects of alcohol or drugs? What about a medical condition like seizures?)***
[Rate 0=Absent if due to the effects of a substance or another medical condition]
If absent skip to next question.

d) **How strong is this feeling?** *(Do you lose track of where you actually are or what's actually going on?)*

e) **What do you do while this is happening?** *(Do other people notice your behavior? What do they say?)*

f) **How long does it last?**

g) Circle: **Dissociation** =
Minimal ("I have had some sense of dissociation.")
Clearly Present ("I have definitely dissociated at times.")
Pronounced ("I have been often felt dissociated.")
Extreme ("I constantly have a sense of dissociation.")

h) **How often has this happened in the past month?** *# of times* _____

Key rating dimensions = frequency / intensity of dissociation
Moderate = at least 2 X month / dissociative quality clearly present but transient, retains some realistic sense of self and awareness of environment
Severe = at least 2 X week / pronounced dissociative quality, marked sense of detachment and unreality

0 ***Absent***

1 ***Mild / subthreshold***

2 ***Moderate / threshold***

3 ***Severe / markedly elevated***

4 ***Extreme / incapacitating***

30. (2) Derealization: Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

a) **In the past month, have there been times when things going on around you seemed unreal or very strange and unfamiliar?** [If no:] ***(Do things going on around you seem like a dream or like a scene from a movie? Do they seem distant or distorted?)*** b) **Do you think It's related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) If not clear:] ***(Was this due to the effects of alcohol or drugs? What about a medical condition like seizures?)*** [Rate 0=Absent if due to the effects of a substance or another medical condition] ***If absent skip to next question.*** d) **How strong is this feeling?** *(Do you lose track of where you actually are or what's actually going on?)* e) **What do you do while this is happening?** *(Do other people notice your behavior? What do they say?)* f) **How long does it last?** g) Circle: **Dissociation** = *Minimal ("I have had some sense of dissociation.")* *Clearly Present ("I have definitely dissociated at times.")* *Pronounced ("I have been often felt dissociated.")* *Extreme ("I constantly have a sense of dissociation.")* h) **How often has this happened in the past month?** *# of times* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / intensity of dissociation Moderate = at least 2 X month / dissociative quality clearly present but transient, retains some realistic sense of self and awareness of environment Severe = at least 2 X week / pronounced dissociative quality, marked sense of detachment and unreality	

National Center for PTSD

CLINICIAN-ADMINISTERED PTSD SCALE FOR DSM-5

WORST MONTH VERSION

Participant ID#:_____ Date: _____

Interviewer:_____

Study: _____

Frank W. Weathers, Dudley D. Blake, Paula P. Schnurr,
Danny G. Kaloupek, Brian P. Marx, & Terence M. Keane

National Center for Posttraumatic Stress Disorder
May 1, 2015

Criterion A: Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
1. Directly experiencing the traumatic event(s).
2. Witnessing, in person, the event(s) as it occurred to others.
3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

I'm going to ask you about the same stressful experience we just spoke about but now I'd like us to focus on the time when you felt it affected you the <u>WORST.</u> Do you have any questions before we start?

The event we spoke about before was (EVENT).

For the rest of the interview, I want you to keep (EVENT) in mind as I ask you about different problems it may have caused you. For this interview we're going to focus on the *worst month***. For each problem I'll ask if you had it at all, and if so, how often and how much it bothered you.**

Criterion B: Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. (B1) Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

a) **In the *worst month*, did you have any unwanted memories of (EVENT) while you were awake, so not counting dreams?** [Rate 0=Absent if only during dreams] b) **How does it happen that you start remembering (EVENT)?** [If not clear:] ***(Were these unwanted memories, or were you thinking about [EVENT] on purpose?)*** [Rate 0=Absent unless perceived as involuntary and intrusive] c) **How much did these memories bother you?** **Were you able to put them out of your mind and think about something else?** [If not clear:] ***(Overall, how much of a problem was this for you? How so?)*** d) Circle: **Distress** = *Minimal ("It was upsetting but I could go on with my day")* *Clearly Present ("I found it hard to focus. Would take me a minute to get back to my day")* *Pronounced (Multiple efforts to calm down, wash my face, talk to someone, etc.")* *Extreme ("Was not able to function, would have to leave work, lie in bed, sleep, etc.")* e) **How often did you have these memories in the *worst month*?** *# times* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / intensity of distress Moderate = at least 2 x month / distress clearly present, (some difficulty dismissing memories) Severe = at least 2 x week / pronounced distress, (considerate difficulty dismissing memories)	

2. (B2) Recurrent distressing dreams in which the content and/or affect of the dream are related to the event(s). Note: In children, there may be frightening dreams without recognizable content.

a) **In the *worst month*, did you have any unpleasant dreams about (EVENT)?** b) **Describe a typical dream.** *(What happened?)* [If not clear:] ***(Did they wake you up?)*** [If yes:] ***(What did you experience when you woke up? How long did it take you to get back to sleep?)*** [If reports not returning to sleep:] ***(How much sleep did you lose?)*** c) **How much did these dreams bother you?** d) Circle: **Distress** = *Minimal ("It was upsetting but it didn't disturb my sleep")* *Clearly Present ("It would take me a few minutes to get back to sleep")* *Pronounced (Multiple efforts to get back to sleep. Took a long time to return to sleep.")* *Extreme ("Was not able to return to sleep at all.")* e) **How often did you have these dreams in the *worst month*?** *# of times*_____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of distress Moderate = at least 2 X month / distress clearly present, less than 1 hour sleep loss Severe = at least 2 X week / pronounced distress, more than 1 hour sleep loss	

3. (B3) Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Note: In children, trauma-specific reenactment may occur in play.

a) **In the *worst month*, were there times when you suddenly acted or felt as if (EVENT) was actually happening again?** [If not clear:] ***(This is different than thinking about it or dreaming about it – now I'm asking about flashbacks, when you feel like you're actually back at the time of [EVENT], actually reliving it.)*** b) **How much did it seem as if (EVENT) was happening again?** *(Were you confused about where you actually were?)* c) **What did you do while this was happening?** *(Did other people notice your behavior? What did they say?)* d) **How long would it last?** e) Circle: **Distress** = *Minimal ("It was upsetting but it didn't disturb my day")* *Clearly Present ("It was upsetting, would take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Took a long time to return to my day.")* *Extreme ("Was not able to return to my day")* f) **How often did this happen in the *worst month*?** *# of times*_____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of dissociation Moderate = at least 2 X month / dissociative quality clearly present, may retain some awareness of surroundings but relives event in a manner clearly distinct from thoughts/memories	

Severe = at least 2 X week / pronounced dissociative quality, reports vivid reliving, e.g., with images, sounds, smells	

4. (B4) Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

a) **In the *worst month*, did you get emotionally upset when something reminded you of (EVENT)?** b) **What kinds of reminders would upset you?** c) **How much did these reminders bother you?** d) **Were you able to calm yourself down when this happened?** *(How long would it take?)* [If not clear:] ***(Overall, how much of a problem was this for you? How so?)*** e) Circle: **Distress** = *Minimal ("It was upsetting but it didn't disturb my day")* *Clearly Present ("It was upsetting, would take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Took a long time to return to my day.")* *Extreme ("Was not able to return to my day")* f) **How often did this happen in the *worst month*?** *# of times*_____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of distress Moderate = at least 2 X month / distress clearly present, some difficulty recovering Severe = at least 2 X week / pronounced distress, considerable difficulty recovering	

5. (B5) Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

a) **In the *worst month*, did you have any physical reactions when something reminded you of (EVENT)?** b) **Can you give me some examples?** *(Did your heart race or your breathing change? What about sweating or feeling really tense or shaky?)* c) **What kinds of reminders triggered these reactions?** d) **How long did it take you to recover?** e) Circle: **Physiological reactivity** = *Minimal ("It was upsetting but it didn't disturb my day")* *Clearly Present ("It was upsetting, would take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Took a long time to return to my day.")* *Extreme ("Was not able to return to my day")* f) **How often did this happen in the *worst month*?** *# of times*_____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of physiological arousal Moderate = at least 2 X month / reactivity clearly present, some difficulty recovering Severe = at least 2 X week / pronounced reactivity, sustained arousal, considerable difficulty recovering	

Criterion C: Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

6. (C1) Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

a) **In the *worst month*, did you try to avoid thoughts or feelings about (EVENT)?** b) **What kinds of thoughts or feelings did you avoid?** c) **How hard did you try to avoid these thoughts or feelings?** *(What kinds of things did you do?)* [If not clear:] ***(Overall, how much of a problem was this for you? How would things have been different if you didn't have to avoid these thoughts or feelings?)*** d) Circle: **Avoidance** = *Minimal ("It was upsetting but it didn't disturb my day")* *Clearly Present ("It was upsetting, would take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Took a long time to return to my day.")* *Extreme ("Was not able to return to my day")* e) **How often in the *worst month*?** *# of times*_____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of avoidance Moderate = at least 2 X month / avoidance clearly present Severe = at least 2 X week / pronounced avoidance	

7. (C2) Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

a) **In the *worst month*, did you try to avoid things that reminded you of (EVENT), like certain people, places, or situations?** b) **What kinds of things did you avoid?** c) **How much effort did you make to avoid these reminders?** *(Did you have to make a plan or change your activities to avoid them?)* [If not clear:] ***(Overall, how much of a problem was this for you? How would things have been different if you didn't have to avoid these reminders?)*** d) Circle: **Avoidance** = *Minimal ("It was upsetting but it didn't disturb my day")* *Clearly Present ("It was upsetting, would take a few minutes to get back to my day")* *Pronounced (Multiple efforts to get back to my day. Took a long time to return to my day.")* *Extreme ("Was not able to return to my day")* e) **How often in the *worst month*?** *# of times*_____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of avoidance	

Moderate = at least 2 X month / avoidance clearly present Severe = at least 2 X week / pronounced avoidance	

Criterion D: Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

8. (D1) Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, **alcohol, or drugs**).

a) **In the *worst month*, did you have difficulty remembering some important parts of (EVENT)?** *(Did you feel there were gaps in your memory of [EVENT]?)* b) **What parts did you have difficulty remembering?** c) **Did you feel you should have been able to remember these things?** [If not clear:] ***(Why do you think you couldn't? Did you have a head injury during [EVENT]? Were you knocked unconscious? Were you intoxicated from alcohol or drugs?)*** [Rate 0=Absent if due to head injury or loss of consciousness or **intoxication** during event] [If still not clear:] ***(Was it just normal forgetting? Or do you think you may have blocked it out because it would be too painful to remember?)*** [Rate 0=Absent if due only to normal forgetting] d) Circle: **Difficulty remembering** = *Minimal ("I only had some difficulty remembering.")* *Clearly Present ("I don't think it was just normal forgetting and it bothered me.")* *Pronounced ("I forgot quite a substantial proportion of the event.")* *Extreme ("I couldn't remember anything about the event.")* e) **In the *worst month*, how many of the important parts of (EVENT) did you have difficulty remembering?** *(What parts did you still remember?) # of aspects____* f) **Were you be able to recall these things if you tried?**	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = amount of event not recalled / intensity of inability to recall Moderate = at least one important aspect / difficulty remembering clearly present, some recall possible with effort Severe = several important aspects / pronounced difficulty remembering, little recall even with effort	

9. (D2) Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous," "My whole nervous system is permanently ruined").

a) **In the *worst month*, did you have strong negative beliefs about yourself, other people, or the world?** b) **Did you think these beliefs were linked to the (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If unrelated to event, skip to next question.*** c) **Can you give me some examples?** *(What about believing things like "I am bad," "there is something seriously wrong with me," "no one can be trusted," "the world is completely dangerous"?)* d) **How strong were these beliefs?** *(How convinced were you that these beliefs were actually true? Could you see other ways of thinking about it?)* e) Circle: **Conviction** = *Minimal ("Vague idea that beliefs were linked to event.")* *Clearly Present ("I thought the beliefs were linked to the event.")* *Pronounced ("I was fairly sure the beliefs were linked to the event.")* *Extreme ("I knew the beliefs were linked to the event.")* f) **How much of the time in the *worst month* did you feel that way, as a percentage?** % *of time* _____ ***Key rating dimensions = frequency / intensity of beliefs*** Moderate = some of the time (20-30%) / exaggerated negative expectations clearly present, some difficulty considering more realistic beliefs Severe = much of the time (50-60%) / pronounced exaggerated negative expectations, considerable difficulty considering more realistic beliefs	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

10. (D3) Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.

a) **In the *worst month*, did you blame yourself for (EVENT) or what happened as a result of it? Tell me more about that.** *(In what sense did you see yourself as having caused [EVENT]?* b) **What about blaming someone else for (EVENT) or what happened as a result of it? Tell me more about that.** *(In what sense do you see [OTHERS] as having caused [EVENT]?* c) **How convinced were you that [YOU OR OTHERS] were truly to blame for what happened?** *(Could you see other ways of thinking about it?)* [Rate 0=Absent if only blames perpetrator, i.e., someone who deliberately caused the event and intended harm] ***If absent skip to next question.*** d) **How much did you blame (YOURSELF OR OTHERS)?** e) Circle: **Conviction** = *Minimal ("I had a vague idea that myself or another was to blame for the event.")* *Clearly Present ("I thought myself or another was to blame for the event.")* *Pronounced ("I was quite sure that I or another were to blame for the event.")* *Extreme ("I was convinced that I or another were to blame and there was no other way of thinking about it.")* f) **How much of the time in the *worst month* did you feel that way, as a percentage?** % *of time* _____ ***Key rating dimensions = frequency / intensity of blame*** Moderate = some of the time (20-30%) / distorted blame clearly present, some difficulty considering more realistic beliefs Severe = much of the time (50-60%) / pronounced distorted blame, considerable difficulty considering more realistic beliefs	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

11. (D4) Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).

a) **In the *worst month*, did you have any strong negative feelings such as fear, horror, anger, guilt, or shame?** b) **Were these negative feelings related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **Can you give me some examples?** *(What negative feelings did you experience?)* d) **How strong were these negative feelings?** e) **How well were you able to manage them?** [If not clear:] ***(Overall, how much of a problem was this for you? How so?)*** f) Circle: **Negative emotions** = *Minimal ("I only had some negative feelings.")* *Clearly Present ("I had strong negative feelings.")* *Pronounced ("I had very strong negative feelings and was struggling to manage them.")* *Extreme ("I had very strong negative feelings and I was not able to manage them at all.")* g) **How much of the time in the *worst month* did you feel that way, as a percentage?** % *of time* _____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of negative emotions Moderate = some of the time (20-30%) / negative emotions clearly present, some difficulty managing Severe = much of the time (50-60%) / pronounced negative emotions, considerable difficulty managing	

12. (D5) Markedly diminished interest or participation in significant activities.

a) **In the *worst month*, were you less interested in activities that you used to enjoy?** b) **Was this loss of interest related to the (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **What kinds of things did you lose interest in or did not do as much as you used to?** *(Anything else?)* d) **Why was that?** [Rate 0=Absent if diminished participation was due to lack of opportunity, physical inability, or developmentally appropriate change in preferred activities] ***Skip to next question.*** e) **How strong was your loss of interest?** f) Circle: **Loss of interest** = *Minimal ("I only had some loss of interest.")* *Clearly Present ("I definitely loss interest in certain activities but still enjoyed others.")* *Pronounced ("I lost interest in most if not all activities and enjoyed very few others.")* *Extreme ("I lost interest in all activities and did not enjoy any others.")*	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***

g) **Overall, in the *worst month*, how many of your usual activities were you less interested in, as a percentage?** % *of activities* _____ h) **What kinds of things did you still enjoy doing?**	
Key rating dimensions = percent of activities affected / intensity of loss of interest Moderate = some activities (20-30%) / loss of interest clearly present but still has some enjoyment of activities Severe = many activities (50-60%) / pronounced loss of interest, little interest or participation	

13. (D6) Feelings of detachment or estrangement from others.

a) **In the *worst month*, did you feel distant or cut off from other people?** b) **Was this feeling of distance related to the (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **How strong were your feelings of being distant or cut off from others?** *(Who do you feel closest to? How many people do you feel comfortable talking with about personal things?)* d) Circle: **Detachment or estrangement** = *Minimal ("I only had some estrangement from others.")* *Clearly Present ("I definitely experienced estrangement from others.")* *Pronounced ("I felt distant and estranged from others most of the time.")* *Extreme ("I felt distant and estranged from others all of the time.")* e) **How much of the time in the *worst month* did you feel that way, as a percentage?** % *of time* _____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of detachment or estrangement Moderate = some of the time (20-30%) / feelings of detachment clearly present but still feels some interpersonal connection Severe = much of the time (50-60%) / pronounced feelings of detachment or estrangement from most people, may feel close to only one or two people	

14. (D7) Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

a) **In the *worst month*, were there times when you had difficulty experiencing positive feelings like love or happiness?** b) **Was this trouble experiencing positive feelings related to the (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **How much difficulty did you have experiencing positive feelings?** d) Circle: **Reduction of positive emotions** = *Minimal ("I only had some reduction in positive emotions.")* *Clearly Present ("I definitely experienced reduction in positive emotions.")* *Pronounced ("I experienced reduced positive emotions most of the time.")* *Extreme ("I experienced reduced positive emotions all of the time.")* e) **How much of the time in the *worst month* did you feel that way, as a percentage?** % *of time* _____	**0 *Absent*** **1 *Mild / subthreshold*** **2 *Moderate / threshold*** **3 *Severe / markedly elevated*** **4 *Extreme / incapacitating***
Key rating dimensions = frequency / intensity of reduction in positive emotions Moderate = some of the time (20-30%) / reduction of positive emotional experience clearly present but still able to experience some positive emotions Severe = much of the time (50-60%) / pronounced reduction of experience across range of positive emotions	

Criterion E: Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

15. (E1) Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.

a) **In the worst month, were there times when you felt especially irritable or angry and showed it in your behavior? Can you give me some examples?** *(How did you show it? Did you raise your voice or yell? Throw or hit things? Push or hit other people?)* b) **Did you think this behavior was linked to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) Circle: **Aggression** = *Minimal ("I only experienced some irritability.")* *Clearly Present ("I was definitely more irritable.")* *Pronounced ("I was very irritable with others.")* *Extreme ("I was extremely irritable with others.")* d) **How often in the worst month did this happen?** *# of times* _____ ***Key rating dimensions = frequency / intensity of aggressive behavior*** Moderate = at least 2 X month / aggression clearly present, primarily verbal Severe = at least 2 X week / pronounced aggression, at least some physical aggression	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***

16. (E2) Reckless or self-destructive behavior.

a) **In the worst month, were there times when you were taking more risks or doing things that might have caused you harm?** b) **Did you think this behavior was linked to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **How much of a risk did you take?** *(How dangerous were these behaviors? Were you injured or harmed in some way?)* d) Circle: **Risk** = *Minimal ("I only took some risks.")* *Clearly Present ("I definitely took risks.")* *Pronounced ("I took risks and did things to cause myself harm on a regular basis.")* *Extreme ("I took risks and did things to cause myself harm on a daily basis.")* e) **How often did you take these kinds of risks in the worst month?** *# of times* _____ ***Key rating dimensions = frequency / degree of risk*** Moderate = at least 2 X month / risk clearly present, may have been harmed Severe = at least 2 X week / pronounced risk, actual harm or high probability of harm	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***

17. (E3) Hypervigilance.

a) **In the worst month, were you especially alert or watchful, even when there was no specific threat or danger?** *(Did you feel as if you had to be on guard?)* b) **Did you think this behavior was linked to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **Can you give me some examples?** *(What kinds of things did you do when you were alert or watchful?)* [If not clear:] ***(What caused you to react this way? Did you feel like you were in danger or threatened in some way? Did you feel that way more than most people would in the same situation?)*** d) Circle: **Hypervigilance** = *Minimal ("I was only slightly more alert.")* *Clearly Present ("I was definitely more alert.")* *Pronounced ("I was especially alert and watchful.")* *Extreme ("I was constantly alert and watchful.")* e) **How much of the time in the worst month did you feel that way, as a percentage?** % *of time* _____ ***Key rating dimensions = frequency / intensity of hypervigilance*** Moderate = some of the time (20-30%) / hypervigilance clearly present, e.g., watchful in public, heightened awareness of threat Severe = much of the time (50-60%) / pronounced hypervigilance, e.g., scans environment for danger, may have safety rituals, exaggerated concern for safety of self/family/home	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***

18. (E4) Exaggerated startle response.

a) **In the worst month, did you have any strong startle reactions?** b) **Did you think they were related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **How strong were these startle reactions?** *(How strong were they compared to how most people would respond? Did you do anything other people would notice?)* d) **How long would it take you to recover?** e) Circle: **Startle** = *Minimal ("I only had some startle reactions.")* *Clearly Present ("I definitely had startle reactions.")* *Pronounced ("I had strong startle reactions on a regular basis.")* *Extreme ("I had severe startle responses on a daily basis.")*	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***

f) **How much of the time in the worst month did you feel that way, as a percentage?** % *of time* _____	
Key rating dimensions = frequency / intensity of startle Moderate = at least 2 X month / startle clearly present, some difficulty recovering Severe = at least 2 X week / pronounced startle, sustained arousal, considerable difficulty recovering	

19. (E5) Problems with concentration.

a) **In the worst month, did you have any problems with concentration?** b) **Did you think they were related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **Can you give me some examples?** d) **Were you able to concentrate if you really tried?** [If not clear:] ***(Overall, how much of a problem was this for you? How would things have been different if you didn't have problems with concentration?)*** e) Circle: **Problem concentrating** = *Minimal ("I only had some trouble concentrating.")* *Clearly Present ("I definitely had difficulty concentrating.")* *Pronounced ("I had regular difficulty concentrating and it caused problems for me.")* *Extreme ("I was not been able to concentrate on even simple things and it caused significant problems for me.")* f) **How much of the time in the worst month did you have problems with concentration, as a percentage?** % *of time* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / intensity of concentration problems Moderate = some of the time (20-30%) / problem concentrating clearly present, some difficulty but can concentrate with effort Severe = much of the time (50-60%) / pronounced problem concentrating, considerable difficulty even with effort	

20. (E6) Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

a) **In the worst month, did you have any problems falling or staying asleep?** b) **Did you think this was related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) **What kinds of problems?** *(How long did it take you to fall asleep? How often did you wake up in the night? Did you wake up earlier than you wanted to?)* d) **How many total hours did you sleep each night?** e) **How many hours do you think you should have been sleeping?** f) Circle: **Problem sleeping** = *Minimal ("I only had some trouble sleeping.")* *Clearly Present ("I definitely had trouble sleeping.")* *Pronounced ("I struggled to sleep on a regular basis.")* *Extreme ("I only managed to get a few hours' sleep each night.")* g) **How often in the worst month did you have sleep problems?** *% of time* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / intensity of sleep problems Moderate = at least 2 X month / sleep disturbance clearly present, clearly longer latency or clear difficulty staying asleep, 30-90 minutes loss of sleep Severe = at least 2 X week / pronounced sleep disturbance, considerably longer latency or marked difficulty staying asleep, 90 min to 3 hrs loss of sleep	

Criterion F: Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

21. Onset of symptoms

[If not clear:] **When did you first start having (PTSD SYMPTOMS) you've told me about?** *(How long after the trauma did they start? More than six months?)*	***Total # months delay in onset*** _____ ***With delayed onset (> 6 months)? NO YES***

22. Duration of symptoms

[If not clear:] **How long did these (PTSD SYMPTOMS) last altogether?**	***Total # months duration*** _____ ***Duration more than 1 month? NO YES***

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

23. Subjective distress

Overall, in the worst month, how much were you bothered by these (PTSD SYMPTOMS) you told me about? [Consider distress reported on earlier items]	**0** ***None*** **1** ***Mild, minimal distress*** **2** ***Moderate, distress clearly present but still manageable*** **3** ***Severe, considerable distress*** **4** ***Extreme, incapacitating distress***

24. Impairment in social functioning

In the worst month, did these (PTSD SYMPTOMS) affect your relationships with other people? How so? [Consider impairment in social functioning reported on earlier items]	**0** ***No adverse impact*** **1** ***Mild impact, minimal impairment in social functioning*** **2** ***Moderate impact, definite impairment but many aspects of social functioning still intact*** **3** ***Severe impact, marked impairment, few aspects of social functioning still intact*** **4** ***Extreme impact, little or no social functioning***

25. Impairment in occupational or other important area of functioning

[If not clear:] **Were you working at the time?** [If yes:] **In the worst month, did these (PTSD SYMPTOMS) Affect your work or your ability to work? How so?** [If no:] **Why was that?** *(Did you feel that your [PTSD SYMPTOMS] were related to you not working? How so?)* [If unable to work because of PTSD symptoms, rate at least 3=Severe. If unemployment is not due to PTSD symptoms, or if the link is not clear, base rating only on impairment in other important areas of functioning] **Did these (PTSD SYMPTOMS) affect any other important part of your life?** [As appropriate, suggest examples such as parenting, housework, schoolwork, volunteer work, etc.] **How so?**	**0** ***No adverse impact*** **1** ***Mild impact, minimal impairment in occupational or other functioning*** **2** ***Moderate impact, definite impairment but many aspects of occupational and other functioning still intact*** **3** ***Severe impact, marked impairment, few aspects of occupational and other functioning still intact*** **4** ***Extreme impact, little or no occupational and other functioning***

Global Ratings

26. Global validity

Estimate the overall validity of responses. Consider factors such as compliance with the interview, mental status (e.g., problems with concentration, comprehension of items, dissociation), and evidence of efforts to exaggerate or minimize symptoms.	**0** ***Excellent, no reason to suspect invalid responses*** **1** ***Good, factors present that may adversely affect validity*** **2** ***Fair, factors present that definitely reduce validity*** **3** ***Poor, substantially reduced validity*** **4** ***Invalid responses, severely impaired mental status or possible deliberate "faking bad" or "faking good"***

27. Global severity

Estimate the overall severity of PTSD symptoms. Consider degree of subjective distress, degree of functional impairment, observations of behaviors in interview, and judgment regarding reporting style.	**0** ***No clinically significant symptoms, no distress and no functional impairment*** **1** ***Mild, minimal distress or functional impairment*** **2** ***Moderate, definite distress or functional impairment but functions satisfactorily with effort***

	3 ***Severe, considerable distress or functional impairment, limited functioning even with effort*** **4** ***Extreme, marked distress or marked impairment in two or more major areas of functioning***

28. Global improvement

Rate total overall improvement since the previous rating. Rate the degree of change, whether or not, in your judgment, it is due to treatment.	**0** ***Asymptomatic*** **1** ***Considerable improvement*** **2** ***Moderate improvement*** **3** ***Slight improvement*** **4** ***No improvement*** **5** ***Insufficient information***

Specify whether with dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:

29. (1) Depersonalization: Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).

a) **In the worst month, were there times when you felt as if you were separated from yourself, like you were watching yourself from the outside or observing your thoughts and feelings as if you were another person?** [If no:] ***(What about feeling as if you were in a dream, even though you were awake? Feeling as if something about you wasn't real? Feeling as if time was moving more slowly?)*** b) **Did you think it was related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) If not clear:] ***(Was this due to the effects of alcohol or drugs? What about a medical condition like seizures?)*** [Rate 0=Absent if due to the effects of a substance or another medical condition] ***If absent skip to next question.*** d) **How strong was this feeling?** *(Did you lose track of where you actually were or what was actually going on?)* e) **What did you do while this was happening?** *(Did other people notice your behavior? What did they say?)* f) **How long did it last?** g) Circle: **Dissociation** = *Minimal ("I had some sense of dissociation.")* *Clearly Present ("I definitely dissociated at times.")* *Pronounced ("I often felt dissociated.")* *Extreme ("I constantly had a sense of dissociation.")*	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***

h) **How often did this happen in the worst month?** *# of times* _____	
Key rating dimensions = frequency / intensity of dissociation Moderate = at least 2 X month / dissociative quality clearly present but transient, retains some realistic sense of self and awareness of environment Severe = at least 2 X week / pronounced dissociative quality, marked sense of detachment and unreality	

30. (2) Derealization: Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

a) **In the worst month, were there times when things going on around you seemed unreal or very strange and unfamiliar?** [If no:] ***(Did things going on around you seem like a dream or like a scene from a movie? Did they seem distant or distorted?)*** b) **Did you think it was related to (EVENT)?** Circle: **Trauma-relatedness** = *Definite Probable Unlikely* ***If absent skip to next question.*** c) If not clear:] ***(Was this due to the effects of alcohol or drugs? What about a medical condition like seizures?)*** [Rate 0=Absent if due to the effects of a substance or another medical condition] ***If absent skip to next question.*** d) **How strong was this feeling?** *(Did you lose track of where you actually were or what was actually going on?)* e) **What did you do while this was happening?** *(Did other people notice your behavior? What did they say?)* f) **How long did it last?** g) Circle: **Dissociation** = *Minimal ("I had some sense of derealization.")* *Clearly Present ("I definitely had a sense of derealization at times.")* *Pronounced ("I often felt a sense of derealization.")* *Extreme ("I constantly had a sense of derealization.")* h) **How often did this happen in the worst month?** *# of times* _____	**0** ***Absent*** **1** ***Mild / subthreshold*** **2** ***Moderate / threshold*** **3** ***Severe / markedly elevated*** **4** ***Extreme / incapacitating***
Key rating dimensions = frequency / intensity of dissociation Moderate = at least 2 X month / dissociative quality clearly present but transient, retains some realistic sense of self and awareness of environment Severe = at least 2 X week / pronounced dissociative quality, marked sense of detachment and unreality	

APPENDIX F

Ethics approval letter

(document attached in pdf format)