

**Evaluation and Update of Trauma-Focussed Cognitive
Behavioural Therapy with Sensory Approaches for the
Treatment of Post-Traumatic Stress Disorder in
Maltreated Children**

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Abstract

The purpose of this research was to address the need for evidence-based practice in child care and protection settings by evaluating the feasibility and effectiveness of two therapeutic interventions (Trauma-Focussed Cognitive Behavioural Therapy [TF-CBT] and a sensory intervention [SI]), and developing a combined intervention (Sensory and Trauma Focussed Cognitive Behavioural Therapy [STF-CBT]) for the treatment of maltreated children diagnosed with post-traumatic stress disorder (PTSD).

While TF-CBT has been well researched internationally for child maltreatment trauma, New Zealand research was sparse and dated. More recently developed sensory approaches have shown promise as an alternative or additional intervention; however, a systematic literature review, carried out as part of the current research, found that empirical research for the use of sensory approaches for child trauma was lacking (Study 1). A quasi-experimental multiple baseline single case design was employed to evaluate the feasibility and effectiveness of existing TF-CBT and a newly adapted SI with maltreated children referred for therapy within New Zealand's statutory child protection agency (Study 2 and 3). Participants comprised children aged 9-11 years ($n=7$) who met diagnostic criteria for PTSD. Outcomes were assessed using visual analysis of single-case data, comparison of pre- and post-intervention comorbid functioning measures, and supplemented with additional subjective data collected from participants and therapists.

Despite some methodological difficulties related to the complexity of the population, both TF-CBT and the SI demonstrated positive outcomes for children exposed to trauma and multiple maltreatment. For both TF-CBT and SI, all participants demonstrated increased self-perceived ability to cope with distressing situations, decreased PTSD symptoms, and decreased comorbid depression symptoms post-intervention. All TF-CBT participants demonstrated decreased self-reported anxiety at

post assessment, but both participants receiving the SI reported increased anxiety at post-assessment. Subjective data from all participants suggested they valued learning skills to cope with their trauma symptoms, and TF-CBT participants appreciated having the opportunity to process their trauma using sandplay and art. Results highlighted the importance of trauma processing, as well as a need to build on the relational and self-regulation aspects of the approaches, thus providing rationale for the combined sensory and TF-CBT model (Sensory and Trauma Focused CBT; STF-CBT).

Development of the STF-CBT intervention and preliminary feedback from clinicians comprised Study 4. STF-CBT is designed to provide children with a greater understanding of sensory reactions to trauma, provide skills for self-regulation and coping, and allowing processing of their traumatic experiences in a safe therapeutic environment. STF-CBT, therefore, has potential as an acceptable intervention for treating multiply maltreated children. Further research is recommended.

This research identified that the context in which children receive treatment impacts outcomes. For instance, participants experienced ongoing distress, unsafe environments, and instability. These experiences limited participants' ability to attend therapy sessions, build a trusting relationship with the therapist, engage in session activities, and make positive progress. Therefore, it is important to develop and evaluate effective interventions for treating trauma with recognition that therapy is just one part of the picture, and maltreated children require a multi-faceted approach to enhancing their mental health, safety, and wellbeing.

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Introduction

This thesis documents an evaluation of the feasibility and effectiveness of Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT) and a sensory intervention (SI) for child maltreatment trauma. The specific purpose of the current research was to develop an evidence-based intervention integrating sensory approaches and TF-CBT, designed to best suit the needs of children and their families presenting for therapy at the Clinical Services unit of New Zealand's statutory care and protection agency: Oranga Tamariki.

The research questions included:

1. Is TF-CBT a feasible and/or effective intervention for the treatment of trauma in maltreated children?
2. Is a SI a feasible and/or effective intervention for the treatment of trauma in maltreated children?
3. Is there evidence to suggest that an integrated TF-CBT and SI may be feasible and/or effective for the treatment of trauma in maltreated children?

In New Zealand, there is a high incidence of child maltreatment, and the level of deaths from child maltreatment is four to six times higher than that of countries with the lowest maltreatment incidence (UNICEF, 2003). Additionally, almost half of young New Zealanders reported being exposed to some sort of violence in their homes in the 12 months prior to being surveyed (Clark et al., 2009). Children exposed to trauma, including child maltreatment, may present with a range of short and long-term psychological, social, cognitive and health difficulties (Anda et al., 2006; Cecil, Viding, Fearon, Glaser, & McCrory, 2017; De Bellis, Woolley, & Hooper, 2013; Fergusson, Boden, & Horwood, 2008; Fergusson, McLeod, & Horwood, 2013; Little, Akin-Little, & Gutierrez, 2009). Some trauma-exposed children may suffer Post Traumatic Stress Disorder (PTSD), which is unlikely to remit without therapeutic intervention. Given the

increasing number of cases of child maltreatment in New Zealand, it is important that the effects of child maltreatment and trauma are well understood. Furthermore, there is an imperative to develop and deliver effective, feasible, and evidence-based interventions to treat children exposed to maltreatment trauma who experience PTSD and associated symptoms.

The current research was conducted within a clinical setting at New Zealand's statutory child protection service, the Clinical Services unit of the Ministry for Children Oranga Tamariki (previously Child, Youth and Family). It is estimated that one in five children will come into contact with Oranga Tamariki before the age of 17 due to care and protection concerns (Rebstock et al., 2015b). Clinical Services typically receive the most complex of cases, including children who have experienced multiple or ongoing maltreatment, have significant emotional and/or behavioural difficulties, and have often experienced multiple out-of-home placements.

The TF-CBT model investigated is an effective intervention that was originally developed within Oranga Tamariki (Feather & Ronan, 2010) and is seen as the "go-to" intervention for traumatised children. However, despite the large international evidence base for TF-CBT (e.g., see de Arellano et al., 2014), it has been over 10 years since the development of the manual based on New Zealand research (Feather & Ronan, 2010). In the ensuing years, significant progress has been made in understanding, assessing, and treating child trauma. The current research therefore aimed to update the TF-CBT intervention by evaluating its feasibility with the increasingly complex population, as well as by integrating sensory approaches to enhance children's repertoire of coping and self-regulation skills to help with current and future distress and trauma.

There is emerging evidence for the use of sensory approaches for the treatment of trauma in children. Children who have been exposed to trauma may struggle with recognising their sensory needs, have a low baseline for arousal, be susceptible to

dysregulation, and may have limited self-regulation skills (Champagne, 2011c; Ford & Blaustein, 2013; LeBel, Champagne, Stromberg, & Coyle, 2010; Ogden, Minton, & Pain, 2006; Steele & Malchiodi, 2012; Warner, Koomar, Lary, & Cook, 2013). Sensory approaches involve exploration of sensory needs and preferences, and provide children with calming and alerting strategies to teach regulation of arousal and improve emotional and behavioural responses to stimuli. The intervention provides opportunities to help recognise and regulate sensory experiences, identify sensory preferences, and begin to heal the mind through sensations of the body (LeBel et al., 2010). Learning that they can regulate their reactions to stimuli encourages a sense of safety and empowerment in children (Steele & Malchiodi, 2012). Sensory approaches were not being used at Oranga Tamariki, and there has been limited empirical research relating to implications for the treatment of trauma in children. However, evidence does suggest potential benefits (Fraser, MacKenzie, & Versnel, 2017). Evaluating the feasibility and effectiveness of TF-CBT and a SI, therefore, offers an opportunity to ensure children receive therapy that reflects the most recent research and developments in understanding reactions to trauma, and optimises children's wellbeing and development.

Four studies are presented in this thesis. Study 1 was a systematic review, conducted with the purpose of identifying and reviewing current literature on the use of sensory approaches for the treatment of trauma in children. It was predicted that a systematic review would demonstrate limited research on sensory approaches for treating trauma in children.

Study 2 aimed to evaluate TF-CBT at Oranga Tamariki Clinical Services and determine the feasibility and effectiveness of the intervention in this setting. Study 2 involved comparing baseline to post-intervention in a total of five children (including two lost to attrition), and quantitative data were supported by subjective data from

clinicians and participants. An additional aim was to assess neuropsychological functioning in this sample, before and after treatment.

Study 3 aimed to evaluate a Sensory Intervention (SI) developed for this research and delivered at Oranga Tamariki Clinical Services, and determine the feasibility and effectiveness of the intervention in this setting. Baseline outcome measures were compared to intervention outcomes in two children who received the SI, and quantitative data were supported by subjective data from clinicians and participants. An additional aim was to assess neuropsychological functioning in this sample, before and after treatment.

It was predicted that participants in both Study 2 and Study 3 would show a reduction in PTSD (on the CPSS-5), depression (on the CDI-2) and anxiety (on the MASC-2), and general psychopathology (on the SDQ) symptoms, and an increase in coping (on the CQ-C); and that these gains would be maintained over follow-up intervals (3 month and 6 month). It was expected that, at initial testing, participants would present with difficulties in a number of neuropsychological domains (on the NEPSY-II), and that participants in both the TF-CBT and SI interventions would demonstrate improvements in these domains post-intervention.

Study 4 was a developmental study and involved development of an integrated intervention (STF-CBT), based on findings from Studies 2 and 3, and additional literature. Study 4 aimed to develop an evidence-based intervention reflecting the latest research on the treatment of child trauma.

Structure of the Thesis

In the first three chapters of this thesis, I critically explore the context for the treatment of trauma/PTSD in children who have experienced maltreatment, including the historical, theoretical, and empirical background to causality, diagnosis, and

intervention. It is important to consider this context as there are many interacting factors that contribute to risk and resilience for maltreatment and subsequent trauma/PTSD symptomology.

Chapter 1 presents the scope of the issue, including prevalence and incidence of child trauma and maltreatment, and associated outcomes, including PTSD. This provides justification for the need to employ effective interventions for treating child maltreatment trauma and preventing long-term adverse outcomes. This leads into a focus on treatment of maltreatment trauma in Chapter 2, with overview of TF-CBT and sensory modulation approaches, as well as other interventions employed for the treatment of trauma. Chapter 3 considers the status of care and protection in New Zealand, the framework underlying care and protection in New Zealand, and sets the context for the current research. Chapter 4 presents the overall method of the research, followed by presentation of a systematic review of sensory approaches for treating trauma in Chapter 5. Chapters 6 and 7 present the method and results specific to Study 2 and Study 3, and the development of the combined intervention for child maltreatment trauma is described in Chapter 8. Finally, Chapter 9 presents a discussion of the overall findings, including limitations of the research and implications for clinical practice, as well as a discussion on implications for the overall context of child care and protection in New Zealand.

Chapter 1: Child Maltreatment Trauma

This chapter presents the scope of the research topic and provides a synthesis of the prevalence and outcomes of child maltreatment trauma. The review highlights the need for effective, evidence-based interventions for treating child maltreatment trauma and preventing adverse outcomes. The chapter begins by reviewing the prevalence and incidence of childhood trauma and maltreatment, internationally and in New Zealand. The chapter goes on to describe outcomes of child maltreatment and trauma, including PTSD. It is essential to consider child maltreatment outcomes and diagnoses when designing and evaluating interventions. For example, it is helpful to measure clinical changes using diagnostic criteria, as well as ensuring interventions treat the symptoms and presentations for which they are designed.

Prevalence and Incidence of Child Trauma and Maltreatment

A traumatic event is one where the person is exposed to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence. Traumatic events may be a single experience or repeated events, and can be intentional or unintentional, natural or manmade (American Psychiatric Association, 2013; Wethington et al., 2008). It is noted that not all children develop adverse reactions as the result of exposure to traumatic event(s); however, child maltreatment can result in the development of PTSD and trauma symptoms (Alisic et al., 2014). According to the World Health Organization's (WHO) definition, child maltreatment¹ (or abuse and neglect) is the treatment of a child that results in actual or potential harm to the child's health, development or dignity (WHO, 2016). This can be through an act of commission or of omission. Types of maltreatment include sexual abuse, physical abuse,

¹ Maltreatment is used in this thesis to describe all forms of physical, sexual, and emotional abuse and neglect which results in actual or potential harm to the child's physical or emotional health and wellbeing. Abuse and neglect are used where these specific forms of maltreatment are discussed.

emotional/psychological abuse, exploitation, and neglect. Witnessing abuse and/or exposure to domestic violence is also considered childhood maltreatment, but it is rarely included as a type of maltreatment in studies of outcomes of trauma (Witt et al., 2016). Traumatic events can include (but are not limited to) neglect, sexual, physical and emotional abuse (classified as maltreatment), as well as violent events, natural disasters, terrorist attacks, serious accidents (such as a car crash), serious illness (including that of a loved one), or community or domestic violence (APA, 2013; Little et al., 2009).

It can be useful to examine prevalence data to build a picture of the epidemiology of child maltreatment trauma. Data collected in the United States (US) on adverse childhood experiences (ACEs) by the Behavioral Risk Factor Surveillance System (BRFSS) in 2010 showed that almost 60% of adult participants reported experiencing at least one ACE (including abuse, neglect, and household dysfunction such as mental illness, parental separation, and criminal activity) (Centers for Disease Control and Prevention (CDC), 2016). The original ACE study in 1998 also demonstrated that ACEs are likely to co-occur; 13% of respondents experienced four or more ACEs during childhood (Felitti et al., 1998). In New Zealand, almost half of all young New Zealanders reported being exposed to some sort of violence in their homes in the previous 12 months (Clark et al., 2009).

A recent series of meta-analyses on the prevalence of child maltreatment from self-report studies found overall estimated prevalence rates to be 12.7% for sexual abuse, 22.6% for physical abuse, 36.3% for emotional abuse, 16.3% for physical neglect, and 18.4% for emotional neglect (Stoltenborgh, Bakermans-Kranenburg, Alink, & van Ijzendoorn, 2015); although studies tend to be conducted in developed countries. There are limitations on reporting prevalence of trauma and child maltreatment, as accuracy can be limited by retrospective reporting as well as factors such as the individual's age, gender, culture, and time since the event (B. E. Saunders & Adams,

2014). However, despite concerns about accuracy of prevalence measures, these results demonstrate that child maltreatment does affect a significant proportion of individuals. Of those children who experience maltreatment, it is unknown how many develop PTSD. A meta-analysis indicates that 15.9% of children who have experienced a traumatic event will develop PTSD, and children who experience interpersonal violence including abuse are more likely to develop PTSD (Alisic et al., 2014; McLaughlin et al., 2013).

Child maltreatment in New Zealand

To clarify the likely scale of the problem in New Zealand, annual data from Child, Youth and Family (CYF, superseded by Oranga Tamariki in 2017) can be used to provide an estimate of the incidence of child maltreatment cases. Viewed as a cohort, for all children born in 1990/1991, approximately 15% had some form of care and protection related contact with CYF by 18 years of age (Rebstock et al., 2015b). For those children born between 2005 and 2007, 18% were known to CYF by the age of five, reflecting an increase in measured rates of child contact with CYF (Rebstock et al., 2015b).

From the year July 2015-2016, there were 142,249 notifications to CYF (comprising reports of concern directly to CYF and family violence referrals from the police), 16,394 substantiated findings of maltreatment, and 13,598 distinct children with substantiated findings of abuse (Child, Youth and Family, 2016). To put this in perspective, about 1% of New Zealand children experienced reported substantiated abuse in the 2015-2016 financial year alone (population statistics from Office of the Children's Commissioner, 2016a). These statistics reflect a decreasing trend in substantiated findings of maltreatment since 2013. Figure 1 depicts the total number of substantiated maltreatment findings by type of abuse, over the 2012-2016 financial years (adapted from data published by Child, Youth and Family, 2016). Children

notified to CYF or placed in care often experience further abuse or re-notification to CYF in subsequent years, in addition to the trauma and instability experienced with a high number of placement changes (Rebstock et al., 2015a). These statistics highlight the need for interventions for treating trauma that are both effective and feasible in the context of children who may be experiencing ongoing trauma and instability.

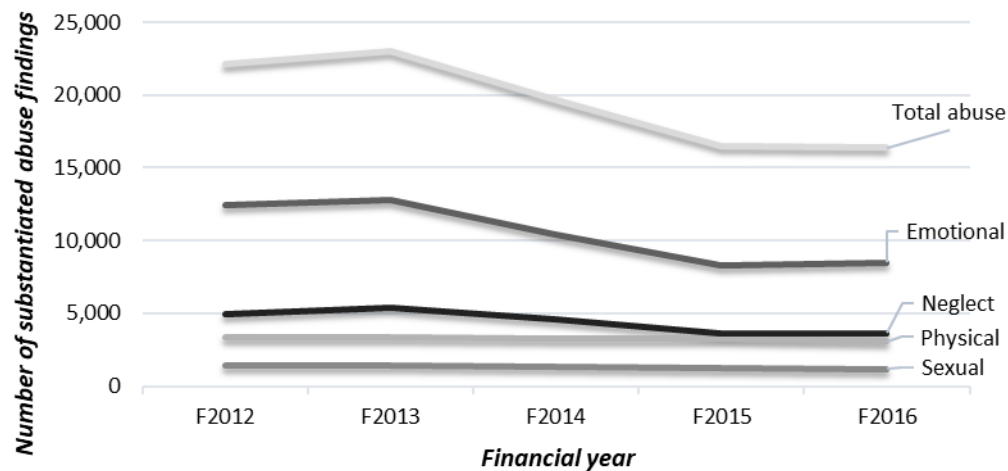


Figure 1. *Total substantiated abuse findings by type (adapted from data published by CYF, 2016)*

According to CYF data, sexual abuse is the least common of substantiated findings of maltreatment (CYF, 2016b), consistent with the review by Stoltenborgh et al. (2015). This is an interesting finding given that child maltreatment research is reported to be dominated by research on sexual abuse (for example see Stoltenborgh et al., 2015). However, it can be difficult to measure sexual violence from administrative data as it is often not reported (New Zealand Family Violence Clearinghouse (NZFVC), 2016). In 2012, 20% of female and 9% of male secondary school students surveyed in New Zealand reported experiencing unwanted sexual touching or being forced to engage in sexual behaviours, and 57% of those who had experienced sexual abuse had not told anyone about it (Adolescent Health Research Group, 2013).

It is important to note that not all incidences of child maltreatment will necessarily come to the attention of Oranga Tamariki, as events usually occur in private, and children may be reluctant to disclose their experiences (B. E. Saunders & Adams, 2014). The number of cases reported to child welfare agencies or law enforcement is likely to underestimate the actual frequency of events, and child maltreatment likely goes unrecorded for many children (Rebstock et al., 2015b; B. E. Saunders & Adams, 2014). Trends in this data over time also do not necessarily reflect actual increases or decreases in maltreatment. For instance, increased reports of concern may be the result of well-publicised child abuse cases and anti-violence campaigns encouraging community reporting, and perhaps a decreased tolerance towards child maltreatment (Connolly & Doolan, 2007; Murphy, Paton, Gulliver, & Fanslow, 2013; Wynd, 2013). Similarly, community members may over-report Māori or low-socioeconomic families because of unconscious (or conscious) bias. However, it has been suggested that Oranga Tamariki has reached a point of saturation, where it is unable to handle the level of notifications received; thus limiting its ability to investigate and substantiate cases of abuse (McCroskie, 2016). CYF data reported here should, therefore, be interpreted with caution.

Wider mental health and behavioural problems in children may also be reflective of child maltreatment prevalence. For instance, between 2007 and 2015 in New Zealand, there was a 132% increase in the number of children diagnosed with emotional and/or behavioural problems, and a 71% increase in children hospitalised with mental and behavioural disorders (McCroskie, 2016). These statistics could also reflect increased awareness of mental health problems and increased access to mental health services; however, adverse mental health symptoms including trauma and PTSD symptoms are a concerning outcome of child maltreatment.

Outcomes of Child Trauma and Maltreatment

There are a wide range of experiences that could be considered traumatic for a child and that may result in trauma symptoms. The following section provides an overview of outcomes of childhood trauma. Studies of outcomes often focus on children with PTSD; therefore, a detailed review of PTSD and associated outcomes for children is provided here. Recognising the range and variation in trauma outcomes and factors associated with outcomes is important in developing and evaluating interventions for the treatment of maltreatment trauma in children.

Post-Traumatic Stress Disorder (PTSD)

Some children exposed to trauma will develop PTSD. Formal diagnostic criteria for PTSD is beneficial as it legitimises and validates individual distress, demonstrating that changes in behaviour, cognitions, and arousal are the result of an inability to cope with real experiences that have overwhelmed the individual's capacity to cope. According to van der Kolk, McFarlane, and Weisaeth (1996), formulation of a PTSD diagnosis opened a path for research and the scientific investigation of the nature of human suffering. Understanding and investigating post-traumatic stress symptoms and PTSD importantly encourages greater understanding of symptom mechanisms and development of effective treatments and interventions. However, PTSD diagnosis tends to focus on exposure to singular traumatic events and does not explicitly distinguish the effects of those from exposure to chronic, complex trauma, such as that from maltreatment. The following section describes the current diagnostic criteria for PTSD, as well as applications for children, including complex trauma diagnoses that are associated with child maltreatment.

PTSD current diagnosis

To meet diagnostic criteria for PTSD in the current version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the individual must present with at least one intrusion symptom, persistent avoidance of stimuli associated with the traumatic event, at least two symptoms related to negative alterations in cognitions and mood, and at least two symptoms related to alterations in arousal and reactivity. The disturbance must occur for more than one month and must cause clinically significant distress or impairment in social, occupation, or other areas of functioning (APA, 2013). Symptoms usually begin within 3 months of the trauma, but there may be a delay of months or even years, before full criteria for the diagnosis are met (APA, 2013). For full criteria, see Appendix A.

PTSD in children

The pursuit of understanding traumatic responses focussed mainly on adults exposed to trauma until the 1980s, when a substantial amount of research was initiated to formally study the impact of violence on children (Steele & Raider, 2001). Since symptomology in children was first recognised in the DSM-III, research has documented traumatic reactions in children following exposure to a variety of traumatic events, including war, community violence, natural disasters, child maltreatment, domestic violence, and the death of a close family member or friend. The current criteria for PTSD in the DSM-5 acknowledges the differential responses to trauma of children and, for the first time, includes criteria specific to children aged six and under (see Friedman, 2014).

Theories of PTSD such as emotional processing theory (Foa & Kozak, 1986; Foa, Steketee, & Rothbaum, 1989) and cognitive theory (Ehlers & Clark, 2000) describe how both pre-trauma views of the world and self, and appraisals of the trauma

can influence PTSD symptoms. Negative appraisals of the trauma may lead to processing the trauma in a way that leads to a sense of serious and current threat (Ehlers & Clark, 2000). Appraisals of the traumatic event include overgeneralising and exaggerating the probability of future catastrophic events or developing appraisals such as “bad things always happen to me.” Those with positive beliefs about the self and the world prior to the traumatic event may find their trust shattered, and those who had prior negative beliefs may see the traumatic event as confirmation of these (Ehlers & Clark, 2000).

The nature of appraisals about the trauma may differ between children and adults. For example, children who have been maltreated may develop negative internal representations of themselves. They may come to see themselves as helpless, inadequate or weak, or as inherently unacceptable and deserving of punishment or neglect. These children may also view others as dangerous, rejecting, or unavailable (Briere, 2002; P. Smith, Perrin, Yule, & Clark, 2010). These perceptions of the self and of others may limit participation in activities necessary to foster development, such as exploration, play and building relationships with peers and important adults. Children with PTSD may also exhibit agitated or disorganised behaviour, or nightmares about monsters or threats to self and others (Feather & Ronan, 2010). Children may also engage in repetitive acting out of the event related to trauma, particularly during play and dissociative states (APA, 2013). The more helpless and powerless the child feels, the more likely they are to utilise dissociative responses (Perry, Pollard, Blaichley, Baker, & Vigilante, 1995).

Expression of PTSD symptoms may also vary across development. In younger children, developmental regression, such as loss of language, may occur (APA, 2013). Additionally, avoidant behaviour in younger children may be associated with restricted play or exploratory behaviour; school age children may exhibit reduced participation in

new activities; and adolescents may be reluctant to pursue developmental opportunities like dating and driving. Older children and adolescents may think of themselves as cowardly (APA, 2013). Worry about the safety of a friend or family member following a traumatic incident has been identified as a significant factor involved in the complexity of a child's reaction (van der Kolk et al., 1996). Worry appears to be related both to the general response to trauma and the severity of reactions (Steele & Raider, 2001).

Children's reactions to trauma may also be influenced by a number of factors related to the child's culture, developmental stage, personality traits, family support, frequency and type of event (Rojas & Pappagallo, 2004). In particular, evidence suggests that children's reactions to traumatic events are influenced by their parents (National Collaborating Centre for Mental Health (UK), 2005). This is significant from a diagnostic perspective as assessment of PTSD typically begins with clinical interviews of both the caregiver and child. In cases of maltreatment, the interviewer should be aware that the caregivers may have been involved or may try to deny or minimise their child's symptoms. A comprehensive and standardised interview of both caregivers and children addressing all DSM criteria and accounting for avoidance symptoms is recommended as the best way to avoid false negative diagnoses (J. A. Cohen & Scheeringa, 2009).

Comorbid psychological disturbance such as other anxiety disorders, depression and related problems are common for traumatised children and youth, including those who have been maltreated (Linning & Kearney, 2004). In preschool aged children, the most common comorbid disorders are Oppositional Defiant Disorder (ODD) and Separation Anxiety Disorder (SAD) (Scheeringa & Zeanah, 2008). In older children and adolescents, comorbid disorders are less well-documented (J. A. Cohen & Scheeringa, 2009), but include anxiety and mood disorders, particularly comorbid

diagnoses of dysthymia and depression (Linning & Kearney, 2004; Olema, Catani, Ertl, Saile, & Neuner, 2014; Thabet, Abed, & Vostanis, 2004; Thabet, Thabet, & Vostanis, 2016). Depression and depressive symptoms may be particularly common in children with PTSD as many vulnerabilities such as lack of social support, negative affect, misattributions and genetic predispositions may overlap in PTSD and depression (Linning & Kearney, 2004). It has been suggested that comorbid disorders may be targeted with insufficient appreciation of PTSD symptomology, resulting in under-diagnosis and therefore inadequate treatment of children with PTSD (J. A. Cohen & Scheeringa, 2009). The child's trauma history should therefore be evaluated when making diagnostic and treatment decisions.

Complex trauma diagnoses

The experience of multiple or prolonged traumas is referred to as complex trauma, and children and adults can suffer increased symptom complexity, worse outcomes, and higher levels of symptom distress compared to those who have experienced single type trauma (Briere & Scott, 2015; Kliethermes, Schacht, & Drewry, 2014; Lanktree & Briere, 2017). Terr (1991) provided an early distinction between single event trauma (Type 1 traumas) and multiple or chronic traumatic events (Type 2 traumas). Individuals exposed to either trauma type may experience PTSD and related comorbid disorders and symptoms; however, Type 2 traumas create a sense of anticipation and the child makes massive attempts to protect themselves and their psyche, using coping mechanisms such as denial, repression, rage, self-destructive behaviours, and dissociation, and may experience unrelenting sadness (Kliethermes et al., 2014; Terr, 1991).

Complex trauma outcomes in children may occur due to disrupted brain development and disorganised attachment, as complex traumas occur during developmentally vulnerable times and typically undermine primary caregiving

relationships (Kliethermes et al., 2014). In children, complex PTSD (as a result of complex trauma) has also been referred to as developmental trauma disorder (DTD) (Landy, Wagner, Brown-Bowers, & Monson, 2015). Complex trauma is not consistently defined, and treating young people exposed to complex trauma can be complicated due to their intense, varied, and rapidly changing needs (Kliethermes et al., 2014). The DSM-5 PTSD criteria may address some diagnostic difficulties and, as discussed by Kliethermes et al. (2014), is better able to describe the impaired self-regulation across multiple domains. However, there is still limited acknowledgment of the impact of chronic trauma on development and a PTSD diagnosis may not accurately capture experiences and outcomes of children who have experienced maltreatment. An understanding of the varied and potentially complex nature of trauma symptoms remains imperative to ensure effective treatment. This is especially pertinent for conducting treatment in care and protection settings, where children are likely to have experienced Type 2/complex trauma. For example, all participants in the current research experienced complex trauma.

Child trauma and maltreatment outcomes

A traumatised child is often in a state of low-level fear at baseline and will shift very easily from being mildly anxious to feeling threatened and being terrorised. That is, the child's brain shifts from a state in which information can be effectively processed, to a survival-oriented, alarm state (Perry, 2001; Perry et al., 1995). Children who are in this survival state will exhibit a set of maladaptive emotional, behavioural, and cognitive problems, all of which are rooted in the original adaptive response to a traumatic event (Perry et al., 1995; Shapiro & Levendosky, 1999). The response to danger involves prioritising processes associated with survival over higher cognitive functions. Over time, minor stresses may trigger the survival response, and the traumatised child will, therefore, often respond to the world as if danger is imminent

(Kinniburgh, Blaustein, Spinazzola, & van der Kolk, 2005). Children may also experience physical symptoms that develop as a result of the chronic stress, such as hypervigilance and elevated pulse and blood pressure (Little et al., 2009).

Children exposed to trauma may also exhibit difficulties with emotional regulation and have difficulty with inter-personal relationships. Trauma experienced by children occurs within a critical developmental period and is significantly influenced by the nature and quality of the caregiving system (Arvidson et al., 2011). In cases where there is no supportive caregiver system to assist the development of coping skills or provide external regulation, children are unable to regulate their emotions, and may disconnect from their feelings or use unhealthy coping skills (Arvidson et al., 2011). When a child's relationship with the attachment figure is characterised by uncertainty, unpredictability, or fear (as when maltreated), the child's basic sense of safety within relationships and in the world in general, is affected (Arvidson et al., 2011; Hesse & Main, 2006). Additionally, exposure to trauma in childhood may lead to social cognitive deficits such as misreading behaviour and attributing biased hostile intent in others (Margolin & Gordis, 2000). The combination of poor emotional regulation and social cognitive deficits may have significant negative implications for children's social development. Children also may have ways of coping with the trauma that may come across as controlling or manipulating. For example, in the case of complex trauma, the child may develop rigid control strategies to manage anxiety in what is a frequently unsafe environment, coming across as bossy or manipulating as they try to control situations, environments, and other people to ensure their needs are met (Blaustein & Kinniburgh, 2010). Coping strategies may vary as a function of development and will likely reflect the physical and cognitive skills of the child, as well as the nature of the experience (Alisic, Jongmans, van Wesel, & Kleber, 2011; Crittenden, 1992; Salmon & Bryant, 2002).

Exposure to childhood trauma can also have significant long term effects, including increased risk of developing poorer physical health, mental health problems and psychopathology (D. W. Brown et al., 2010; Dong et al., 2004; Fergusson et al., 2008; Goodwin, Fergusson, & Horwood, 2005; Putnam, Harris, & Putnam, 2013; Scott, Smith, & Ellis, 2010; Spitzer et al., 2013); interpersonal and sexual problems in adolescent and adult life (Lansford et al., 2002); academic impairment (J. M. Lang, Ford, & Fitzgerald, 2010) and altered brain development in adolescence (Whittle et al., 2013).

Neurological outcomes

Extreme, repetitive or abnormal patterns of stress during critical periods of brain development, such as may be experienced by a maltreated child, can have considerable and lasting neuro-behavioural consequences (Anda et al., 2006) and may increase vulnerability to the effects of stress later in life (Heim & Nemeroff, 2001). Neurological changes can also affect cognitive processes such as learning and memory, executive functioning, attention, verbal processing, and visuospatial processing (Beers & De Bellis, 2002; De Bellis et al., 2013; Samuelson, 2011; Turley & Obrzut, 2012). It is predicted that changes in brain structure after trauma exposure are influenced by a number of factors, including genetic predisposition, gender, onset, severity, type, and duration of trauma exposure, and traumatic stress reactions and disrupted attachment (Kliethermes et al., 2014; Teicher, 2002). Age and development is likely to play a significant role given that different brain structures develop, organise, and mature at different rates, and maturation may differ between sexes and be dependent on pubertal status (Thomason & Marusak, 2017). Specific neural regions and circuits likely have distinct windows of vulnerability to the effects of traumatic stress (Thomason & Marusak, 2017) and the highest impact is on those structures that are developing at the time of the stress exposure (Lupien, McEwen, Gunnar, & Heim, 2009). This means that

children at different developmental stages may react differently to trauma as a result of variation in neurological damage. In adolescents, the onset of puberty may be a more accurate predictor of symptomology development than age (Lam, Lyons, Griffin, & Kisiel, 2015). Additionally, development of PTSD may put traumatised children at increased risk of adverse neurodevelopmental outcomes (Malarbi, Abu-Rayya, Muscara, & Stargatt, 2017).

The influence of trauma on the brain is commonly depicted in dysregulation of the hypothalamic pituitary adrenal (HPA) axis (for example see J. A. Cohen, Perel, De Bellis, Friedman, & Putnam, 2002; Heim, Newport, Mletzko, Miller, & Nemeroff, 2008; Kuhlman, Geiss, Vargas, & Lopez-Duran, 2015; Thomason & Marusak, 2017; Warner et al., 2013), hippocampal volume (see Anda et al., 2006; J. A. Cohen et al., 2002; Thomason & Marusak, 2017), amygdala activity and volume (see J. A. Cohen et al., 2002; Edmiston et al., 2011; Hanson et al., 2015; Heleniak, Jenness, Stoep, McCauley, & McLaughlin, 2016; Mehta et al., 2009; Weems, 2017), corpus callosum area (Teicher & Samson, 2016), and grey matter volume (De Bellis et al., 2002). However, there is a lack of consensus regarding many of these findings. Inconsistencies may be the result of inconsistent data collection methods and not accounting for differences in trauma type and age at onset (De Bellis & Zisk, 2014; Gunnar & Quevedo, 2008; Kuhlman et al., 2015; Shea, Walsh, MacMillan, & Steiner, 2005), or the result of variation in severity or type of trauma (Briere & Scott, 2013; J. A. Cohen et al., 2002; Hanson et al., 2015). With regard to the hippocampus, a latency effect has also been proposed, where hippocampal damage as a result of childhood trauma does not manifest until later in life (for more information see De Bellis, Hooper, Woolley, & Shenk, 2010; Tottenham & Sheridan, 2009).

Cognitive and neuropsychological outcomes

As a result of neurological and neuro-structural changes, children who have been exposed to trauma may also experience cognitive and neuropsychological symptoms. Trauma affects a range of cognitive domains, including memory and learning, executive functioning, language, attention, and visual processing. Poor functioning in these domains suggests weakness in neurological functioning involving stress sensitive areas (De Bellis, Hooper, Spratt, & Woolley, 2009). Additionally, academic achievement has been found to be significantly related to childhood trauma (Margolin & Gordis, 2000; Perry, 2000) and PTSD (Thompson & Massat, 2005). Evidence of lower academic achievement may be linked to deficits in verbal processing and memory and learning, as described below.

Children who have been exposed to trauma may have difficulty with verbal processing and verbal memory, often as the result of dysregulated arousal, hippocampal damage and a hyper-sensitive amygdala. When participating in word learning tasks, children with PTSD are more sensitive to interference and distraction and the effects of word rehearsal are impaired (Beers & De Bellis, 2002; Samuelson, 2011; Turley & Obrzut, 2012). Turley and Obrzut (2012) suggest that difficulties in verbal domains may therefore represent a problem in the encoding of memories rather than the retrieval.

Memory and information processing deficits can negatively impact the individual's ability to follow instructions. For instance, a child in an "alarm state" will be less efficient at processing and storing verbal information compared to a calm child, even if the two children have the same IQ (Perry, 1996). Children in an alarm state will pay more attention to environmental cues, such as sounds, smells or gestures that may signal the onset of violent actions or abuse (Champagne, 2011c). Children exposed to trauma may also have below average prospective memory, the ability to remember to complete a task (Turley & Obrzut, 2012). Because of verbal learning and memory

difficulties, children with PTSD may have difficulty remembering to complete tasks, follow instructions, and apply new information. There are, however, some conflicting findings, which may exist due to the inconsistencies in research methods as described earlier. See Beers and De Bellis (2002); De Bellis et al. (2013); Navalta, Polcari, Webster, Boghossian, and Teicher (2006); Samuelson (2011) for further information.

Outcomes specific to maltreatment

In addition to trauma outcomes, children may present with specific outcomes associated with maltreatment, and the type of maltreatment experienced may influence subsequent outcomes. For example, physical abuse is most consistently reported to be associated with externalizing symptoms including violent offending and aggression, for both boys and girls, and may impact partner relationships in adulthood (Cecil et al., 2017; Jennings, Richards, Tomsich, & Gover, 2015; McLeod, Fergusson, & Horwood, 2014; Petrenko, Friend, Garrido, Taussig, & Culhane, 2012; Richards, Tillyer, & Wright, 2017; van der Put, Lanctôt, de Ruiter, & van Vugt, 2015). Emotional abuse has been found to predict psychiatric symptomology in youth more than any other maltreatment type (Cecil et al., 2017), as well as predicting participation in risk behaviours such as use of illegal drugs, suicidal thoughts, and arrests (White, English, Thompson, & Roberts, 2016). Sexually abused youth of both genders may show more internalising problems, and less externalising problems, than victims of other abuse types (van der Put et al., 2015). Sexually abused children have also been found to score lower on intelligence tests than matched controls (J. A. Cohen, Mannarino, & Knudsen, 2005).

Children who experienced early neglect may struggle to establish a stable interaction with their caregivers, which is likely to result in an insecure attachment style, such as disorganised or anxious/ambivalent (Dubowitz et al., 2005; Maguire & Naughton, 2016; Maguire et al., 2015). Severely neglected children show lower levels

of hormones that promote group affiliation and loving feelings, such as oxytocin and vasopressin (Maguire & Naughton, 2016). Reduced levels of these hormones can have negative implications for future relationships, and neglected children may have difficulty understanding the emotions of others, may be rejected by peers, or withdrawn (Maguire et al., 2015). Neglected children have demonstrated significantly lower neurocognitive outcomes and academic achievements than controls (De Bellis et al., 2009; Dubowitz et al., 2005). For instance, in a review of 26 studies, all but one found an association between neglect and lower intelligence, language, and IQ (Maguire et al., 2015).

Furthermore, although each subtype may be associated with some unique symptoms, children who are maltreated will often experience a combination of multiple types of maltreatment (Finkelhor, Vanderminden, Turner, Hamby, & Shattuck, 2014; Herrenkohl & Herrenkohl, 2009; Witt et al., 2016). For example, in one review of the literature, the percentage of maltreated children who had experienced multiple types of maltreatment ranged from 33-94% (Herrenkohl & Herrenkohl, 2009). Additionally, children who have experienced maltreatment are approximately six times more likely to experience further maltreatment than those who have never been maltreated (Ministry of Social Development, 2010). Experiencing multiple types of maltreatment is associated with poorer outcomes and higher psychopathology, for all combinations of types (Cecil et al., 2017; Steine et al., 2017; van der Put et al., 2015; Witt et al., 2016).

Child maltreatment risk and resiliency factors

A number of risk factors for child maltreatment have been identified, including those relating to characteristics of the child, the perpetrator/caregiver, and community and societal factors. Specific factors associated with maltreatment can be used to identify children and families at risk, and to implement preventative measures for these groups. The presence of one or more of these risk factors in a family does not

necessarily mean that maltreatment will occur, although risk factors may have a cumulative effect (Doidge, Higgins, Delfabbro, & Segal, 2017). The complex interaction of risk factors with individual and family resilience, access to quality interventions and positive life opportunities can reduce or remove the risk altogether (Connolly & Doolan, 2007). Child maltreatment can be seen within an ecological systems model (Bronfenbrenner, 1979) where children are nested within multiple contexts, including their family, school and peers, plus wider cultural, political and societal contexts.

There may be certain characteristics shared by households in which child maltreatment occurs in New Zealand. For instance, a comprehensive review by the Office of the New Zealand Children's Commissioner found that families in which serious child maltreatment occurs tend to share common characteristics such as young parents, low educational attainment, relationship instability and violence between spouses (Connolly & Doolan, 2007). Higher rates of child abuse have also been found to be associated with socioeconomic deprivation, drug and alcohol abuse, parental stress, unemployment, and parents who experienced abuse themselves (Connolly & Doolan, 2007; Doidge et al., 2017; O'Donnell et al., 2010; Wynd, 2013). Māori children are at least twice as likely to experience abuse or neglect, which may be attributed to higher social deprivation and family adversity experienced by Māori families (Marie, Fergusson, & Boden, 2009). Additionally, there are reported child characteristics that may increase the likelihood of maltreatment, or certain types of abuse. These include age, gender, having a serious illness or disability, being unwanted, low birth weight, or crying persistently (Doidge et al., 2017; Simpson, Duncanson, Oben, Wicken, & Gallagher, 2016; WHO, 2016).

It is important to highlight that not all children who experience trauma (including maltreatment) will go on to suffer from PTSD or related psychological

symptoms; some will demonstrate resilience, regardless of the nature of their experience (Feather & Ronan, 2010). The presence or severity of symptoms experienced by children who have been maltreated can be mediated by several factors. Genetic variations and polymorphisms can mean that even children within the same family are likely to demonstrate different responses to similar degrees or adversity (Maguire & Naughton, 2016). Contextual factors relating to outcomes are not always accounted for in studies of childhood maltreatment or are accounted for in varying degrees. This may be the cause of some variability in reported outcomes in the literature. Additionally, studies may focus on a single incidence of trauma or a single type of maltreatment, when in reality, maltreated children may experience chronic and multiple forms of abuse and neglect.

Children who demonstrate positive adaptation despite experiencing trauma can be considered resilient (Luthar, Cicchetti, & Becker, 2000), and a number of factors may contribute to this resiliency. For example, factors relating to individual characteristics, family context and support, the nature of the traumatic event and environment. These factors may interact with the traumatic event to influence outcomes, or multiple factors may have a cumulative effect to enhance either protection or risk (Atwool, 2006; Lansford et al., 2006).

The child's individual characteristics can also play a protective role against psychopathology after trauma. For example, high self-esteem may act as a resiliency factor (Silva & Kessler, 2004; Walters & Seymour, 2017) and coping self-efficacy has been consistently reported to mediate recovery following a diverse range of traumatic events (reviewed by Benight & Bandura, 2004), including predicting lower PTSD symptoms after a natural disaster (Nygaard, Hussain, Siqveland, & Heir, 2016). Similarly, in adolescents, an internal locus of control (belief that they have control over their own life) and problem solving coping skills have been found to be a strong

protective factor against PTSD symptoms after a significant earthquake (Zhang, Liu, Jiang, Wu, & Tian, 2014). Those with an internal locus of control tend to take active efforts to promote positive outcomes and post traumatic adjustment, compared to passive coping skills such as withdrawal or avoidance (Zhang et al., 2014). A strong and positive cultural identity has also been reported to contribute to resiliency in Māori children and youth who have experienced family violence (Walters & Seymour, 2017).

Social support acts as both a protective factor against child maltreatment, as well as increasing resilience in those who have experienced maltreatment. For example, a strong social network that can provide emotional support, as well as concrete support such as sufficient food, money, and resources is a key protective factor (Counts, Buffington, Chang-Rios, Rasmussen, & Preacher, 2010). The strength of the attachment relationship between child and caregiver may also act as a protective factor against child maltreatment (Counts et al., 2010). In particular, caregiver support is a primary protective factor in children exposed to trauma, and parent or caregiver practices can mediate trauma impact and predict the degree that children resolve trauma reactions (Kliethermes et al., 2014; Walker, Carey, Mohr, Stein, & Seedat, 2004). For example, after a disaster, a warm, supportive, and predictable environment decreased vulnerability to post-traumatic stress symptoms (Ronan et al., 2008). Social competence may play a role in resilience. For example, social competence may allow a physically abused child more options other than aggression for responding to social situations, and enables children to form trusting and positive relationships with others (Lansford et al., 2006). A secure attachment may also contribute to resilience, as secure attachment patterns promote secure and positive relationships, development of positive self-concept, and supportive family (Atwool, 2006).

It is important to consider resiliency factors as they can be targeted in early interventions to prevent or reduce distress after trauma (Zhang et al., 2014). For

instance, it is commonly reported that intentional or interpersonal traumas result in higher PTSD prevalence than other trauma types (see meta-analysis by Alisic et al., 2014), but there may be potential to mitigate psychopathology by enhancing resilience factors described above. For example, enhancing social support may predict more positive outcomes in children after maltreatment trauma.

Chapter Summary

Exposure to childhood maltreatment trauma is relatively common, reflected in estimates of prevalence and incidence, including Oranga Tamariki reports of concern and substantiated findings of abuse and neglect. Experiencing maltreatment and trauma in childhood can influence neurological and cognitive development, which can have a lasting impact on health, mental health, behavioural, and social domains. PTSD may occur as a result of child maltreatment trauma, but recognition and research around PTSD in children is more recent, and ongoing research is required.

There is some variability in reported outcomes due to a common lack of control for type or severity of trauma, or associated factors. For children who experience complex trauma, an increase in adverse outcomes may also be experienced; more research is needed in this area. Clinical understanding of the complexity of trauma and PTSD symptomology and resiliency in children and adolescents, in addition to comprehensive, multi-informant assessment, is, therefore, important in developing and evaluating therapeutic interventions.

Chapter 2: Treatment of Child Maltreatment Trauma

It is imperative that those exposed to maltreatment trauma receive prompt and adequate treatment. When selecting an appropriate PTSD/trauma intervention, as well as judging evidence of efficacy, it is also important to consider client preferences, accessibility, and appropriateness of the intervention for the client and their needs (Cusack et al., 2016). There are a number of child and family focused interventions available for the treatment of childhood trauma, but not all of these are empirically supported. The majority of outcome studies for treating child trauma investigate CBT (Gillies et al., 2016; Warner, Spinazzola, Westcott, Gunn, & Hodgdon, 2014), and other interventions include play and creative therapies and exposure therapy. This chapter emphasises the importance of evidence-based practice and provides a discussion of interventions with strong support for the treatment of trauma in children, including TF-CBT, followed by a discussion of interventions with less support, including sensory approaches. This chapter also builds rationale for the current research by identifying strengths and weaknesses of available interventions, including whether they are empirically supported, particularly for use with maltreated children in care. Additionally, some of the factors that should be considered when selecting an appropriate intervention for child maltreatment trauma are discussed.

Evidence Based Practice

When treating trauma, it is important to implement evidence-based treatments to ensure the best possible benefit for the client. Randomised controlled trials (RCTs) are considered the “gold standard” measurement to determine the efficacy of a treatment (Leichsenring & Klein, 2014). However, RCTs are carried out under a controlled environment; and therefore, do not always represent treatment application in clinical settings. For this reason, observational studies are also beneficial for examining

treatment efficacy, as these are carried out in true clinical environments. Additionally, although it may be unprofessional to use treatments with little or no empirical support, some treatments with limited research backing are used widely with success, and clinicians should endeavour to carry out research that verifies the usefulness of such treatments (Feather, 2007).

There are multiple published guidelines and recommendations to assist in selection of treatment for trauma and PTSD, but most of these guidelines focus on the treatment of adults. Commonly reported guidelines include: US Department of Veterans Affairs Treatment of PTSD recommendations (2017); APA Clinical Practice Guideline for the Treatment of PTSD (2017); Phoenix Australia Centre for Posttraumatic Mental Health (ACPMH) Guidelines for the Treatment of Acute Stress Disorder and Posttraumatic Stress Disorder (2013); and Practice Guidelines from the International Society for Traumatic Stress Studies (ISTSS) (2009). As discussed in Chapter 1, the recognition of PTSD in children occurred more recently than for adults, and less research is focused on the outcomes and treatment of PTSD in children, thus limiting the inclusion of treatments for children in many PTSD guidelines. For instance, the APA guideline (2017) stated that the exclusion of treatments for PTSD in children is due to insufficient strength of evidence resulting from “substantive and methodological gaps” in the literature (p. 3). Additionally, as reviewed in this chapter, not only is there a lack of evidence for the treatment of PTSD in children, but even less evidence specifically related to the treatment of trauma and PTSD for maltreated children in out of home care (also referred to as foster care). Interventions discussed in this chapter are, therefore, organised based on the strength of evidence and support given by the listed guidelines as well as other literature, including systematic reviews, RCTs, and case studies.

Interventions with Strong Support for Treating Child Trauma

Generally, interventions reported with strong support for treating PTSD are trauma-focussed psychological therapies such as eye movement desensitisation and reprocessing (EMDR), prolonged exposure (PE), cognitive processing therapy (CPT), CBT, and TF-CBT. However, not all of these interventions have strong support for the treatment of trauma in children, particularly child maltreatment trauma. For example, EMDR has strong evidence for the treatment of trauma in adults, and some support for the treatment of trauma in children, including maltreatment trauma (for example see Ahmad, Larsson, & Sundelin-Wahlsten, 2007; Chemtob, Nakashima, & Carlson, 2002; Chen et al., 2018; de Roos et al., 2011; Diehle, Opmeer, Boer, Mannarino, & Lindauer, 2015; Jaberghaderi, Greenwald, Rubin, Zand, & Dolatabadi, 2004). Adapted versions of PE (for example see Adler Nevo & Manassis, 2011; Foa, Chrestman, & Gilboa-Schechtman, 2008; Gilboa-Schechtman et al., 2010; Rachamim, Mirochnik, Helpman, Nacasch, & Yadin, 2015), narrative exposure therapy (KidNET; see R. C. Brown et al., 2017; Neuner et al., 2008; Onyut et al., 2005; Ruf et al., 2010) and CPT (see Ahrens & Rexford, 2002) also have support for the treatment of child trauma.

The below discussion focusses on cognitive behavioural therapies and interventions that can be included as components of these for the treatment of child maltreatment trauma, such as play and creative therapies. Some interventions reviewed have not been specifically developed or adapted for the treatment of child maltreatment trauma, but are included because they can be applied for this purpose. Although the interventions are described separately, they have overlapping components, and various combinations may be used in routine clinical practice (ACPMH, 2013).

Behavioural and cognitive therapies

Exposure is core to behavioural therapies for treating trauma. Rationale for exposure, for PTSD, comes from emotional processing theory, which proposes that traumatic memories are uniquely represented within a fear network. Environmental cues can activate the fear network and lead to PTSD symptoms, but avoidance maintains symptoms as new information cannot be incorporated into the fear network (Foa et al., 1989). Exposure can be conceptualised as extinction learning, where new learning ensures that trauma cues presented in the absence of threat fail to elicit the fear response (Nickerson, Bryant, Silove, & Steel, 2011; N. B. Smith, Doran, Sippel, & Harpaz-Rotem, 2017). Initial increased anxiety on exposure to fearful stimuli will gradually decrease through repeated exposures, and the decrease in distress after exposure becomes more rapid (Korotana, Dobson, Pusch, & Josephson, 2016; US Department of Veterans Affairs, 2017). Additionally, repeated exposure may correct maladaptive appraisals and expectations about the danger of the stimuli.

Cognitive therapies are perhaps the most commonly employed interventions for treating symptoms of trauma and PTSD and are consistently supported in PTSD treatment guidelines, including the APA, ACPMH, ISTSS, and Veterans Affairs. They are based on the cognitive model of PTSD, which proposes that symptoms arise and persist because the trauma is processed in a way that leads to a sense of current threat (Ehlers & Clark, 2000). Negative appraisals maintain symptoms, and avoidance prevents a change in trauma memories and appraisals, and therefore contributes to maintenance of symptoms.

Cognitive Behavioural Therapy (CBT)

CBT is based on the premise that symptoms develop and are maintained by conditioned and learned behavioural responses as well as maladaptive cognitions, including thought distortions. Cognitive schemas, including dysfunctional assumptions

and negative beliefs, may be activated by critical incidents, flooding the mind with negative automatic thoughts and leading to negative emotions and behaviours (Willner & Lindsay, 2016). A key idea in CBT is that clients must change the way they think about events, in order to change the way they feel about them (Neenan & Dryden, 2015). Cognitive misappraisals are challenged, fragmented memories are targeted, and adaptive coping strategies are developed (Yule, Smith, & Perrin, 2004). CBT is a time-limited intervention and therapy usually lasts for 12 to 24 weeks/sessions (Beck & Dozois, 2011). A central feature of CBT is the collaborative relationship between the therapist and the client, who work together to meet therapeutic goals (Neenan & Dryden, 2015; Willner & Lindsay, 2016).

Exposure techniques in the context of a safe and trusting relationship are at the core of CBT for PTSD (Yule et al., 2004). CBT also places importance on homework, where clients can practice modifying maladaptive thoughts and beliefs in real-life situations, deepening the intensity of the intervention (Neenan & Dryden, 2015; Willner & Lindsay, 2016). The approach is essentially the same for treating children, but is structured in a developmentally appropriate manner (as described below – TF-CBT).

CBT is an effective treatment for posttraumatic stress responses that develop subsequent to a range of adverse events including war, terrorism, road accidents, and in refugees (reviewed by Kar, 2011), and CBT is the first choice of treatment for both adults and children with PTSD (Donnelly & Amaya-Jackson, 2002). CBT can be implemented in a variety of settings, including schools, hospitals, community centres, and primary care clinics (Kar, 2011). The efficacy of cognitive therapy approaches to treat trauma has been established through multiple systemic reviews and meta-analyses as well as several RCTs (reported by J. A. Cohen & Mannarino, 2008; J. A. Cohen, Mannarino, Berliner, & Deblinger, 2000; Gillies et al., 2016). Additionally, cognitive therapies are included in practice guidelines, including those of the APA (American

Psychological Association, 2017) and ISTSS Treatment Guidelines for PTSD (Foa, Keane, Friedman, & Cohen, 2009), and have been found to be effective in the long term treatment of traumatised children and adolescents (Foa et al., 2009).

Trauma-focussed cognitive behavioural therapy (TF-CBT)

For children exposed to trauma, TF-CBT is one of the most researched, and most commonly used interventions, including with maltreated children (Wamser-Nanney & Steinzor, 2017). First developed to treat PTSD in children who had experienced sexual abuse (J. A. Cohen, Mannarino, & Deblinger, 2006), TF-CBT is now also used to treat trauma from physical and emotional abuse, neglect, community and domestic violence, war, loss, and natural disasters. TF-CBT has been widely disseminated and effectiveness has been demonstrated in many RCTs and clinic-based studies (reviewed by de Arellano et al., 2014). A number of trauma specific CBT models are available, which generally share core components. For example, de Arellano et al. (2014) identified the five core elements of the TF-CBT model to be psychoeducation, coping strategies, gradual exposure, cognitive processing, and caregiver participation. The TF-CBT intervention used in the current research (Feather & Ronan, 2010) was developed within a clinical care and protection setting within the context of Aotearoa New Zealand. The intervention is aligned with the principles of partnership, participation, and protection core to the founding document of New Zealand - the Treaty of Waitangi. The programme built on local practice and empirically supported treatments for child anxiety, taking into consideration the ongoing nature of PTSD symptoms and the psychosocial context of traumatised maltreated children (Feather & Ronan, 2010). An outline of the intervention is provided in Appendix B.

One of the core components of TF-CBT is desensitisation to traumatic memories through gradual exposure and development of a trauma narrative. Gradual

exposure is where the child begins with a less upsetting trauma memory and gradually progresses to describing more traumatic events (J. A. Cohen et al., 2000). Various modalities can be used to help the child develop a trauma narrative, including sand, clay, art, and puppets. The therapist uses the activity to cue the child to remember details of what they were seeing, hearing, smelling, feeling, and thinking at the time, and children learn that the more they confront the memories that once upset them, the less the memories are associated with anxiety. In addition to exposure, trauma narratives allow maladaptive cognitions about the experience to be addressed (J. A. Cohen, Mannarino, & Murray, 2011) and have been shown to be particularly effective in reducing abuse-related fear and general anxiety (Deblinger, Mannarino, Cohen, Runyon, & Steer, 2011). For instance, once the child has created their narrative, the therapist assists in processing any cognitive distortions, and children learn how their thoughts can influence their feelings and behaviours. Cognitive coping skills are used to change thoughts to be more helpful and accurate (Allen et al., 2011; J. A. Cohen & Mannarino, 2008).

TF-CBT has strong evidence for the effectiveness of reducing psychological harm from traumatic events (including maltreatment) among children and adolescents (J. A. Cohen et al., 2006; Wethington et al., 2008) with reported reduction of PTSD symptoms, depression, and emotional and behavioural difficulties in 3-17 year olds (Cary & McMillen, 2012; J. A. Cohen, Berliner, & Mannarino, 2010; J. A. Cohen & Mannarino, 2008; Foa et al., 2009). In 7-17 year olds, TF-CBT has been demonstrated to reduced hypervigilance, re-experiencing and self-reported depression symptoms (Deblinger, Pollio, Runyon, & Steer, 2017). TF-CBT has been demonstrated to be effective in treating a range of trauma types, including treating children exposed to sexual abuse (J. A. Cohen et al., 2005; Deblinger, Mannarino, Cohen, & Steer, 2006), terrorism (J. A. Cohen & Mannarino, 2008), natural disasters such as Hurricane Katrina

and the 2004 Indonesian tsunami (J. A. Cohen & Mannarino, 2008; Jaycox et al., 2010), multiple traumas (Konanur, Muller, Cinamon, Thornback, & Zorzella, 2015) and in refugee children and adolescents with PTSD (Schottelkorb, Doumas, & Garcia, 2012; Unterhitzenberger et al., 2015; Unterhitzenberger & Rosner, 2016). These studies all utilised the same treatment protocol (for example, J. A. Cohen et al., 2000), with similar session number and length. A review of evidence-based interventions for children who had experienced maltreatment determined TF-CBT to be the best supported treatment (Leenarts, Diehle, Doreleijers, Jansma, & Lindauer, 2013). Two studies to date have also demonstrated TF-CBT to be effective for trauma-exposed children and youth in foster care (Dorsey et al., 2014; Weiner, Schneider, & Lyons, 2009), but more research relating to the use of TF-CBT with this complex population is needed.

TF-CBT has been recommended in US, UK, and Australian reports and guidelines. TF-CBT was the only intervention (out of 24) to receive the highest classification, “well-supported, efficacious” in a report by the US Department of Justice (B. E. Saunders, Berliner, and Hanson (2003). Also in the US, the National Child Traumatic Stress Network (NCTSN) reports TF-CBT as superior to waitlist and comparison treatments on multiple outcomes and describes TF-CBT as a flexible, easy to learn intervention (NCTSN, 2012). The UK National Institute for Health and Care Excellence (NICE, 2005) and the Australian Centre for Posttraumatic Mental Health (ACPMH, 2013) recommend TF-CBT (adapted appropriately for age, circumstances and developmental level) be offered to children and young people with PTSD; although NICE (2013) recommend further studies.

TF-CBT has also received support from those engaged in the therapy. For example, youth (aged 11-17 years) engaged in TF-CBT reported it to be difficult, but helpful, talking about the trauma; and helpful learning skills for reducing stress (Dittmann & Jensen, 2014). Children have also reported TF-CBT helps them think of

the consequences of actions such as lying and stealing and that it was helpful to be able to express their feelings using sand trays (Feather & Ronan, 2009). Similarly caregivers have reported it beneficial that their children gained strategies to cope with difficult situations (Feather & Ronan, 2006).

TF-CBT can be a culturally sensitive intervention. For example, TF-CBT has been culturally adapted and used for a number of international populations, including Dutch, Norwegian, African, and Pakistani (Foa et al., 2009). In a sample of US youth in foster care (including 43% from minority groups), trauma symptoms were reduced and functioning improved with no influence of race (Weiner et al., 2009). However, it has been suggested that some adaptations may be required for treating non-Western populations and collectivist cultures; for example, increased sensitivity in addressing religiously sanctioned appraisals and offering adaptive appraisals that are consistent with the child and family's religious values (Dawson & Bryant, 2014). The New Zealand TF-CBT programme has also been trialled and evaluated with Māori and Pacific children (Feather & Ronan, 2009). As the use of TF-CBT increases for the treatment of a range of trauma types and populations, adaptations to enhance cultural relevance should be considered and evaluated.

As TF-CBT is a therapy designed specifically for treating children exposed to trauma, it can address issues related to delivering therapy with these children and their families. For example, traumatised children and adolescents, particularly those who have experienced maltreatment or who are in foster care, may find it more difficult to build trust and alliance with their therapist than other young people seeking help (Dittmann & Jensen, 2014). However, aspects of TF-CBT, such as the emphasis on psychoeducation, normalising reactions, and explaining the rationale for activities, may help young people feel safe and emphasise collaboration; thus enhancing the therapeutic alliance (Dittmann & Jensen, 2014).

Although TF-CBT is a popular intervention for childhood trauma, with strong evidence of efficacy, it does have limitations. Most limitations of this intervention relate to the complexity of traumatised children's lives and symptoms. In general, trauma-focussed treatments for children often have high attrition rates. One possible reason is that avoidance of trauma-related content may make it difficult for children to engage in treatment when the trauma becomes a central focus (Wamser-Nanney & Steinzor, 2017). Konanur et al. (2015) noted withdrawal from clinical services peaked during the assessment period, during which time arousal symptoms also increased. In a care and protection setting, it is possible that trauma exposure is ongoing, and children are likely to find therapy difficult to engage in when they are not in a safe and stable environment. This may be the case particularly for children in care, who may be placed with temporary caregivers. Attrition may occur before therapy has properly begun, or during intervention. For example, Feather and Ronan (2009) found children's treatment gains to stall or slow when their safety was at risk, and therapy progress resumed when safety concerns were resolved.

Families exposed to trauma may also include caregivers who have PTSD and trauma-related avoidance, or who may need to prioritise environmental security over completing trauma therapy for them or their child (Wamser-Nanney & Steinzor, 2017). The role of caregivers in TF-CBT is important, and they can influence the child's progress (Feather, 2007; Feather & Ronan, 2009). However, maltreated children may be in foster care, and intervening with these children, and engaging their caregivers, may be challenging (Dorsey et al., 2014; Hambrick, Oppenheim-Weller, N'zi, & Taussig, 2016). Caregivers play a key role in the delivery of TF-CBT, and few studies evaluate the efficacy of TF-CBT with maltreated children in foster care, where there may be caregiver disruption through the course of therapy. Additionally, caregiver traits such as avoidance, maladaptive cognitions, blame, and lack of support, can contribute to

treatment outcomes and may also need to be assessed and targeted (Yasinski et al., 2016). More research is needed in this area as studies examining early termination from TF-CBT often have small sample sizes and, therefore, inadequate power (Wamser-Nanney & Steinzor, 2017). One possibility may be the inclusion of additional sessions to build engagement. For example, in one study, supplementing TF-CBT with evidence-based engagement strategies for foster parents and youth made it less likely that families would drop out of therapy prematurely (Dorsey et al., 2014).

Another factor that needs to be considered before commencing TF-CBT is the developmental age of the child. For instance, not all children within the recommended age group for TF-CBT (8-15 years for the New Zealand intervention) will have the necessary level of cognitive or emotional development to manage all elements of the programme (Feather & Ronan, 2010). Older children may be better suited to TF-CBT, with larger treatment effects reported (Lenz & Hollenbaugh, 2015). This may be because older children are better equipped to develop a treatment narrative and verbalise their feelings. However, a developmentally modified version of TF-CBT may be effective with younger children, with the help of caregivers to interpret children's words and body language (Scheeringa, Weems, Cohen, Amaya-Jackson, & Guthrie, 2011). The treatment protocol used in the study by Scheeringa et al. (2011) also involved greater reliance on visual aids and drawing where children had difficulty discussing or understanding verbal content. The capability of each individual child to take part in a cognitive based therapy needs to be assessed, and necessary treatment adaptations made.

There are still aspects of TF-CBT that need to be addressed with further research, to ensure that children receive the best possible outcome from therapy. Like with any treatment, the benefits of TF-CBT need to be assessed with regard for the individual child and family context, potential barriers such as child or caregiver engagement, and the treatment of comorbid symptoms. Further research considering

children's experiences in therapy is likely to be beneficial for enhancing engagement and satisfaction.

Play and creative therapies

Creative modalities are used throughout TF-CBT to assist with psychosocial strengthening, developing coping skills, and trauma processing (see Feather & Ronan, 2010). Creative modalities used in TF-CBT are drawn from play and creative therapy approaches. Play therapy involves developing a relationship with the child and communicating through play to resolve psychosocial difficulties (Paone & Maldonado, 2008; Woolf, 2002). A range of media are used, including toys, blocks, board games, clay, art, and puppets. Commonly, sand play is employed, where children use miniature figures within a small sandbox to represent their world, and create a narrative about significant people in their lives (Steele & Malchiodi, 2012; Woolf, 2002). In PTSD, the world is commonly experienced as a fearful and unpredictable place; but in play, children are able to control the story, and regain their sense of control (Ogawa, 2004). Play therapy has been used to treat young children with PTSD from maltreatment (Woolf, 2002), adolescents with complex trauma (Green & Myrick, 2014), and single-type trauma (V. Ryan & Needham, 2001) with positive outcomes.

Like play, the use of artwork can allow perceptual and visual experiences of the trauma to be represented, and is a way of expressing and communicating experiences non-verbally (Pearce & Pezzot-Pearce, 2007; Wethington et al., 2008). Creative therapies can also assist with language barriers and encourage cultural practices such as music, dancing, and the arts (van Westrhenen & Fritz, 2014). For instance, DiSunno, Linton, and Bowes (2011) found the use of symbolic imagery to offer an alternative to verbal language in expressing pain and loss for children aged 4-15 following the World Trade Centre disaster. In a qualitative study, Coholic, Loughheed, and Cadell (2009) demonstrated an experiential arts-based therapy to have positive

outcomes for children in foster care who had histories of trauma and/or adverse childhood experiences. There is limited evidence to determine the effectiveness of creative therapies as a stand-alone treatment for treating PTSD but combined with CBT, creative activities may support self-regulation and allow access to traumatic memories (Foa et al., 2009; Steele & Malchiodi, 2012). As noted above, play and creative therapies have been incorporated into TF-CBT to facilitate a child-friendly and developmentally appropriate approach (Feather & Ronan, 2010).

Child Parent Psychotherapy

Child Parent Psychotherapy (CPP) is an example of an intervention that has been shown to be effective for young children in foster care who have experienced trauma (Lieberman, Van Horn, & Ippen, 2005). Although there are a number of mental health interventions for children in foster care (see Hambrick et al., 2016 for a review), few of these interventions focus on the treatment of trauma and PTSD symptoms. CPP employs play therapy and psychodynamic therapy and aims to improve the relationship between the child and caregiver. CPP is limited to children aged 0 – 6 years and the participation of a caregiver is essential (reviewed by Hambrick et al., 2016; Weiner et al., 2009). CPP is therefore limited in breadth of application, which may mean it is less feasible in New Zealand, where the average age of a child in care is reported to be seven to eight and children experience multiple placements (Rebstock et al., 2015b).

Interventions with Less Support

There are a number of more recently applied interventions that may be beneficial for the treatment of trauma in children, but that have a more limited evidence base. For example, expressive writing is a brief intervention where the participant discloses details about a negative, stressful, or traumatic event in a written, structured, time-limited manner (Korotana et al., 2016). Expressive writing has been found to

improve some trauma-related symptoms in adults (Smyth, Hockemeyer, & Tulloch, 2008) and may be beneficial used as a supplement to other interventions, such as a trauma processing modality for the exposure components of CBT and TF-CBT.

Another intervention that may be beneficial combined with other, more evidence-based approaches, is mindfulness. A key part of mindfulness is enabling a shift from a mode of hypervigilance and avoiding threat to another, present, more pleasurable focus (Hinton, Pich, Hofmann, & Otto, 2013). The applications of mindfulness for treating trauma have been found in a range of adult populations (for example, Hinton et al., 2013; Kelly & Garland, 2016; Kimbrough, Magyari, Langenberg, Chesney, & Berman, 2010; A. Lang, 2016; Libby, Pilver, & Desai, 2012), but applications for children who have experienced trauma are less clear. It may be that for children, mindfulness interventions may be helpful in building coping skills, but the efficacy of these interventions for treating trauma and PTSD symptoms in maltreated children is unknown. Alternatively, Jee et al. (2015) found a mindfulness-based stress reduction programme to enhance self-awareness and competence in managing ongoing stress in youth aged 14 – 21 in foster care. Additionally, early evidence suggests that meditation and yoga may be useful treatments for PTSD and, along with mindfulness, these techniques can be incorporated into the relaxation components of TF-CBT and taught as calming coping skills.

Other interventions that can be used for the treatment of trauma include hypnotherapy, psychodynamic therapy, and interpersonal therapy. There is some evidence, albeit limited, for the use of these interventions for treating trauma in children. Therefore, although there are some psychological interventions that may have promise for the treatment of trauma and PTSD in children, further research is needed to establish empirical support across all age groups, but particularly with children,

including maltreated children in care. Interventions have also been developed in other fields that show promise, such as sensory modulation approaches.

Sensory modulation approaches

Sensory modulation is a relatively new approach for treating children who have been exposed to trauma. The rationale for using sensory approaches for treating children exposed to trauma is that children will often experience dysregulated arousal as a result of the survival response (described in Chapter 1), may not be aware of their sensory needs, and often have not developed the skills to self-regulate their arousal in adaptive ways (LeBel et al., 2010; Te Pou o te Whakaaro Nui, 2011a). The sensory modulation intervention was developed within the fields of occupational therapy and developmental psychology (Te Pou o te Whakaaro Nui, 2011a), based on earlier ideas of sensory integration (Champagne, 2011c; Schaaf & Miller, 2005). Detail about the theoretical background of sensory modulation is provided in Appendix C and an overview of the approach is described below.

Sensory modulation dysfunction is common following exposure to trauma as a result of the impact on affect and behaviour regulation, as well as uneven cognitive development and disrupted attachment (Warner et al., 2013). A child with a background of trauma may be triggered by physical touch, specific smells associated with past trauma or abuse, or by sounds associated with impending abuse or neglect (Koomar, 2009). The child's behaviour may appear reactive and disorganised, and it may not be clear to others why they are responding this way. Additionally, children who have been exposed to trauma may have a limited repertoire of coping skills for managing periods of distress or overwhelming emotional states.

The sensory modulation intervention approach employs a variety of tools and strategies to help individuals learn to regulate the type and intensity of sensory input they experience. There is not one set intervention or process and sensory modulation

approaches describe a general intervention approach to arousal regulation guided by sensory modulation and sensory integration theory. Core aspects of the intervention are: sensory assessment (of sensory needs, preferences, and patterns of sensory processing), sensory diet/plan (meaningful sensory activities for calming and alerting that can be used for crisis intervention or during daily activities), a sensory room (a dedicated therapeutic space designed to promote positive change and assist with self-soothing). These intervention components are described in more detail in Chapter 7 and Appendix C.

Sensory modulation interventions have been shown to have positive effects on an array of trauma and mental health symptoms (Champagne, 2011b; Champagne & Sayer, 2003; Sutton & Nicholson, 2011; Sutton, Wilson, Van Kessel, & Vanderpyl, 2013) and show promise for improving affect and behaviour regulation in children and adolescents who have been exposed to trauma (Finn, Warner, Price, & Spinazzola, 2017; Purvis, McKenzie, Cross, & Razuri, 2013; Warner et al., 2014). Because of verbal processing deficits described in Chapter 1, a hands-on intervention that focuses on self-soothing and regulation, as opposed to cognitive processing, is likely to be beneficial for children exposed to trauma. However, empirical evidence for the use of sensory interventions for the treatment of trauma in children is lacking. A systematic review was, therefore, conducted to identify support for this intervention and is presented in Chapter 5 (Study 1).

Cultural Considerations

Culture is a significant factor in developing and implementing treatments for trauma. Culture informs beliefs and traditions about the most effective ways to help individuals recover from trauma, as well as the meanings individuals give to traumatic events (Sternin & Weiss, 2014). It should not be assumed that interventions with

demonstrated effectiveness in one culture will also be effective in another. It is also important to consider cultural expectations for resiliency and coping after trauma, as well as any culturally specific rituals or treatments that may be used to facilitate recovery (Wilson, 2007).

Different cultures provide different pathways to healing, including traditional and culturally specific healing and rituals (Wilson, 2007). Cultural beliefs and values may also influence the processing and interpreting of the traumatic event (Wilson, 2007). For instance, in some cultures, females are discouraged from expressing negative emotions in the wake of traumatic events, which results in increased intrusions and prolonged posttraumatic reactions (Dawson & Bryant, 2014). Some traumatic events may also be attributed to the will of a higher power or god, and it may be unacceptable to challenge thoughts if it is perceived that individuals are not accepting their destiny (Dawson & Bryant, 2014). These beliefs, therefore, need to be taken into account when treating PTSD and traumatic symptoms.

In New Zealand, cultural competence is emphasised, and as reported on the MVCOT website (Ministry for Vulnerable Children, 2017), New Zealand law specifies that culture be a core consideration in the pursuit of children's wellbeing and outcomes. Cultural sensitivity is essential in treating traumatised children, particularly in the area of maltreatment, as culture can influence issues such as sexuality, disciplinary practices, parent-child relationships, expectations for behaviour and child interaction with adults (J. A. Cohen, Deblinger, Mannarino, & de Arellano, 2001). Cultural factors may also influence how willing or open the family is to talking about the child's experience of abuse (J. A. Cohen et al., 2001). Therapists need to be conscious of cultural factors, and how these may influence interpretation or processing of the trauma, attitudes towards therapy, and preferred treatment methods. Aligning therapy to match the values of the individual is likely to positively impact treatment engagement and outcome. Relatively

recent research is beginning to reflect this, with many common trauma interventions implemented with a range of cultures, especially refugees. These therapies include CBT for adults (reviewed by Kar, 2011) and children (Feather, 2019; McMullen, O'Callaghan, Shannon, Black, & Eakin, 2013; O'Callaghan, McMullen, Shannon, Rafferty, & Black, 2013; Unterhitzberger et al., 2015), CPT (Kaysen et al., 2013; Schulz, Resick, Huber, & Griffin, 2006), and KidNET (Onyut et al., 2005; Ruf et al., 2010).

Treatment Outcome Factors

Although many efficacious treatments for trauma and PTSD have been described, there is still room for improvement, particularly for maltreated children. For instance, PTSD treatments are associated with substantial dropout rates, with a recent meta-analysis indicating a 36% early dropout rate from trauma-focused therapies (Imel, Laska, Jakupcak, & Simpson, 2013). Factors that mitigate risk of maltreatment may also influence treatment outcome. For instance, children from privileged homes, with higher household incomes, parents with more years of education, and no prior involvement with child protection services, have been found more likely to complete TF-CBT (Wamser-Nanney & Steinzor, 2017). Families exposed to trauma may also have more difficulty completing treatment than those seeking treatment for other disorders (Wamser-Nanney & Steinzor, 2017). These factors are not possible to control when treating maltreated children but should be considered in interpreting study results.

In order to successfully engage in therapy, children must be in a safe and secure environment. Unfortunately, for many children involved with child protection services, who have experienced past or ongoing trauma and maltreatment, this is not always the case. For example, in 2015, children in care in New Zealand were reported to have had an average of 7-8 prior placements (Rebstock et al., 2015b). Most

interventions used with or developed for children in care involve both the caregiver and the child (Hambrick et al., 2016). This is likely to be difficult in practice when children are experiencing a high number of placements. When the child's ongoing safety is at risk, or there is uncertainty surrounding their placement, they are unlikely to maintain treatment gains. For instance, a child may minimise past trauma to avoid jeopardising a possible return to their parents (Feather & Ronan, 2010). Contextual factors relating to the child therefore need to be taken into account when selecting and delivering interventions for maltreatment trauma, especially for children who are in care.

Within a New Zealand setting, where child maltreatment statistics are so high (see Chapter 1), it is likely to be beneficial to take an ecological perspective to intervention. For example, Edwards and Karnilowicz (2013) found that taking a systemic perspective was essential to enhance therapist's understanding of the impact of trauma and abuse on the child they were treating, especially as the abuse often occurred within chaotic and unstable backgrounds. Furthermore, organisational factors such as high caseloads and understaffing may contribute negatively towards the quality of intervention received by a maltreated child. An ecological approach, therefore, allows a broader understanding of the needs of the child, their family, and their therapist, as well as a unified framework accounting for risk and resilience-building factors.

The child's relationship with their therapist (therapeutic alliance) has been shown to predict treatment engagement and outcome in child therapy (Zorzella, Muller, & Cribbie, 2015). As children do not usually refer themselves to therapy, their motivation for treatment and engagement may be reduced (Zorzella et al., 2015). Developing a strong therapeutic alliance may be particularly difficult for maltreated children, as they may struggle to find safety in relationships and trust others. For maltreated children, support or engagement from the child's parent or caregiver has also been found to play a role in treatment success (Feather, 2007).

Treating comorbidity

It is not uncommon for PTSD and trauma to occur co-morbidly with other psychopathology, including depressive disorders and symptoms, substance use disorders (which could arise from attempts to self-medicate with drugs or alcohol), and other anxiety disorders, in both adults and children (Brady, Killeen, Brewerton, & Lucerini, 2000). In younger children, oppositional defiant disorder (ODD) and separation anxiety disorder (SAD) are the most common comorbid disorders (J. A. Cohen & Scheeringa, 2009; Scheeringa & Zeanah, 2008). However, it is only relatively recently that research has addressed treatment for trauma/PTSD and comorbid conditions. If not sufficiently addressed, comorbid symptomology can also play a role in treatment outcome. Treatment should therefore address comorbid symptomology in addition to treating trauma/PTSD, or separate treatment may be necessary.

It is possible that treatment for trauma and PTSD may also treat comorbid symptoms, even if not designed to (Foa et al., 2009). For example, expressive writing may improve mood, hypnotherapy may reduce anxiety, EMDR may reduce depression symptoms, and CBT and other cognitive therapies may help the individual restructure maladaptive cognitions underlying their depressive or anxious symptoms. However, given the frequency of trauma/PTSD comorbidities, further research is needed to evaluate the effectiveness of current and new interventions for treating both trauma/PTSD and comorbid disorders.

Treatment Limitations and Summary

There is a large selection of available treatments for PTSD and trauma, with many of these interventions developed to treat adults and adapted for children. Although many of these interventions have demonstrated effectiveness for treating symptoms of trauma, there are still key points to consider. Many of these considerations are described

by the APA in their Practice Guidelines (American Psychological Association, 2017) and include: a lack of comparison studies, limiting the ability of clinicians to make evidence-based decisions to select one treatment over another, or a therapy over medication; a limited number of studies that have investigated treatment moderators or outcome factors, such as demographic factors, type of trauma experienced or severity of PTSD, this makes it difficult for clinicians to indicate what efficacious treatments are most effective under which conditions; and finally, there seems to be little evidence regarding client preferences or experiences with different therapies, or how their experiences may impact outcomes. Given that engagement and attrition in trauma-focused therapies is such an issue, research into client experiences is likely to be highly valuable. The current research collected subjective data from participants and therapists, where possible, to enable reflection of their experiences with the interventions used, as well as external factors that may have influenced engagement or attrition.

In particular, childhood trauma treatment research is lacking compared to research into treatments for adults exposed to trauma. CBT approaches, especially TF-CBT, are clearly the most promising and most researched treatments for children experiencing PTSD and trauma symptoms. However, CBT has high attrition rates, and the complexity of trauma symptoms may mean that clinicians need to draw on multiple interventions to best meet the needs of the child and their family. In particular, there remains limited research into treating maltreatment trauma in child protection settings, including for children who are in foster care. There is currently no consensus regarding how to adapt mental health interventions for children in foster care (Hambrick et al., 2016), and few interventions developed specifically for treating maltreated children in foster care. Interventions are frequently based on theories of PTSD in adults and, as described in Chapter 1, PTSD diagnosis may not adequately capture the impact of maltreatment. Sensory modulation approaches may have promise for addressing arousal

regulation in children exposed to trauma and may be appropriate for children who struggle with the verbal or cognitive components of TF-CBT, as may present in maltreated children. However, empirical research with these children is lacking. The following chapter provides context for the current study and demonstrates the complexities that must be considered when treating children involved in a care and protection setting.

Chapter 3: Child Care and Protection in New Zealand

This chapter provides the context for the statutory care and protection setting of the current research, including a brief description of the status of care and protection in New Zealand, an overview of the reviews and critique that has resulted in the recent formation of the Ministry for Children Oranga Tamariki, and a discussion of evidence-based practice and the cultural context for the current research. The context in which maltreatment occurs is highly important to recognise both when developing new interventions and evaluating the feasibility and effectiveness of interventions. Both the wider context in which the child sits (such as New Zealand's legal and statutory obligations) and factors relating to the child's culture and caregiving context can impact on treatment outcomes. Trauma focussed interventions are not always developed with maltreatment trauma in mind, which may mean that some of these contextual factors are not accounted for. For example, a child's ability to engage in therapy may be limited by ongoing abuse and instability in their home lives. Furthermore, the wider social context may influence the resources that are dedicated to child protection and wellbeing, as well as the quality of interventions delivered due to factors such as staff turnover, staff caseloads, resources dedicated to monitoring treatment effectiveness, and caregiver support. This chapter is therefore essential in providing a context within which to understand the rationale, design, and outcomes of the current research and determine the feasibility and effectiveness of interventions for treating trauma in maltreated children within child care and protection settings.

Current Status of Care and Protection in New Zealand

General societal views on child welfare and maltreatment influence not only how maltreated children and their families are treated, but also the resources that are dedicated to helping children thrive. This includes the level of commitment to the

protection of children and prevention of maltreatment, as well to the development of effective interventions for children who have experienced maltreatment. As the research builds to provide more information about children's development and needs, reviewing the history of successes and failures can help direct the future path.

Despite the fact that New Zealand is a moderately wealthy and developed country, a 2003 UNICEF report on child maltreatment deaths reported that New Zealand had a level of deaths from child maltreatment four to six times higher than that of the countries with the lowest incidence, and at that time had the third highest child homicide rate (UNICEF, 2003). New Zealand had over 70 recorded deaths from child abuse from 2007 to 2016 (McCroskie, 2016), and 117 children and young people present at deaths from interpersonal violence and child maltreatment between 2009 and 2015 (Family Violence Death Review Committee, 2017). Although it is in fact difficult to make comparisons between countries due to varying methods of data collection, the 2003 UNICEF report was well publicised and led to pressure placed on the Government to take action toward violence in New Zealand (B. Wood, Hassall, Hook, & Ludbrook, 2008). As a response, various Acts were passed and initiatives put in place with the aim of improving New Zealand's child maltreatment statistics, and ensuring all children's rights are met as outlined in the United Nations Convention on the Rights of the Child (United Nations (UN), 1959), ratified by New Zealand in 1993. These have included the passing of the controversial Crimes Amendment Act (s59), which introduced a specific ban on the use of force for the purpose of correcting children (Lawrence & Smith, 2009; B. Wood et al., 2008); the White Paper for Vulnerable Children (2012), which comprises initiatives to protect children at risk of maltreatment based on international best practice and consultation with the public and key experts in health, justice, education and social services (Children's Action Plan, 2015); and the Vulnerable Children Act 2014.

Current New Zealand legislation providing for the care and protection of children is the Oranga Tamariki Act (1989), which was titled Children, Young Persons, and Their Families Act 1989 prior to 14 July 2017. The Children, Young Persons and Their Families Act was a radical shift away from the approach of other systems of child welfare around the world, and aimed to use the strengths of the child's whanāu, hapu, and iwi to support the best interests of the child (Connolly & Doolan, 2007; Keddell, 2007). This was seen as an important aspect in protecting minority children from the detrimental effects of the dominant Pākehā culture as they entered the care system (Keddell, 2007). However, difficulties with the implementation of the legislation became evident early on, with the first review of the Act in 1991, and a subsequent 66 amendments over 26 years (Fernandez & Atwool, 2013; Rebstock et al., 2015a).

Child, Youth and Family (CYF) – structure, visions and processes

The Ministry of Vulnerable Children Oranga Tamariki (MVCOT, later simplified to Oranga Tamariki) replaced the previous national care and protection and youth justice agency, CYF, which was overhauled in 2017 after a significant review (Rebstock et al., 2015a, 2015b). However, the majority of the current research was conducted under CYF, so a brief overview of the practice framework is described below.

The CYF practice framework was a vision for New Zealand child welfare work, designed to be an accessible tool for staff, grounded in the realities of practice and supported by research (Connolly, 2007). The framework integrated three perspectives: child-centred, family-led and culturally responsive, and strengths and evidence based. These perspectives were woven through the phases of practice including assessment, finding solutions, and securing safety and belonging (Connolly, 2007). CYF was reviewed frequently over a 20 year period, and underwent 14 restructures between 1998 and 2008, with a major overhaul taking

place in 2017. Rebstock et al. (2015a, 2015b) provided a comprehensive review of CYF in the *Expert Panel on Modernising CYF* reports.

Child Care and Protection Statistics

At the time the current research was undertaken, there were around 5000 children and young people under the care of CYF as a result of care and protection concerns, and around 2000 were entering care each year (Office of the Children's Commissioner, 2016b). Māori children and young people were over-represented in the care system, and had been for decades (Fernandez & Atwool, 2013). Children in care have been reported to be seven to eight years old on average, with seven to eight prior placements (Rebstock et al., 2015b). A shortage of available placements and caregivers makes it difficult to match children with caregivers who have skills appropriate to their needs (Fernandez & Atwool, 2013), which may contribute to the high average number of placements. Many caregivers are in low income households, and this may mean the capacity of the caregiver to meet the complex needs of a child or young person is limited (Rebstock et al., 2015b). Children and young people in care often need a high level of care and nurturing and they have said they do not feel that system always provides them with this (Rebstock et al., 2015b).

The Current Setting and Context

The new system under the Ministry for Children (Oranga Tamariki) aims to ensure that vulnerable children have access to the same opportunities as all other New Zealand children (Rebstock et al., 2015b). Oranga Tamariki's foundations were provided through the Children, Young Persons, and Their Families (Oranga Tamariki) Act 2017, which was designed to ensure a child-centred system, improve outcomes for Māori, and emphasise the sharing of information to better respond to vulnerable children and young people (Ministry of Social Development, n.d.). The reform included

the voices of children and youth, with a Youth Advisory Panel having significant effect on decisions that were made (Fitzmaurice, 2017). Oranga Tamariki was set up with five core services: prevention; intensive intervention; care support; youth justice; and transition support for young people leaving state care (Keddell, 2017a).

While Oranga Tamariki was still a very new organisation during the time the current research was carried out, with further changes to be implemented (Fitzmaurice, 2017), it was already facing criticism of its core services. For example, Oranga Tamariki had been criticised for seeming to ignore the wider family context in which maltreatment often occurs, as well as family vulnerability factors which may have contributed to the maltreatment, such as poverty or lack of social support. As Keddell (2017b) reported, “children are portrayed as passive victims...in need of saving from their parents...” (p. 100). Removing the child from their family is not necessarily harm-free, so the decision becomes a matter of balancing harms, rather than a dichotomy between safe and harmful situations (Keddell, 2016).

Although originally named the Ministry for Vulnerable Children (MVCOT), the focus on vulnerability was criticised, as it was said to construct some children as more deserving of support than others, instead of setting out an agenda to ensure the universal rights of all children are met (Keddell, 2017b). A new Government was elected in September 2017, and the Ministry was renamed simply Ministry for Children, and is now known commonly as Oranga Tamariki.

Specialist multi-agency centres for child maltreatment

Puawaitahi (“*blossoming into unity*”), opened in 2002 in Central Auckland. It was Australasia’s first multi-agency service for the investigation of child maltreatment and includes health services, Police, evidential interviewers, and the Clinical Services unit of Oranga Tamariki, all under the one roof. The development of Puawaitahi arose from research indicating a need to improve collaborations between agencies, co-

ordinate case management, improve time delays and access to support (Davies & Seymour, 1999). Policies existing at the time to reduce time delays and improve service co-ordination were not always well implemented in practice. Davies and Seymour (1999), therefore, suggested piloting an adapted version of the US Child Advocacy Centres, which act as “one stop shops” for children and their families who allege abuse. Puawaitahi addresses these concerns by providing coordinated case management, reducing inefficiencies, duplications, and omissions in service provision, and improves links to community providers of therapeutic services (New Zealand Police, n.d.).

The work of Puawaitahi includes Te Puaruruhau, a health service comprising doctors, nurses, and social workers specialising in care and protection concerns; the Central Auckland Video Unit, carrying out evidential video interviews; the Clinical Services unit of Oranga Tamariki, carrying out diagnostic or therapeutic needs assessments and therapy; and the Police Child Protection Team, who conduct investigations and coordinate court prosecutions where necessary (Feather, 2007; New Zealand Police, n.d.). In 2010, Puawaitahi was joined by a second multi-agency service in South Auckland, Te Pou Herenga Waka. The Clinical Services units of Puawaitahi and Te Pou Herenga Waka were the settings for the current research.

Evidence based practice in child care and protection

Evidence based practice is an integration of research and clinical expertise that can strengthen practice overall (Connolly, 2007; Shlonsky & Wagner, 2005). It can be described as a cycle involving research evidence, clinical expertise, clinical setting, and client preferences and actions (context) (Shlonsky & Wagner, 2005). A care and protection worker who understands what works in practice is likely to be more effective than if they were relying selectively on limited sources of knowledge, and they will have a greater repertoire of skills (Connolly, 2007). However, it can be difficult to carry out evaluative research in care and protection settings due to the different interests of

the stakeholders involved and varying opinions about the role of science in a psychosocial setting (Chaffin & Friedrich, 2004; Stevens, 1999), as well as difficulties arising from conducting research with complex populations (for example, Weiner et al., 2009). The difficulties of conducting research in a clinical setting are explored further in the discussion chapter of this thesis (Chapter 9).

Although the CYF/Oranga Tamariki framework integrates strengths and evidence-based perspectives in principle, in reality, there has been a lack of evidence-based practices actually employed in New Zealand (Rebstock et al., 2015b). In a consultation on New Zealand's period report on the UNCROC, the public suggested there was a lack of evaluation and reporting of outcomes of initiatives and social services for children, and there may be some disconnect between policies and implementation of services for children (Ministry of Social Development, 2015).

An increased use of evidence based practice in New Zealand would ensure that vulnerable children and their whānau have access to interventions that have been proven to work (Rebstock et al., 2015b). In particular, there is a need for more emphasis on evidence based practice for Māori children and young people, as international evaluations are unlikely to have evaluated outcomes for this group (Rebstock et al., 2015b). Rebstock et al. (2015b) recommended that the practice framework should provide guidance, tools, and information to support staff to make evidence based professional judgements. While primarily aimed at social work staff, these recommendations could also be applied to the specialist staff (psychologists and therapists) of Clinical Services. The current research therefore aims to address the need for evidence-based practice in Oranga Tamariki by evaluating two promising therapy interventions in the Clinical Services setting and using current and past research findings to develop a new combined intervention designed to best suit the needs of children and families presenting for therapy at Clinical Services.

Cultural context

The influence of culture on child welfare in New Zealand is significant. Prior to the colonisation of New Zealand, Māori cared for children in the context of their extended family (whānau) and their hapu (subtribe), and iwi (tribe). Children did not belong to their biological parents but to their whānau, and maintaining whakapapa (genealogy) was seen as highly important (Metge & Ruru, 2007). These traditional practices continued after the signing of the Treaty of Waitangi in 1840, but there was no acknowledgment of these in legislation until relatively recently (e.g., in The Education Act 1989 and The Children, Young Persons and their Families Act 1989). Despite promises in the Treaty, colonisation has had a significant negative impact on Māori (Macfarlane, Blampied, & Macfarlane, 2011) and Māori continue to experience disparities in health, economic, and social outcomes (Reid, Taylor-Moore, & Varona, 2014). According to Māori scholars, the imposition of European practices became a source of grief and resentment for Māori (for example, Metge & Ruru, 2007). Māori children are overrepresented in Oranga Tamariki; recent statistics showed that while approximately 30% of all children born in New Zealand are Māori, 6 out of every 10 children in care were Māori (Rebstock et al., 2015b). Recognising and supporting cultural connections for vulnerable children and young people is, therefore, highly important.

CYF and Oranga Tamariki have made commitments to address cultural connection for children and young people; and although this has improved, reviews since 1988 continued to demonstrate a need for more consistent practice when working with Māori (Rebstock et al., 2015b). For instance, young people have said that they did not feel their cultural identity and connection was supported, and they thought this was important for building a sense of identity and wellbeing (Rebstock et al., 2015b). It has additionally been suggested that perhaps a whānau-centric, rather than a child-centric

approach, may align more closely with Māori values (Ministry of Social Development, 2015). While some iwi are working with Oranga Tamariki to ensure that children are placed appropriately within their whānau and that cultural links are maintained, as half of Māori children in care are in the care of kin, there is no way to guarantee the maintenance of cultural connections for the other half (Fernandez & Atwool, 2013).

Māori and Pacific models of health

It is important that interventions, and therapists themselves, consider the cultural views of children and their families to enable service delivery that is both acceptable and beneficial to maltreated children, as well as recognising the context in which the maltreatment may have occurred. This section will focus on Māori and Pacific models of health, as along with New Zealand European, these are the most frequent cultures represented by children involved with Oranga Tamariki.

Both Māori and Pacific worldviews are distinct from the prominent Western approach to health and mental health, with both cultures employing a philosophy that is collective and holistic. For instance, the Māori philosophy towards health focusses on a holistic approach to health and wellness, emphasising the importance of spirituality and family, and not seeing a distinction between the mental and physical aspects of health (Rochford, 2004). However, Western health services focus on a biomedical model of health, so primarily respond to the physical needs of Māori (Rochford, 2004). One key Māori model that encapsulates the collective, holistic philosophy is Te Whare Tapa Whā.

In the Te Whare Tapa Whā model, health is seen as having four components that represent four aspects of life: Te Taha Hinengaro (psychological health), Te Taha Wairua (spiritual health), Te Taha Tinana (physical health) and Te Taha Whānau (family/social health). These four components represent four sides of a Whare or house, and when one side is damaged or missing, the person may be unbalanced. Whare Tapa

Whā was developed by Dr Mason Durie, following a hui of Māori health workers in 1982 (Durie, 1994; Rochford, 2004). Te Whare Tapa Whā has been incorporated into both mainstream and Māori mental health care services.

A traditional Māori view holds children at the centre of services. Māori view identity to derive from family characteristics and a secure identity depends on access to the resources of the Māori world, including language, family networks, and customary land (Durie, 1999). Within this view, traditionally, children were viewed as taonga (a treasure), supported by their parents, extended family, and the community. According to the White Paper for Vulnerable Children (New Zealand Government, 2012), working to make a difference for a child, therefore, also means working with the child's family, whānau, and others in the community who play a role in treasuring, protecting, and nurturing the child (New Zealand Government, 2012). Limited access to tikanga (customs) and te reo Māori (language) is proposed to negatively influence Māori mental health (Hollands, Sutton, Wright-St Clair, & Hall, 2015). Hence, it is important to acknowledge Māori cultural perspectives in order to provide the most effective level of care.

Like the Māori worldview, the Pacific view is collective and holistic. Although each Pacific nation has its own set of cultural beliefs, customs, languages, values and traditions, there are underlying shared socio-cultural approaches (Ministry of Health, 2008). For Pacific cultures, mental health is not considered a separate aspect of the overall wellbeing of the body soul and spirit, and mental illness is thought to be a manifestation of an external spiritual force, which has taken possession of the person because they or their family have broken a custom or offended the spirits in some way (Ministry of Health, 2008).

A key Pacific model of health is the Fonfale model, created by Fuimaono Karl Pulotu-Endermann in 1984 but first published in a Ministry of Health report in 1995

(Ministry of Health, 2008). This model is similar to the Te Whare Tapa Whā model, as the concept of the Samoan fale is used to depict three important components of Pacific peoples' health: family, culture, and spirituality. The Fonofale model consists of a roof (cultural values and beliefs), the foundation (family) and the pou, or the four posts connecting the roof and foundation, which interact with each other. The four interacting posts are spiritual, physical, mental, and other (such as gender, age, educational status) (Ministry of Health, 2008). The Fonofale model emphasises the importance of culture, family, and spiritual factors, but also recognises the interaction of various other factors as contributing to health.

To promote best outcomes for children and their families exposed to trauma, clinicians need to consider the cultural worldview, needs, and practices of their clients. For instance, Dudley, Wilson, and Barker-Collo (2014) reported that a failure to deliver culturally appropriate services that are user-friendly and accessible to Māori may be one of the barriers to equitable health outcomes for Māori. It is especially crucial to include whānau in mental health interventions, including those for childhood trauma, as whānau play a key role in the identity and wellbeing of Māori.

Chapter Summary

The current research took place in a child care and protection setting in New Zealand, and this chapter sought to provide an overview of this setting to aid contextualisation to the study rationale, design, and outcomes. For instance, it is important that there is a good fit between interventions and the context in which they are being implemented. As described, child welfare, care and protection in New Zealand has undergone some progression in the last century. Various reviews and legislative changes have demonstrated a willingness to improve child welfare and protect children from harm, but the system can be fragmented, and data suggest a persisting high

incidence of child maltreatment and associated poor outcomes. Furthermore, although it is important to have a good framework of policy, it is equally important to ensure high quality practice. In particular, there is a greater need for more evidence-based practice and recognition of cultural aspects. Perhaps most importantly, child maltreatment prevention and treatment should be addressed within the systems that it occurs, and a child and family-centred approach should recognise the importance of maintaining cultural and family connections as well as giving children a voice.

Chapter 4: Methodology and Method

This chapter describes the methodological approach and provides an overview of the four studies that comprise this thesis project. The overarching aim was to evaluate TF-CBT and sensory intervention (SI) approaches for treating maltreated children with PTSD. A systematic review of sensory interventions for child maltreatment trauma (Study 1) was followed by two quasi-experimental single case design studies (Study 2 of TF-CBT and Study 3 of a SI), each using a multiple baseline design, with intent to recruit four children with PTSD (and their caregivers) for each of these studies. The final study reports development of a novel integrated TF-CBT and SI intervention (Study 4). The aims and hypotheses of the four studies are described below.

Study 1 was a systematic review which examined the use of sensory-based interventions for children who have experienced trauma, and the evidence for the use of sensory-based interventions for treating trauma related symptoms in maltreated children. It was predicted that a systematic review would demonstrate limited, yet promising, research on sensory approaches for treating trauma in children.

Study 2 aimed to evaluate TF-CBT at Oranga Tamariki Clinical Services and determine the feasibility and effectiveness of the intervention in this setting as currently implemented. Study 2 involved comparing baseline to during and post-intervention in a total of five children (including two lost to attrition; reasons for variation from intent to recruit detailed below), and quantitative data were supported by subjective data from clinicians and participants (see below for further clarification of the single case design approach). An additional aim was to assess neuropsychological functioning in this sample, before and after treatment.

Study 3 aimed to evaluate a SI developed for this research and delivered at Oranga Tamariki Clinical Services and determine the feasibility and effectiveness of the intervention in this setting. Baseline outcome measures were compared to intervention

outcomes in two children who received the SI, and quantitative data were supported by subjective data from clinicians and participants. An additional aim was to assess neuropsychological functioning in this sample, before and after treatment.

It was predicted that participants in both Study 2 and Study 3 would show a reduction in PTSD (on the CPSS-5), depression (on the CDI-2), anxiety (on the MASC-2), and general psychopathology (on the SDQ) symptoms, and an increase in coping (on the CQ-C) during therapy and that these gains would be maintained over follow-up intervals (3 month and 6 month). It was expected that at initial testing, participants would present with difficulties in a number of neuropsychological domains (on the NEPSY-II), and that participants in both the TF-CBT and SI interventions would demonstrate improvements in these domains post-intervention. It was anticipated that both interventions would be acceptable to participants and clinicians.

Study 4 was a developmental study and involved development of an integrated intervention (STF-CBT), developed based on findings from Studies 2 and 3, and additional literature. Study 4 aimed to develop an evidence-based intervention reflecting the latest research on the treatment of child maltreatment trauma.

Methodological Approach

The current research was guided by a positivist approach, with a systematic literature review (Study 1) and use of psychological measures to make objective observations about psychological phenomena within a quasi-experimental design (Studies 2 and 3). In the tradition of the single case design approach, Studies 2 and 3 involved the capturing of treatment outcome as an ongoing process influenced by contextual factors, rather than as a discrete observation (Creswell, 2013; Kazdin, 2003). For instance, subjective data from participants and clinicians about their experiences contributed to evaluation of the interventions. It was, therefore, primarily a quantitative

study, with an empirical approach to uncovering what maltreated children need from an intervention; that is, what is already working and what needs improving.

The research was also guided by the scientist-practitioner model of clinical research. The view that science and practice are built together promotes consideration of the context relating to the traumatic events and therapy, and recognises the need for research conducted in community settings that allows for the testing of interventions with real-world constraints. The current research is a response to this need and fits under the umbrella of a feasibility study (Bowen et al., 2009). Feasibility studies contribute to the goal of implementing evidence-based interventions by assessing whether interventions are appropriate for further testing, and may be used to establish community partnerships, gather further data on existing interventions, and/or assess whether improved versions may be successful (Bowen et al., 2009). The focus of the current feasibility research was on acceptability (how both participants and clinicians react to the intervention in terms of satisfaction and intent to continue use, as well as the appropriateness of the intervention and fit within organisational culture) and limited-efficacy testing (testing the intervention in a limited way to determine whether it may be successful with the intended population; Bowen et al., 2009). Overall, the methodological approach guided the selection of a research design that was suitable for evaluating both feasibility and effectiveness of interventions in a real-world clinical setting.

Design

Study 1 was a systematic review conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009). A review protocol was registered on PROSPERO

(2019 CRD42019120027, <https://www.crd.york.ac.uk/PROSPERO>). Additional details are provided in Chapter 5.

Studies 2 and 3 were quasi-experimental single case design, each using a multiple baseline design, with intent to recruit four participants (and their caregivers) in each study. To minimise threats to internal validity, participants were randomly assigned to Study 2 or Study 3, which ran concurrently. Along with collection of quantitative data, subjective (qualitative) data were collected in the form of feedback from, and discussion with, staff and child participants following completion of the intervention. Collection of subjective data is inherent to single case design, and subjective data are used to explain study findings and contextualise the results (Kazdin, 2003).

Single case design was chosen as it is recommended by Kazdin (2000) for developmental projects and is a recommended design for studies evaluating psychological and behavioural interventions in clinical settings (Morgan & Morgan, 2009; J. D. Smith, 2012). Single case designs developed out of experimental and applied analysis of behaviour, and require continuous assessment of behaviour over time, where participants serve as their own controls and their behaviour is evaluated under different conditions, such as during baseline and intervention phases (Kazdin, 1982).

In particular, single case designs have been suggested to be especially useful in evidence-based paediatric psychology work, as this work often involves the use of novel or adapted treatment approaches in unique settings (L. L. Cohen, Feinstein, Masuda, & Vowles, 2014). For instance, conditions in the study can closely replicate those experienced in the clinical environment. Additionally, single case design is sensitive to behavioural continuity and can provide evidence that treatment effects are not due to external events, yet can also document the impact of extraneous variables (Kazdin,

2003; Morgan & Morgan, 2009). The design allows for evaluation of the treatment effects at an individual level and may reduce the gap between research and practice (Byiers, Reichle, & Symons, 2012; Lobo, Kagan, & Corrigan, 2017). As there is no need for a comparison or control group in single case design, the intervention can be catered to individual needs and delivered as such. Ongoing monitoring of treatment effects also enables decisions to be made about continuing, altering, or terminating treatment based on the individual's progress (Kazdin, 2008). This monitoring and flexibility was imperative for the current population, comprising children with complex and varied needs. The use of two single case design studies enabled feedback from clinicians and participants to inform the ongoing development of the interventions, and allowed comparison of TF-CBT and SI as well as subjective data providing information about the acceptability and feasibility of the interventions.

The multiple baseline design employed was non-concurrent, meaning that within each study, participants did not all begin baseline and therapy phases at the same time. Using a non-concurrent design allows participant baseline data to be evaluated at different points in time so data can be compared from several participants that received therapy at different times (Christ, 2007). Multiple baseline design allows the researcher to demonstrate that changes in the dependent variable (outcome measures) occur only when the intervention is introduced (J. D. Smith, 2012). For single-case study designs, a minimum of three data points during baseline are recommended (Barlow & Hersen, 1984; reported by J. D. Smith, 2012). However, at all times, the clinical needs of the child took precedence over the research needs and actual baselines varied to those assigned (see Chapters 6 and 7 for explanation). Following initial assessment, participants were randomly assigned to a baseline period of 3, 5, 7 or 9 weeks, using an online research randomiser (Urbaniak & Plous, 2015). This baseline phase occurred while the participant was on the waitlist for treatment so did not disadvantage the

participant in any way. For this reason, multiple baseline designs are optimal in natural clinical settings as there is no need to withdraw or alter the intervention to demonstrate effects and participants act as their own controls. Participants were asked to complete the measures of the brief assessment battery each week during the baseline phase and during intervention. This allowed measurement of outcome and progress to occur during the intervention, rather than just at pre- and post-intervention. Data from these weekly assessments was plotted and analysed visually. Data collected during the baseline period served as the point of comparison for data collected during the intervention. Additional pre-, post- and follow-up assessments comprised the full assessment battery, enabling change in comorbid symptom scores at each time point to be measured for each child.

In single case designs, subjective data allows examination of the effects of the intervention beyond those measured by psychometrics, such as changes in behaviour and contexts outside of the therapy room (Kazdin, 2003). Subjective data also allows clinicians and participants to provide feedback regarding their perception of the impact of treatment and the usefulness of the intervention, which can be referred to as social validity (Tate & Perdices, 2019).

In Studies 2 and 3, subjective data was used to contribute to explanation and interpretation of the quantitative results, as well as to contribute to evaluation of the interventions, as recommended for single case research (Kazdin, 2003). Additionally, subjective data was used to evaluate whether clinical changes were meaningful and useful to the participants involved in the study (Backman, Harris, Chisholm, & Monette, 1997). Inclusion of subjective data gave children a voice and demonstrated the value of their feedback. Subjective data was used to explain and interpret results, for example where therapist observations may account for fluctuations or variability in full assessment or single-case data. Variability in single case design data can provide

information about the effects of external events that occur in the participant's natural setting but cannot be manipulated for practical or ethical reasons (Morgan & Morgan, 2003). Therapist session notes were analysed for participant engagement and progress (and insights from therapists that may have influenced engagement and progress such as events at home), session content and delivery of the intervention. Collection of subjective data helped to capture the experiences of participants and therapists with the intervention, and therefore contributed to evaluation of the feasibility of SI and TF-CBT.

Overall, the systematic review of sensory interventions (Study 1), and quantitative and subjective data from Studies 2 and 3 contributed to the development of the combined STF-CBT intervention (Study 4). The following sections describe the overall method used for Studies 2 and 3. Further detail of the method specific to each study is provided in Chapters 6 and 7 respectively.

Participants

Due to difficulties with recruitment, therapy completion, and time restrictions, actual methods varied from the planned design of Studies 2 and 3. It was intended that each study would comprise four participants, but significant difficulties were encountered with recruiting and retaining participants. Despite a 22 month recruitment period, the final participant pool was much smaller than was anticipated (n=5 completed therapy). Full study design is depicted in Figure 2 based on the CONSORT flow diagram (2010).

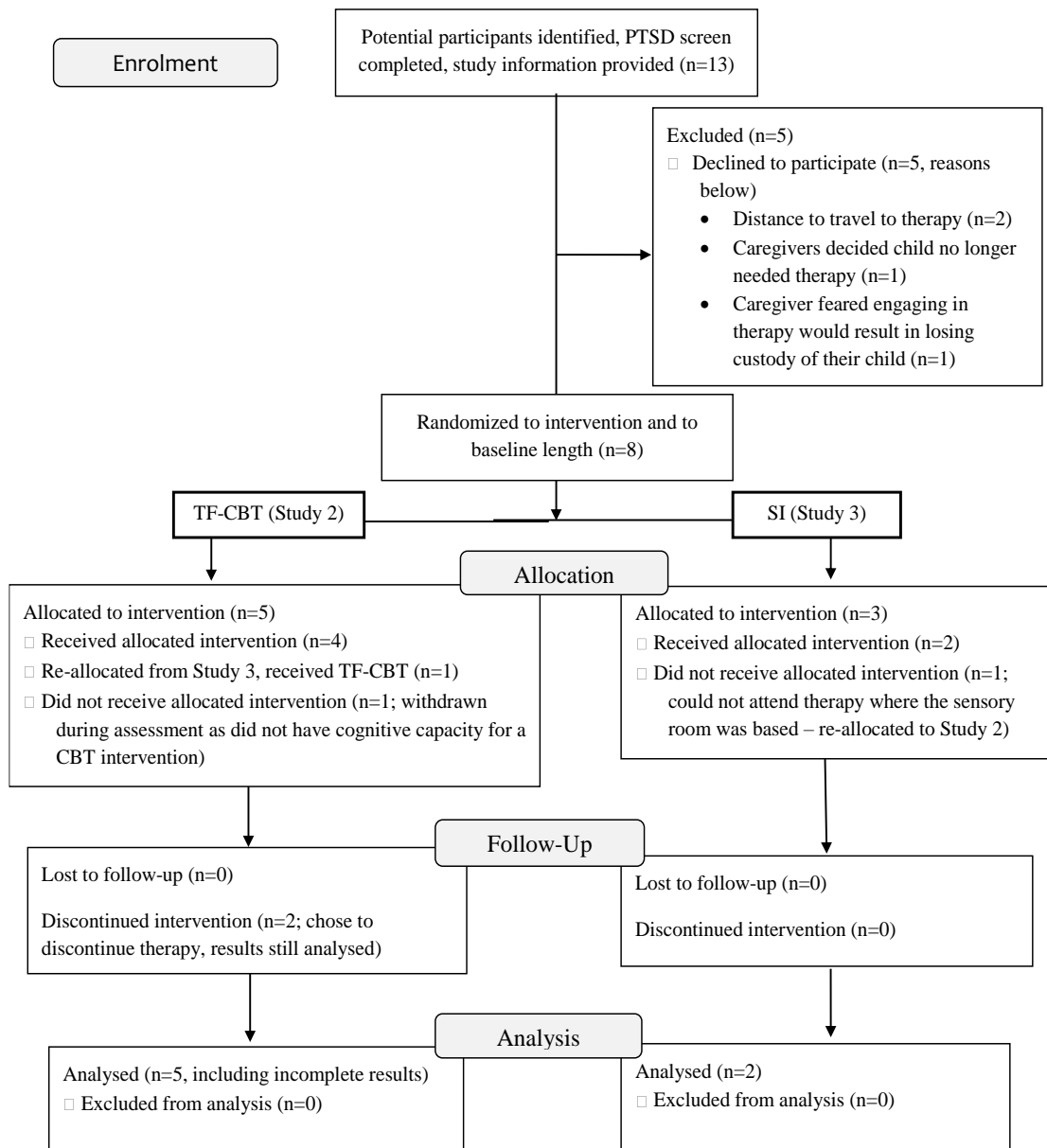


Figure 2. Study flow diagram (adapted from CONSORT 2010)

Overall, thirteen children and adolescents aged 8-15 were invited to participate in Studies 2 and 3, along with their caregiver(s)². Children within this age range were excluded from participation if clinicians judged that they would not have the cognitive or intellectual capacity to manage the assessment or therapy offered within the scope of the research, or if they did not meet diagnostic criteria for PTSD. All individuals who

²Children may be cared for by parent(s), extended family or caregivers. From here on, 'caregiver/s' refers to the adults who care for the child and who are involved in therapy.

are referred to Oranga Tamariki Clinical Services ordinarily undergo an initial therapeutic needs assessment, which, for the purposes of this research also included a PTSD screen administered to the caregiver (The Anxiety Disorder Interview Schedule IV: Parent version; ADIS-IV-P). Based on this assessment, the caregivers of those children who met criteria for PTSD and who were within the study age range of 8-15 years were given verbal information about the study. If they were interested, a meeting with the Clinical Services assessor and the researcher was arranged. At this meeting, the research was discussed, and participatory requirements outlined. Caregivers were given a Parent/Caregiver Information Sheet, given the opportunity to ask any questions of the researcher and/or Clinical Services staff, and provided the researcher's contact details. If caregivers were willing to participate, they gave written consent. Often, the caregiver was not the legal guardian of the child, in which case consent was sought from both the caregiver and the guardian. This consent was given by email or by phone when it was not possible to meet with the guardian in person.

If the caregiver consented to participation, the researcher also met with the potential child participants and their Clinical Services staff assessor to discuss the research and give the children the opportunity to ask any questions. Children were given a Child Information Sheet describing the study, and the information was also read aloud. Both children and parent/caregiver(s) were informed that they would receive therapy at Clinical Services whether or not they chose to participate in the research, and that they were free to withdraw at any time and continue to receive therapy. If the child also chose to participate, they gave written consent. It was intended that the first 12 children who met entry criteria and consented to participate, along with their caregiver, would comprise the participant pool for this study.

Over a period of 22 months, 13 children from 10 families were invited to participate in the study. These families included a group of three siblings and a group of

two siblings. Of the 13 children and their caregivers invited, 62% (n=8) consented to take part in the study. See Figure 2 (p. 68) for reasons caregivers and children declined to participate.

Attrition

Not all participants completed the study (see Figure 2 for details). One 8 year old participant was withdrawn during the assessment phase (and continued with another therapy type) as it became clear that he did not have the cognitive ability to participate in TF-CBT nor in the assessment process. Two participants discontinued during therapy; their available data was included in results (see Chapters 6 and 7).

Measures

Studies 2 and 3 included a comprehensive assessment conducted to measure the impact and symptomology of trauma in participants at pre-therapy, post-therapy and at 3-month follow-up periods (the full assessment). The full assessment included measures of depression, anxiety, and general psychopathology to provide data on broader aspects of behaviour and common comorbid symptoms. Additionally, the full assessment included measures of coping and PTSD symptomology. These two measures comprised the brief assessment conducted during baseline and throughout the intervention phase (described below). It was intended that the brief assessment would be completed weekly during baseline and treatment, to track the child's progress as required by multiple-baseline design (Kazdin, 2003). Finally, a neuropsychological battery was administered as part of the full assessment, with subtests selected specifically for this research. The purpose of this battery was to provide data on neuropsychological difficulties experienced by children who have been exposed to trauma, and to collect evidence regarding the influence of the intervention on

neuropsychological functioning. All assessment measures are described in detail in Chapters 6 and 7.

Procedure

Setting

Research for Studies 2-4 took place at the Clinical Services division (previously Specialist Services Unit) of the New Zealand statutory child maltreatment agency, Oranga Tamariki, (previously Child, Youth and Family). Clinical Services at the Auckland South (Te Pou Herenga Waka) and Central (Puawaitahi) sites participated. These centres offer multi-agency child abuse assessment and treatment services, and house police, health, and Oranga Tamariki staff under the one roof. Referrals are made to Clinical Services for forensic assessments, parenting assessments, parent/caregiver support, as well as individual psychological and therapeutic needs assessment and therapy. Cases referred generally involve children who have experienced multiple abuse, neglect, and trauma, as well as having complex care and protection concerns. Children and families referred are all ‘open cases’ with Oranga Tamariki.

Therapists and assessors

Staff (n=9; female=8) administering assessments and delivering the interventions to participants in this study had a variety of backgrounds, and included intern clinical psychologists, intern child and family psychologists, psychotherapists and registered psychologists. Assessors and therapists were assigned to a participant in the manner usually undertaken at Clinical Services, based on the therapist’s current caseload. In all cases, the participant’s assessor and therapist was a different person, to minimise bias in assessments. There were a total of four assessors and five therapists, and two clinicians acted in both an assessor and therapist role for different participants.

All staff participants at Clinical Services were given training on the administration and interpretation of all assessments and had access to all manuals. They were briefed on the types of scenarios that could be used for the CPSS-5 and the CQ. Additional training was given on the NEPSY-II which was unfamiliar to the majority of staff and required more in-depth interpretation than the psychometric instruments. This training included a discussion session with a community neuropsychologist familiar with the NEPSY-II. This discussion session occurred later in the research by necessity, as questions about interpreting the scores arose. Staff additionally viewed the NEPSY-II training CD and practiced the subtests with each other. NEPSY-II sessions were video-recorded to assist with scoring and checking procedures. Clinical Services staff also received training related to the interventions, as described in Chapter 6 (TF-CBT) and 7 (sensory intervention).

Data Analysis (Studies 2 and 3)

Full assessment

The full assessment data were analysed according to the standards of each assessment and compared to relevant norms, where available. This enabled the participants to be compared to their peers, and enabled evaluation of the effects of the intervention on trauma-induced symptoms in children and adolescents. The results of all tests were compared before, during, and after the intervention for each participant, as well as at follow-up periods.

Single-case analysis (brief assessment data)

As usual in single-case multiple-baseline designs, each participant's brief assessment data were graphed, and these graphs aligned vertically and inspected visually. Although there is debate about the best method for analysis of single case data, visual analysis is generally agreed upon as the optimal method, while descriptive

statistical analysis can be used to support visual inspection of the data (L. L. Cohen et al., 2014; J. D. Smith, 2012).

Data obtained from each of the brief assessment measures described above were analysed visually to determine trends in the data over time, both during the baseline phase, the intervention phase, and the follow-up phase. In single-case study design it is recommended to gather a representative stable sample of behaviour before manipulating the dependent variable (in this case, delivering the intervention) (J. D. Smith, 2012). Baseline data should be relatively stable (with less than 50% variability in scores), free of significant trend, and be a significant sampling of behaviour to be considered representative (Kazdin, 2003; J. D. Smith, 2012). A treatment effect is documented when the data in the intervention phase differs more than would be expected from the data pattern observed or extrapolated from the baseline phase (Horner et al., 2005). Visual analysis of single-case design data is particularly useful for determining intervention effects (J. D. Smith, 2012). Visual analysis of graphed results also allows analysis of the impact of any documented external events (Kazdin, 2003), which is valuable in the current research sample as participants experienced multiple traumatic and disruptive events during the course of assessment and therapy.

Subjective data were collected from both participants and clinicians throughout the intervention phase. Informal discussions between the researcher and clinicians were recorded in written notes by the researcher. Spontaneous feedback provided by participants was recorded in session notes by clinicians. This feedback contributed to the evaluation of the interventions, as well as being used to guide the development of the combined intervention (Study 4). Additional subjective data were also collected from clinicians during training workshops and presentations that were delivered as part of the research to upskill clinicians, and during a feedback/debrief session with staff following completion of data collection. Handwritten notes were taken by the researcher

in these instances. Subjective data from participants and staff is included throughout the results of Studies 2–4, to contextualise quantitative data, strengthen evaluation of TF-CBT and SI and provide support for the potential acceptability of the new intervention.

Ethical Considerations

This research was designed with alignment to the Code of Ethics for Psychologists Working in Aotearoa New Zealand (2002) and consultation with Ethical Research Involving Children (ERIC) guidelines (Graham, Powell, Taylor, Anderson, & Fitzgerald, 2013). The New Zealand Psychologists Board Guidelines on the use of Psychometric Tests was also consulted (New Zealand Psychologists Board, 2013) and all those involved in assessing participants were psychologists familiar with these guidelines. Additionally, the Health Research Council Guidelines for Researchers on Health Research Involving Māori were consulted prior to commencing the study and consultation with a qualified Māori Clinical Psychologist³ took place while designing the research.

Conscious efforts were made to protect the right of participants to confidentiality, to give informed consent, be exposed to minimal risk and have the right to withdraw from the study at any time. Participants' rights were clearly explained on both the child and caregiver information sheets (see Appendix F) and were verbally reiterated to participants prior to them giving consent. The child information sheet and assent form were written in language easy for a child to understand, with a Flesch Reading Ease Score of 68 (range = 1–100, scores >60 represent plain English). No information was withheld from participants and they were not deceived in any way. Participants were free to withdraw from the study at any time and continue to receive therapy. Participant progress in therapy was monitored as per usual clinical practice, and

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participants could be withdrawn from the study during the assessment, intervention, or post-intervention phase at any time if there were concerns for their wellbeing as a result of the research. Furthermore, at all times, the safety of children took priority over adhering to the prescribed procedure, and existing Oranga Tamariki protocol was followed in any instance of disclosure or safety concern for the participant.

Confidentiality of participants is maintained in dissemination of research findings by the use of pseudonyms to describe participants. However, there are some limitations to confidentiality in dissemination as the location of research and ages and experiences of participants is disclosed due to pertinence of these details to the research.

Feedback from participants was sought during the research, which gave children a voice. This contributes to minimising the power imbalance between adults and children, as well as enhancing the benefits for participants and for children who may participate in the interventions in the future.

The research gained ethical approval from the New Zealand Health and Disability Ethics Committee (HDEC), reference 15/NTA/29; The Auckland University of Technology Ethics Committee (AUTEC), reference 15/218 and the Ministry of Social Development Research Access Committee (RAC) (see Appendix G).

Chapter 5

Study 1: Systematic Review of Sensory Approaches to Treating PTSD and Trauma in Children

This chapter presents a systematic review examining the use of sensory-based interventions for children aged 0-18 years who have experienced trauma, and evidence for the use of these interventions for treating trauma-related symptoms in this population. As described in Chapter 2, sensory modulation is a promising intervention for the treatment of children who have been exposed to trauma, particularly in terms of helping children learn adaptive self-regulation and enabling them to process trauma within an optimal zone of arousal.

Introduction

Information presented in previous chapters signals a need to address basic arousal regulation, self-soothing and sensory processing in children who have been exposed to trauma. For example, evidence suggests that children who have been exposed to trauma may struggle with recognising their sensory needs, have a low baseline for arousal, be susceptible to dysregulation, and may have limited self-regulation skills (Champagne, 2011c; Ford & Blaustein, 2013; LeBel et al., 2010; Ogden et al., 2006; Steele & Malchiodi, 2012; Warner et al., 2013). Sensory approaches involve exploration of sensory needs and preferences, and provide children with calming and alerting strategies to teach regulation of arousal and improve emotional and behavioural responses to stimuli. They provide opportunities to help recognise and regulate sensory experiences, identify sensory preferences, and begin to heal the mind through sensations of the body (LeBel et al., 2010). Sensory approaches can involve the use of a sensory room, a sensory diet, and a sensory kit that contains items that can be used in times of distress. The use of sensory approaches may also help children reach an

optimal arousal zone, in which they are better able to process trauma and engage in more verbally-based interventions (see Chapter 2 and Appendix C for detail).

Sensory modulation approaches were developed in the field of occupational therapy and have been shown to have positive effects on an array of trauma and mental health symptoms. Sensory modulation approaches have been applied to adult and child populations within mental health settings (Champagne & Sayer, 2003; Te Pou o te Whakaaro Nui, 2011), to enhance occupational engagement in community settings (Champagne, 2011b) and to reduce restraint and seclusion in mental health wards (Sutton & Nicholson, 2011). For example, Sutton et al. (2013) described piloting a sensory room in four inpatient mental health units in New Zealand. Use of the sensory room was shown to reduce arousal, facilitate a calm state, support self-management, and enhance interpersonal connection. It was suggested that, by drawing attention to the bodily sensation or the immediate environment, sensory information provided distraction from intrusive cognitions such as anxious thoughts, delusional ideas and auditory hallucinations (Sutton et al., 2013).

Additionally, sensory interventions can be used alongside other therapeutic approaches, such as CBT. For example, a case study published by Champagne (2011b) described application of the Sensory Modulation Program in combination with approaches from CBT for an adult with PTSD and depression. The Sensory Modulation Program integrates the use of sensory modulation techniques and promotes the therapeutic use of self (Champagne, 2011a, 2011b). The intervention included creation of a tailored sensory diet of prescribed tools and strategies to implement at distressing times, alongside a sensory kit to keep sensory supportive items readily available (Champagne, 2011a). After only four weekly sessions, it was reported that the sensory diet had a significant and positive impact on the client's ability to work, she had fewer nightmares, and improved concentration (Champagne, 2011b). However, many

evidence-based trials of sensory modulation approaches in mental health are limited to adult settings, and the reduction of restraint and/or seclusion (see Scanlan & Novak, 2015 for a review). There is limited evaluation of the application of sensory approaches for children exposed to trauma.

Despite limited evidence-based trials, the use of sensory approaches for the treatment of children with trauma is growing, reflective of a greater understanding of how trauma effects children's sensory processing, emotional regulation, and ability to maintain optimal arousal (Fraser et al., 2017; LeBel et al., 2010). However, there remains a strong need to build on the mostly practice-based knowledge and provide research support for the use of sensory approaches for the treatment of children who have been exposed to trauma. This systematic review, therefore, aimed to examine the existing literature relating to the use of sensory approaches for the treatment of children exposed to trauma. Sensory approaches were broadly defined, and included interventions based on sensory modulation or sensory integration, as well as interventions including aspects of these approaches, such as use of a sensory room, sensory diet, or use of sensory strategies for calming, alerting, or grounding. For the purposes of the review, the treatment of trauma includes treatment of PTSD and symptoms of PTSD (such as changes in mood, arousal, and emotional regulation, and intrusion symptoms), associated comorbid symptoms, and ability to cope with trauma. The review aimed to address the following two research questions:

1. In children aged 0-18 who have experienced trauma and are experiencing trauma-related symptoms, what sensory-based interventions are used?
2. What is the evidence for the effectiveness of sensory-based interventions for treating trauma-related symptoms in children aged 0-18?

Method

The systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009), and a review protocol was registered on PROSPERO (2019 CRD42019120027, <https://www.crd.york.ac.uk/PROSPERO>).

Searches were based on two review questions (as above) designed following the population, intervention, control/comparison, outcome (PICO) framework. The first stage of the review process was conducted by the primary researcher, who conducted initial electronic database searching and eliminated unrelated articles based on title and abstract. Search terms and databases searched are described in Table 1 (p. 80). Control/comparison was not included in the search strategy as it was expected this would depend on the type of study, for example comparison of pre- and post-intervention outcomes, comparison to a control group, comparison to a different intervention. Reference lists of relevant articles were also reviewed by hand for potential articles, and two experts in sensory modulation were consulted for further articles/grey literature. Grey literature was included to provide a more complete picture of the research available, but conference materials were excluded when only abstracts were available. There were no limitations on year of publication, type of study, or context.

Citations for all retrieved articles were copied to a Microsoft Excel spreadsheet, and the review process was managed using this spreadsheet. Potential articles were independently reviewed by the primary researcher (OT) and her primary supervisor (JF), who determined whether the articles met inclusion criteria based on abstract and full text. A third researcher (JKM) was available in the case of

disagreement; however, consensus was reached by the two reviewers for all potential articles.

Table 1. *Systematic review search terms and databases*

| Databases searched | | PsycINFO, Web of Science, Scopus, PubMed, Science Direct, CINAHL, OTseeker |
|---------------------------|---------------------|---|
| Search terms | <i>Population</i> | child*, adolescen* trauma, maltreat*, abuse, neglect |
| | <i>Intervention</i> | “sensory therapy”, “sensory-based”, “sensory intervention”, “sensory integration”, “sensory modulation”, “sensory approach”, “sensory room” |
| | <i>Outcome</i> | PTSD, post-traumatic stress, traumatic stress, acute stress, coping, anxiety |

Critical appraisal of all included studies was completed by reviewing information reported in the articles and included assessment of methodological validity of the study, strength of conclusions, and applicability of the results and conclusions to the aim of the systematic review. Assessment of the risk of bias varied depending on the design of the study being evaluated, but included assessing bias related to selection of participants and allocation to interventions (where applicable), assessment measures and methods, attrition bias, and reporting bias (see Higgins et al., 2011). For the only RCT included in the review, risk of bias was judged and reported based on the Cochrane Collaboration tool (Higgins et al., 2011).

Results

Initial database searching yielded a total 750 citations from the following databases: PsycInfo (34), Web of Science (150), Scopus (52), PubMed (64), Science Direct (339), CINAHL (111), and OTseeker (0). Ten additional records were identified

through other sources, including screening of reference lists, consultation with experts, and articles identified by the author in previous research. See Figure 3 (p. 81) for details of number of records screened by the two reviewers and number of records excluded, with reasons. The nine articles that met study criteria were reviewed and key information is summarised in Appendix H.

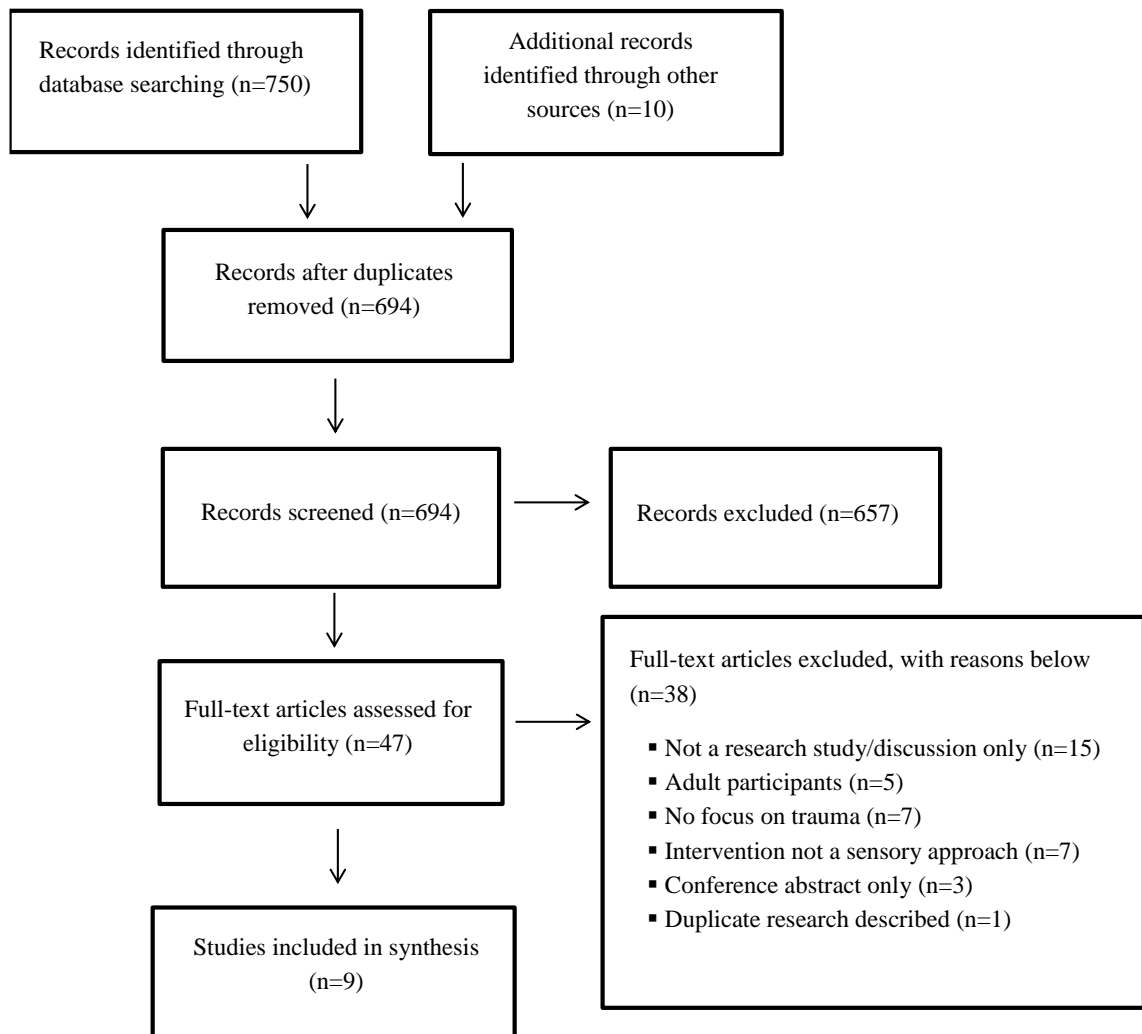


Figure 3. *PRISMA flow diagram*

Additionally, articles were grouped based on key themes relating to the delivery of the intervention: interventions that were delivered more intensively such as in daily sessions (n=3), interventions that combined sensory and cognitive approaches (n=5), and an additional intervention that did not fit these two categories (n=1). Studies are discussed below with regard to these key themes. For each study, an overview of the

intervention is described, along with an overview of the results relevant to trauma outcomes and limitations of the research.

In one example of this more intensive intervention, Purvis et al. (2013) describe a sensory rich “camp” attended for three weeks by 18 children with histories of early deprivation or abuse. With the aim of calming the stress response, the camp included activity courses for tactile, proprioceptive and vestibular senses, as well as gum and fidgets available at any time requested. The camp also provided activities to promote self-monitoring and self-regulating skills. In this pre-post intervention study, participants demonstrated increased spontaneous attachment behaviours and improved verbal communication as reported by parents following the intervention. No rigorous follow-up was scheduled, so it is unclear whether these improvements were maintained over time. Additionally, measures focused on sensory deficits and attachment behaviours, rather than trauma symptoms, and there were no post-intervention measures of sensory processing. Purvis et al. (2013) suggested that calming sensory subsystems enables children to be able to employ new strategies such as language and pro-attachment behaviours to help process and interact with their environment. It should also be considered that enhanced language skills and attachment is likely to enable children to engage further in trauma-focussed interventions, if necessary. Although the camp had promising results, the lack of direct trauma measures limits conclusions about the use of this intervention for the treatment of trauma symptoms, including PTSD and anxiety symptoms, in children.

K. Ryan, Lane, and Powers (2017) also described an intensive, multidisciplinary intervention, within a strengths and trauma-informed early childhood education setting, the Circle Preschool Program (CPP). Children attending CPP have trauma symptoms so severe that they are not able to attend mainstream preschools. The authors described the intervention to have a neurodevelopmental foundation, and an

emphasis on relationship building and regulation enhancing activities. A fundamental component of the intervention is that the brain changes in response to patterned, repetitive experiences, and a therapeutic preschool setting can provide these experiences within a safe environment. A second fundamental concept is that the person's state of arousal organises their perceptions or behaviour and thus sensory needs are considered within the context of a safe relationship. Caregivers are also provided with information about sensory processing and regulation so they have the tools to enhance interactions with their child and support their self-regulation. In their case example, K. Ryan et al. (2017) described the establishment of a play-based sensory diet, as well as frequent sensory motor breaks throughout the day. This is something that is likely to be highly valuable for a dysregulated child, although more difficult to implement in a standard classroom environment. However, the use of a therapeutic classroom and multidisciplinary team appears to be a beneficial approach for children who have been exposed to trauma, especially given the challenges these children may have in a typical classroom as a result of overwhelming sensory input, difficulty with information processing, and maladaptive coping strategies (as discussed in Chapter 1). The CPP was the only school-based intervention found as part of this review. However, it is unclear what assessment measures were used in the case example presented, other than neurobiological assessment pre-intervention and clinical observation throughout, and there is no measure of PTSD or trauma described at pre- or post-intervention.

A third intensive intervention reviewed is the SAFE PLACE intervention (May-Benson & Teasdale, 2017). This intervention is considered an intensive intervention for the purposes of this review, as it consisted of two sessions a week with the child and parent, plus an additional parent session, and an additional planning session with therapists and the primary investigator each week. The SAFE PLACE intervention, as described in a case example by May-Benson and Teasdale (2017), was

delivered by both an occupational therapist and a mental health professional. The intervention has a sensory integration grounding and aims to improve attachment bonds and security, guide development of body-based regulatory and adaptive functions, and process and heal traumatic experiences. Although the family found having both professionals in the room to be supportive, and the intensive nature of the intervention to be valuable, the researchers discussed difficulties relating to scheduling, staffing, and finances. Additionally, no trauma measures were described and there is limited description of the intervention. It is, therefore, difficult to determine if the SAFE PLACE intervention has potential for treating trauma symptoms beyond those relating to sensory processing. However, as this article was an interim summary, further results and discussion are to be expected.

Sensory and cognitive interventions

Five of the reviewed studies recognised the benefit of combining sensory interventions or sensory components with other therapies, such as with CBT. These interventions support the need for children to be in a regulated state before being able to engage effectively in cognitive approaches. For example, in their development of the SMART intervention, Warner et al. (2014) found that children engaged in more rapid and coherent trauma processing when the child was in a more regulated state following engagement in their somatic-based intervention. The SMART intervention was developed by integrating somatic components into the trauma-focussed psychotherapy already employed by the authors, using knowledge from sensory integration and body-oriented therapies. The intervention includes exploration of regulating activities that provide sensory inputs, such as jumping on a trampoline and using weighted blankets, and therapy took place in a dedicated SMART intervention room. The intervention was designed to be delivered by mental health practitioners.

Warner et al. (2014) discussed a matched control design study with 10 participants aged 12-22 years receiving the SMART intervention. Trauma-exposed youth aged 13-20 engaging in SMART had statistically significant reductions in internalising symptoms, including reduced somatic complaints and anxiety and depression symptoms (Warner et al., 2014). There were no significant differences in score changes between the SMART group and treatment as usual. This study used valid and reliable measures of trauma (PTSD Reaction Index) and of child behaviour (Child Behaviour Checklist), as well as a measure of trauma history. Additionally, bias was reduced as the study utilised available clinical data, so it is not likely that participants or staff were aware that the data would be used for evaluation of the intervention. Use of a PTSD measure is significant, given that many of the other studies reviewed had a focus on sensory processing. In contrast, this study did not employ any measures of sensory processing and participants were selected for inclusion if they had been assessed to have difficulty with verbally based approaches or have significant dysregulation.

Finn et al. (2017) also describe an application of SMART presented as a qualitative case study. The 7 year old male participant had been exposed to multiple forms of maltreatment and was introduced to the SMART intervention after nine sessions of therapy during which he made limited progress. Treatment in the SMART room had a focus on developing the child's self-regulation capacity which enabled him to develop more effective response patterns and gain mastery over anxiety-provoking situations. After six months of weekly sessions, the participant presented with improved communication of emotions, increased self-regulation capacity, and increased connection with parents. There were no outcome measures described; measures of progress described were based on parent and therapist observations of behaviour. However, the study contributes evidence in support of the use of sensory and somatic interventions to help children self-regulate and engage in trauma processing. There is,

therefore, some evidence for the use of SMART for the treatment of children and adolescents with PTSD and comorbid symptoms. However, the studies described recruited participants who were likely to have difficulty with standard cognitive-based psychotherapy, and it is, therefore, not possible to generalise results without further research.

In her thesis, Da Silva (2011) described use of a sensory-based intervention to be beneficial as a component of treatment rather than as a stand-alone intervention. For example, using sensory strategies to calm or ground participants so they can participate in CBT or trauma processing aspects of the intervention. Similarly, Raider, Steele, Delillo-Storey, Jacobs, and Kuban (2008) suggested that, for traumatised youth, the combination of sensory-based activities along with CBT is more likely to reduce mental health symptoms than CBT alone. This is in line with research that suggests that arousal regulation may be important to address before engaging in trauma processing or cognitive interventions and is consistent with rationale for the SMART intervention described above (Finn et al., 2017; Foa et al., 2009; Warner et al., 2014). Children who feel safe, regulated and empowered, are likely to be more able to develop a trusting relationship with their therapist and work to explore difficult sensations, feelings, emotions and thoughts (Champagne, 2011a).

Da Silva (2011) discussed the experiences of four social workers using sensory approaches, such as the use of calming and grounding strategies, with children who have histories of trauma. The social workers received sensory modulation training from an occupational therapist as part of their practice. All participants agreed that the sensory approach is beneficial for children who have been exposed to trauma, and emphasised the importance of evaluating the child's sensory needs and preferences. Participants in this study suggested that there is not a standardised measure for evaluating the sensory intervention, but had observed that children develop new coping

skills and the ability to self-regulate, which resulted in positive behaviour changes and the ability to engage in trauma processing. Da Silva (2011) also emphasised the importance of caregiver involvement, such as sharing the child's sensory preferences with caregivers and encouraging them to create calming sensory experiences at home. While all four participants in the study received the same sensory training, they all varied in their delivery of the intervention, and in the use of complementary interventions. This highlights some difficulty in evaluating sensory approaches to treating trauma in children, as there is not one standardised intervention. Although this study had a small sample size and participants were practitioners at the same agency, it does provide some insight into actual clinical application of the sensory approach, as well as the acceptability of the intervention for staff.

Two articles included in the review describe variations of the SITCAP intervention model (Structured Sensory Interventions for Traumatized Children Adolescents and Parents; Raider et al., 2008; Steele, Raider, & Kuban, 2008). An additional article describing SITCAP is included for supporting information, but was not included as part of the review due to including only very short case examples with insufficient information for the review (Steele & Kuban, 2014).

SITCAP includes both sensory and CBT components and is described for the treatment of traumatised children aged 6-12 (*I Feel Better Now!*) and adolescents in residential care (*SITCAP-ART*). In the SITCAP model, the use of sensory-based interventions is described as an important way to process implicit trauma memories, along with cognitive re-framing and trauma processing. The intervention encourages youth to engage in self-regulation through the use of activities such as guided imagery or breathing techniques (Steele & Kuban, 2014) and drawing is used as a primary therapeutic activity to externalise and communicate the trauma (Raider et al., 2008; Steele & Kuban, 2014; Steele et al., 2008). However, it is unclear whether the sensory-

based aspects of this model are consistent with the sensory approaches described in Chapter 2. For example, there are limited details about the use of sensory activities for calming/alerting/grounding, and no mention of a sensory room or sensory diet.

However, the intervention was included in this review as it does describe a focus on the implicit sensory aspects of trauma memories, and on self-regulation and the use of sensory-based activities to restore effective emotional functioning prior to engaging in CBT activities.

In the SITCAP intervention, drawing is used as a psychomotor sensory activity to help the individual process implicit trauma memories. The intervention has been shown to result in reduced trauma and mental health symptoms (such as anxious and depressive behaviours) in adolescents, using standardised measures of trauma and mental health symptoms, as well as observed positive behaviour changes (Raider et al., 2008). Steele et al. (2008) described a follow up of an RCT where children participated in the *I Feel Better Now!* intervention and demonstrated significant reductions in trauma and mental health symptoms. The follow-up study sought to identify characteristics demonstrated by those who saw the greatest treatment gains compared to those who saw fewer gains. The authors concluded that those who made the fewest treatment gains had poorer quality interactions with their caregivers and may benefit from additional activities that support resilience and post-traumatic growth (Steele et al., 2008). The study findings suggest that although SITCAP is a beneficial intervention for treating trauma and related mental health symptoms, individual characteristics can influence treatment success. The important role of caregivers in enhancing post traumatic growth is also apparent and the authors proposed a supplemental programme to assist caregivers and families to build resilience and post traumatic growth in their children.

Interventions that do not fit other themes

Champagne (2011a) described a case example in which a sensory approach was used with a 5 year old female who had experienced severe abuse. This intervention was not intensive or combined with a cognitive intervention. Limited information was provided about the structure and number of sessions, the use of outcome measures, and whether trauma symptomology was measured. However, despite this, the case study does describe the use of a sensory diet for self-regulation and soothing, as well as the importance of educating caregivers and including them in therapy sessions. For example, in the preparatory stage of treatment, the child's parents were provided with psychoeducation and developed a sensory diet in collaboration with their child. Sensory supportive environmental changes were also implemented at home to help the child with self-regulation and provide soothing and comforting stimuli. Therapeutic sessions followed the Ayres Sensory Integration approach and the child's mother was encouraged to actively participate in sessions. The child's caregiver observed improvements in child-caregiver bonding and improvements across occupational goal areas (not further specified) after two months of therapy. Like many of the other interventions discussed in this review, the intervention described in the case example by Champagne (2011a) suggested the benefits of involving caregivers in therapy.

Discussion

This systematic review has demonstrated the potential benefits of using sensory interventions when working with children across a range of ages, exposed to a variety of traumatic events and in a range of settings. Sensory interventions were applied with children and young people ranging from 3-21 years of age, suggesting the applicability of sensory interventions for a range of developmental stages. Trauma experiences included, for example, child maltreatment, exposure to domestic violence and

community violence, loss, separation and complex trauma. Sites delivering sensory interventions included residential settings, schools, an out of school camp, and outpatient treatment.

Mental health professionals of all disciplines work with a trauma-informed model of care. Clinicians delivering the interventions reviewed in this study included social workers, occupational therapists, mental health professionals (undefined), psychotherapists, play therapists and other therapists (undefined). With increasing recognition of the impact of trauma on children's physiological arousal, emotional regulation and brain development, the use of sensory-based interventions, primarily developed by occupational therapists, has grown. These interventions appear to have positive implications for traumatised children, and mental health professionals may benefit from collaboration with, or training from, occupational therapists. For example, Da Silva (2011) described social workers trained by an occupational therapist to use sensory approaches, which they implement alongside other interventions. Additionally, most interventions reviewed are multidisciplinary, including aspects of psychotherapy and occupational therapy, and often delivered by a multidisciplinary team. In addition to sensory-based training for mental health professionals, Fraser et al. (2017) suggested that occupational therapists may require more training in trauma interventions and the needs of children exposed to trauma. Mental health professionals such as psychologists and occupational therapy practitioners may benefit from sharing their knowledge to strengthen their practice, and outcomes for traumatised children.

The importance of caregiver participation in interventions for treating trauma in children is apparent in this review. For instance, many studies discussed the importance of developing pro-attachment behaviours (Champagne, 2011a; Purvis et al., 2013), educating caregivers about children's responses (May-Benson & Teasdale, 2017; Raider et al., 2008; K. Ryan et al., 2017; Steele et al., 2008), and encouraging caregivers

to employ a sensory diet or sensory activities at home (Champagne, 2011a; Da Silva, 2011; Finn et al., 2017). This demonstrates that sensory intervention programmes recognise the importance of treating children within the context of their family. For example, caregivers may have been involved in the traumatic experience, parenting behaviour may change following exposure to trauma, and caregivers may struggle with children's subsequent behavioural difficulties (J. A. Cohen & Mannarino, 2008; Feather & Ronan, 2009a). Additionally, encouraging caregivers to assist their children in self-regulation using sensory activities at home is likely to help children consolidate what they have learned in therapy sessions and generalise coping skills to a range of settings and situations.

A valuable aspect of sensory interventions is that children learn that they can manage their response to difficult situations, and regulate their physiological arousal (Steele & Kuban, 2014). Armed with new skills, children are not only more regulated but likely feel safe and empowered (Champagne, 2011a; Steele & Kuban, 2013). Furthermore, feelings of safety and empowerment increase children's ability to trust their therapist to help them explore difficult feelings, thoughts, and emotions that may be associated with the trauma (Champagne, 2011a). Sensory interventions for trauma should, therefore, focus not only on exploring the use of sensory activities to regulate arousal, but also on the broader aspects of cognition and behaviour that are often affected.

A majority (n=5) of the interventions discussed in this review included both cognitive and sensory approaches. The more intensive interventions that focus on attachment and sensory processing (for example Purvis et al., 2013; K. Ryan et al., 2017) may also be valuable to prepare children for further trauma-focussed interventions, including those that are language based. For example, intensive interventions focussing on self-regulation, attachment, and behaviour may be a useful

starting point for therapy, followed by more standard weekly sessions focused on trauma processing and practicing coping skills. Further research into such an intervention approach is needed.

Although the importance of addressing physiological arousal, self-regulation and employing sensory and somatic approaches to trauma has been identified in previous chapters, it is clear that empirical research in this field is still lacking. The use of sensory interventions for the treatment of trauma is evidently a very recent application, with articles reviewed spanning publication dates from 2008 to 2018. Additionally, only nine articles were found to fit study criteria, using a relatively broad definition of sensory approaches. Of these nine studies, few used robust experimental processes. For example, this systematic review found only one RCT and one quasi-experimental study. The remaining studies were a mixture of study designs including qualitative, mixed-methods, single case designs and case examples with varying levels of quality and detail of reporting. Therefore, the evidence presented in this review cannot be considered strong.

Another limitation of the literature reviewed is that there was a lack of standardised trauma measures employed. For example, only two studies described use of a measure of trauma symptoms. Additionally, interventions reviewed were often delivered primarily by occupational therapists, or involved occupational therapists as part of a multidisciplinary team. Given the occupational therapy groundings of sensory approaches, this is not surprising. However, this meant that the majority of outcomes measured and reported related to sensory processing and occupational performance rather than to trauma. This also makes it difficult to interpret research in light of the second research question: what is the evidence for the use of sensory-based interventions for treating *trauma-related symptoms* in children aged 0-18? More

research is therefore needed that includes measures of PTSD symptoms and trauma at pre- and post-intervention stages.

The benefits of sensory approaches for building regulation skills and treating trauma appear to be clear, but these interventions can be difficult to evaluate as no single approach exists. This is highlighted by Da Silva (2011) who described that although the therapist participants received the same training, they still varied in their delivery of the intervention. However, the individualised approach of sensory interventions is also an important component, as children vary in their sensory preferences and sensory profile, and the intervention should be adapted as such. This therefore represents a difficulty in judging overall effectiveness of sensory-based interventions.

Conclusion

This systematic review summarises the existing literature relating to the use of sensory approaches for the treatment of trauma in children aged 0-18 years. The review depicts a limited number of research studies in this field. However, evidence is building, and this review located articles only from the past 11 years, highlighting that the use of sensory approaches for children exposed to trauma is still a very new area of research. This review does indicate that the benefits of sensory-based interventions for the treatment of trauma are recognised and these interventions are used, but scarcely evaluated.

Although the interventions described provide evidence supporting the use of sensory approaches with children exposed to trauma, there is such variety in the interventions studied and a lack of strong empirical evidence that it is not possible to determine overall effectiveness. There is a need to evaluate the use of sensory approaches for the treatment of children exposed to trauma using appropriate

methodologies and pre- and post-intervention trauma symptom measurement. In doing so, research may provide the basis for an evidence-based intervention that has demonstrated effectiveness in treating children who have been exposed to trauma, and that is feasible and acceptable for practitioners, children, and their families. As described in the following chapters, the current research aimed to evaluate a sensory intervention developed for the treatment of trauma in children using a single-case, quasi-experimental design (Study 3). Feedback was sought from clinicians and participants regarding the implementation of this intervention. Additionally, Study 4 of the current research describes development of a combined sensory and CBT intervention for the treatment of trauma in children, based on aforementioned evaluation and feedback. Firstly though, it was considered important to assess the feasibility and effectiveness of the trauma treatment—TF-CBT—currently delivered in the research setting (Feather & Ronan, 2010).

Chapter 6

Study 2: Trauma-Focussed Cognitive Behavioural Therapy

This chapter describes the method, results, and discussion pertaining to Study 2; a single-case multiple-baseline evaluation of the feasibility and effectiveness of TF-CBT for child maltreatment trauma at Clinical Services, Oranga Tamariki. The method of the study is presented, which includes a description of the treatment protocol. Following this, the results of the study are provided, beginning with an overview of the results and followed by detailed single case results, for both the primary outcome measures and measures of comorbid symptoms. These results are followed by subjective data and a description of therapy progression to contextualise the results and provide insight into feasibility. The chapter ends with a discussion of the study results. Further explanation of the implications of these results and general discussion can be found in Chapter 9.

The major goal of Study 2 was to evaluate the feasibility and effectiveness of the manualised TF-CBT programme in a population of children with PTSD from maltreatment, referred to Auckland's Clinical Services unit of Oranga Tamariki. Five children and their families received TF-CBT as it is usually delivered (treatment as usual), including two children who dropped out of the research before therapy completion. Therapists followed the TF-CBT manual described in Chapter 2 (Feather & Ronan, 2010).

The evaluation of TF-CBT was based on improvements made during therapy as measured by pre- and post-assessments (the full assessment battery) and baseline and intervention data from the brief assessment battery. Subjective data from both participants and therapists were used to support evaluations of the feasibility and effectiveness of the TF-CBT programme, as recommended for single case research (Kazdin, 2003) and is thus reported here. It was predicted that participants would show

a reduction in PTSD (on the CPSS-5), depression (on the CDI-2) and anxiety (on the MASC-2) symptoms, and an increase in coping (on the CQ-C) and that these gains would be maintained over follow-up intervals. It was also predicted that at initial testing, participants would present with difficulties in a number of neuropsychological domains (on the NEPSY-II), and it was predicted that participants' performance in these domains would be improved following TF-CBT.

Study 2 Method

Design

Overall method is described in Chapter 4, and Study 2 flow diagram is depicted in Figure 4 below. Study 2 was a quasi-experimental single case design, using a non-concurrent multiple baseline design. Single case design was chosen based on utility for developmental projects and evaluation of psychological interventions in clinical practice (as described in Chapter 4). Inherent to single case design is the ability to evaluate treatment effects at an individual level, and use subjective data to contextualise quantitative results.

Following the pre-recruitment assessment and PTSD screen, participant and caregiver consent, the first eight consenting participants in the single case research were randomly assigned to either Study 2 or Study 3, determining the type of intervention they would receive. However, due to practical reasons (not able to travel to the designated therapy site), one participant was not able to participate in the SI (Study 3) and was therefore re-allocated to Study 2 (conducted at the site closer to their home). Following initial assessment, participants were randomly assigned to a baseline period of 3, 5, 7 or 9 weeks, using an online research randomiser. Participants were asked to complete measures of the brief assessment battery each week during the baseline and intervention phase to enable measurement of progress and outcomes to occur during the

intervention. Additional pre-, post-, and follow-up (where possible) assessments were conducted for each participant (full assessment battery; details below).

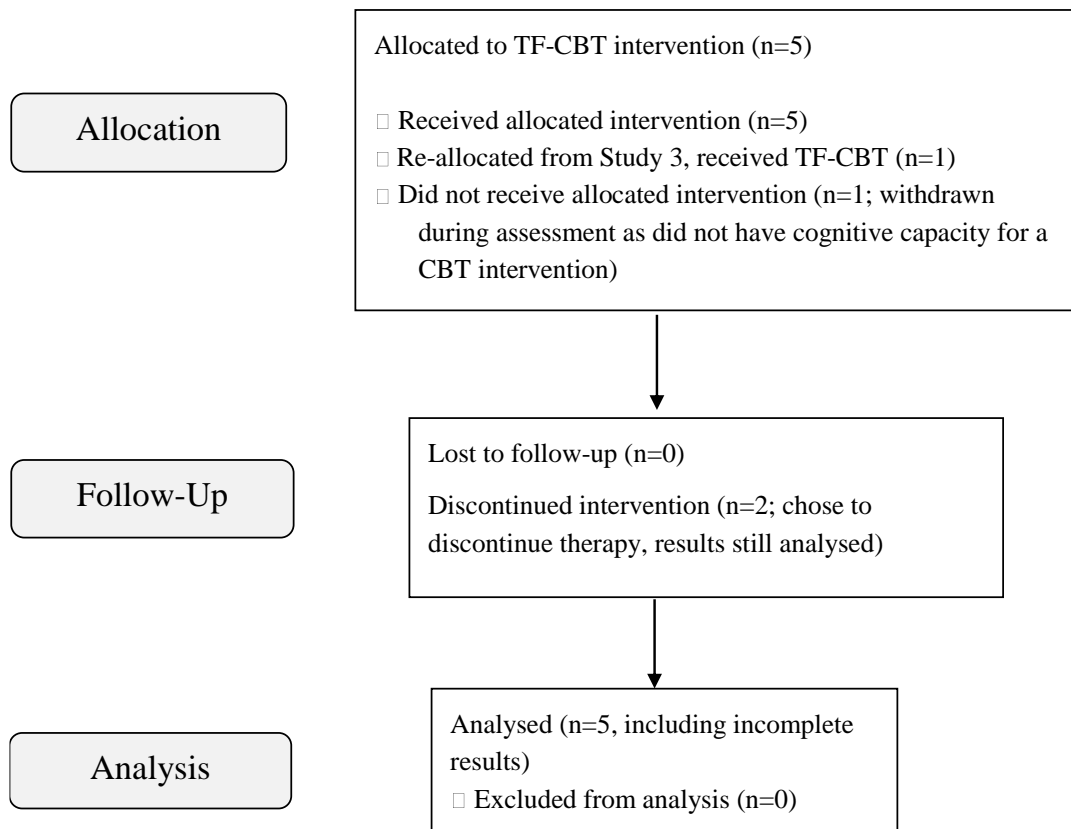


Figure 4. *Study 2 flow diagram (adapted from CONSORT, 2010)*

Participants

A total of five children aged 9-11 who met DSM-IV criteria for PTSD participated in Study 2 (see Figure 4, p. 97). An overview of participants' demographics and trauma backgrounds is presented in Table 2 (p. 98). Two participants were lost to attrition during the intervention phase. Ari dropped out of the study midway through the intervention and was replaced by a fifth participant (Emily). After five months and completing four sessions of TF-CBT, Maia also dropped out of the study. It was too late at this point to recruit another participant, so Blake, Keira, and Emily comprise the main sample of participants for this study; although data from Ari and Maia are included in the results where available.

All participants in Study 2 had experienced maltreatment, including exposure to adult domestic violence. Participants all experienced more than one form of abuse, including physical, sexual and emotional abuse, neglect, exposure to domestic violence, and exposure to drug and alcohol abuse. Although the final participant pool comprised three participants, all five participants who began TF-CBT are presented in Table 2 to illustrate the nature of participants' experiences and PTSD diagnosis at initial assessment.

Table 2. *Study 2: Participant overview and trauma background*

| Participant | Sex | Age* | Ethnicity | PTSD severity (baseline)** | Trauma exposure |
|-------------|-----|------|-------------------|----------------------------|--|
| Ari*** | M | 10 | Māori | Moderate | Exposure to domestic violence, physical abuse of brother. Neglect, parental drug and alcohol abuse, exposure to pornography. |
| Blake | M | 9 | Māori and Samoan | Moderate | Exposure to domestic violence, family drug and alcohol abuse, physical violence. Emotional abuse and neglect. |
| Keira | F | 11 | Māori and Samoan | Subclinical – Mild | Exposure to domestic violence, family drug and alcohol abuse, physical violence. Emotional abuse and neglect. |
| Maia*** | F | 9 | Cook Island Māori | Moderate | Exposure to domestic violence, physical abuse. |
| Emily | F | 9 | Māori | Moderate | Exposure to domestic violence. Physical abuse, emotional abuse, neglect and sexual abuse. Death of Father. |

*Age at time of initial assessment; **PTSD severity measured on CPSS (all participants met PTSD criteria on the ADIS-IV); ***Participant dropped out before completing therapy

Throughout the course of Study 2, all three participants who completed the intervention experienced at least one change in caregiver. Blake and Keira (siblings) were removed from their caregivers following a physical abuse disclosure against the caregivers and were placed into respite care; subsequently, the respite carers became their current, more long-term caregivers. Blake and Keira, therefore, experienced considerable uncertainty as their second placement was initially described as temporary. Emily made an additional disclosure and, due to concerns about her caregivers, subsequently moved placements multiple times between the baseline and intervention phases, including into an emergency family home (there was a four-month delay prior to beginning therapy for this reason).

PTSD diagnosis and symptomology

Participants in this study had difficulties in a range of areas related to trauma and PTSD at pre-intervention, including symptoms of anxiety and depression, hyperarousal, aggressive outbursts and avoidance of their trauma, or related symptoms. As is usual practice at Clinical Services, all caregivers of children who have been referred meet with staff for an initial appointment and assessment. For the purpose of the research project, a caregiver report PTSD assessment (ADIS-IV-P; see below for details) was included in the assessment to help determine the child's suitability for the research study. This assessment, the ADIS-IV-C, was also administered to children during the assessment phase. All participants were additionally assessed on the Child Post Traumatic Stress Scale (CPSS), which suggested probable PTSD diagnosis and symptom severity according to the DSM-5. The updated CPSS-5 was published just prior to beginning data collection, and one participant (Keira) was inadvertently administered the CPSS-IV in her first baseline session (BL1). The CPSS-5 was administered in the following sessions, so numerical comparisons cannot be made

between Keira's PTSD symptomology in the first and subsequent sessions. It is, however, possible to compare PTSD diagnostic probability.

Measures

As described in Chapter 4, measures were employed in the form of the pre-recruitment assessment and PTSD screen, full assessment battery and brief assessment battery. Measures are described in detail below.

Pre-recruitment assessment and PTSD screen

The Anxiety Disorder Interview Schedule IV: Child and Parent versions (ADIS-IV-C/P)

The ADIS-IV is a semi-structured clinical interview for children and adolescents (ADIS-IV-C), with a parallel version for parents/caregivers (ADIS-IV-P), developed to be compatible with the DSM-IV⁴ to provide diagnoses for anxiety and related disorders (Silverman & Albano, 1996). DSM-IV symptoms are judged by the child and the caregiver (in their respective assessments) to be present or absent with yes or no answers. The total number of "yes" responses is calculated to obtain a total symptom score and to determine whether the number of symptoms is sufficient to meet DSM-IV criteria (Silverman, Saavedra, & Pina, 2001). For the purposes of this study, only the PTSD section of the ADIS was administered, and a diagnosis of PTSD was made by the assessor (an intern or registered psychologist) on the basis of the results of both the child and caregiver ADIS, in addition to clinical judgement. At the time of research, there had not yet been a version of the ADIS updated for the DSM-5, so PTSD symptoms were also corroborated with the Child Post Traumatic Stress Scale 5 (CPSS-5, described below). The ADIS-IV has been demonstrated to be reliable in diagnosing anxiety disorders and symptoms in children and adolescents, with acceptable to

⁴ An ADIS updated for the DSM-5 was not available at the time of data collection.

excellent test-retest and interrater reliability for child, parent, and combined diagnoses (Linning & Kearney, 2004; Silverman et al., 2001).

Full assessment battery

The full assessment was multi-modal, comprising five measures of mental health and trauma related symptoms, as well as a measure of neuropsychological functioning assessing children across six domains (described below). All the measures used were designed specifically for use with child populations and have been shown to be reliable, valid, and (other than the neuropsychological battery) sensitive to the effects of treatment.

The full pre-intervention assessment took 4-6 sessions that were 1-1.5 hours in length, depending on the content of the session. The full assessment was repeated at post-intervention and follow-up stages. Children were assessed by a Clinical Services staff member who was either an intern psychologist or a registered psychologist. The assessor differed to the person assigned to deliver the intervention and, where possible, was the same clinician at each assessment stage. The assessment included an initial session of rapport building to allow the child to become comfortable with the assessor before being questioned about traumatic experiences. Staff also collected their own information to support the psychometric data when writing their clinical reports. Assessment measures are detailed below.

1. The Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997).

The SDQ is a brief, single page measure of the prosocial behaviour and psychopathology of 4-17 year olds. It is completed as a self-report for those aged 11-17 years, or completed by parents of children aged 4-11 (Goodman, 2001). The questionnaire consists of 25 items relating to psychological attributes, divided between 5 scales; emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behaviour (Goodman, 1997). The SDQ is scored

using a 3 point Likert scale where (0) is 'not true', (1) is 'somewhat true' and (2) is 'certainly true'. Scores are produced for each of the 5 subscales as well as a total difficulties score, which is the sum of the emotional, conduct, hyperactivity and peer-relationship scales (Goodman, 1997, 2001; Warnick, Bracken, & Kasl, 2008). The SDQ has been translated into more than 60 languages and there is good evidence of its psychometric properties across different cultures (Goodman, 2001; Stone, Otten, Engels, Vermulst, & Janssens, 2010; Vostanis, 2006). Additionally, the SDQ is freely available to download from the internet (www.sdqinfo.com).

In New Zealand, the SDQ is used by the Ministry of Health for free routine before school checks provided for all children at the age of four (Kersten et al., 2015). The SDQ has additionally been used in an investigation of the health and wellbeing of secondary school students in New Zealand (Fortune et al., 2010).

The psychometric properties of the SDQ were assessed in a representative sample of 10,000, 5-15 year olds and the questionnaire was found to have satisfactory reliability and validity (Goodman, 2001). It is additionally suggested to be a useful measure of treatment outcome and to evaluate interventions (Goodman, 2001; Youth in Mind, 2012), as it served in the current study.

2. *The Children's Depression Inventory (CDI-2) (Kovacs, 2010)*

The CDI-2 was developed based on the Beck Depression Inventory for adults (Beck, Steer, & Brown, 1996) and adapted and revised from the CDI (Kovacs, 1992). The CDI-2 assesses cognitive, affective, and behavioural signs of depression in children and adolescents 7-17 years old. It is the most widely used self-rating scale for depression in children and adolescents (Timbremont, Braet, & Dreessen, 2004) and has been used in a variety of populations, including to screen for depression in sexually abused girls (Daignault & Hébert, 2009). The CDI-2 is a 28 item scale, with three choices per item (rated as 0, 1, or 2). Children select the statement that best describes

him/her during the past two weeks. For example; “I am sad once in a while”, “I am sad many times”, “I am sad all the time”. Total scores for the CDI range from 0-56 (Kovacs, 2010).

The CDI-2 includes a self-report form and a parent rating form. For the current research, only the self-report form was administered. The test comes in a paper-based and a computer-based format, and for the current research the paper-based format was used and tests were hand scored. The normative sample included 1100 children ages 7 to 17 years of age from 26 different states in the US. The sample is evenly proportioned in terms of age and gender, and the ethnic distribution of the sample closely matches with distributions in the 2000 US Census report (Kovacs, 2010). The CDI-2 manual provides normalised T-scores for two ages groups; 7-12 years and 13-17 years (Kovacs, 2010). A “normal” sample of New Zealand children closely reflected normative samples reported for the original CDI manual (Ronan, 1997) and the same is expected with the CDI-2 norms.

The CDI has high internal reliability, test-retest reliability, and discriminant and convergent validity (Bae, 2012). The scale has been used to assess children from a variety of cultures, and has been translated into 23 different languages (Kovacs, 2003). Reliability scores are consistently high across the different translations of the scale (Sun & Wang, 2015). The CDI has been used to assess depressive symptomology in a number of settings involving children exposed to traumatic events, including in New Zealand (Feather, 2007; Huzzif & Ronan, 1999). For example, the CDI has been used to assess outcomes in children and adolescents after the 2010 earthquake in Haiti (Blanc, Bui, Mouchenik, Derivois, & Birmes, 2015; Cenat & Derivois, 2015; Derivois, Cenat, Joseph, Karray, & Chahraoui, 2017); in child victims of sexual abuse (Aydin, Akbas, Turla, & Dundar, 2016; Signal, Taylor, Botros, Prentice, & Lazarus, 2013); in maltreated and war traumatised children in Uganda (Olema et al., 2014); and in children

with PTSD receiving TF-CBT (Feather, 2007; Goldbeck, Muche, Sachser, Tutus, & Rosner, 2016).

3. *The Multidimensional Anxiety Scale for Children (MASC-2) (March, 1998)*

The MASC-2 is a self-report questionnaire that assesses the presence and severity of symptoms related to anxiety disorders in youth aged 8-19 years. The questionnaire consists of 50 self-rated items and takes 15 minutes to complete (March, 1998).

Symptoms are assessed across six scales: separation anxiety/phobias, social anxiety general anxiety disorder (GAD) index, obsessions and compulsions, physical symptoms, and harm avoidance. There is an additional inconsistency index (March, 2004). The MASC-2 normative sample for the self-report questionnaire includes 1800 children aged 8-19 years. All normative data are representative of the US population in terms of ethnicity/race, gender and age (March, 2004), but evidence has also been found for cross-cultural validity (Stevanovic et al., 2017).

The MASC has been used to measure anxiety symptoms in a range of populations, including adolescents with Functional Somatic Syndromes receiving mindfulness-based therapy (Ali et al., 2017); children with autism spectrum disorders receiving CBT (J. J. Wood et al., 2009); adolescent female rape survivors (Oshodi, Macharia, Lachman, & Seedat, 2016); institutionalised adolescent females with PTSD (Diaz & Motta, 2008); adolescents who had experienced multiple trauma (Suliman et al., 2009); and children receiving TF-CBT after sexual abuse (Deblinger et al., 2011). In New Zealand, a subscale of the MASC (the Anxiety Disorder Index) has been used to identify anxiety symptoms in a large sample of secondary school students who participated in the Youth2000 Health and Wellbeing Survey (Mariu, Merry, Robinson, & Watson, 2011).

4. *The Coping Questionnaire – child version (CQ-C) (Kendall, 1994)*

The CQ-C measures the self-perceived coping ability of a child in specific and individualised anxiety-provoking situations. It is designed to capture fears and anxieties specific to the child (Kendall, 1994). The child identifies three distressing situations and rates these on a 7 point Likert scale, ranging from (1) not at all able to help myself to (7) completely able to help myself feel comfortable. The average of the three ratings provides a measure of the child's perceived coping ability (Girling-Butcher & Ronan, 2009). The CQ-C can include an additional question to assess treatment expectations. The child is asked to rate how much they think the treatment programme will help them cope, and then are asked subsequent to the programme how much they thought it had helped them (Huzzif, 2004).

The CQ-C has been documented as a useful measure of improvement and has been shown to have adequate internal consistency (Kendall & Marrs-Garcia, 1999). The CQ-C has good test-retest reliability and internal consistency (Kendall, 1994) and the questionnaire has been proven sensitive to treatment in a range of settings, including in New Zealand (Feather, 2007; Huzzif, 2004; Kendall, 1994).

5. *The Child PTSD Symptom Scale Self Report for DSM-5 (CPSS-SR-5) (Foa, Johnson, Feeny, & Treadwell, 2001)*

The CPSS was developed to assess the severity of PTSD symptoms in children exposed to trauma (Foa et al., 2001) and was updated to reflect the new diagnostic criteria in the DSM-5. The measure is a self-report questionnaire suitable for children and adolescents aged 8-18 years. Children are asked to rate the frequency and distress associated with each of the 20 PTSD symptom items on a scale ranging from 0 (not at all) to 4 (six or more times a week, severe). The questionnaire contains an additional seven questions to gauge the impact of symptoms on daily functioning, rated as either absent (0) or present (1). The scale has a total of 27 items.

The CPSS is a recommended measure of trauma and PTSD in children according to the US Department of Veterans Affairs National Centre for PTSD (2015) and the NCTSN (Strand, Pasquale, & Sarmiento, 2004). The CPSS-SR-5 has excellent internal consistency for total symptom severity, and good test-retest reliability (Foa, 2016). A cutoff score can be used to determine the possibility of a PTSD diagnosis, as well as the severity of symptoms. The CPSS-5 was used in the current study to support information gained from the ADIS-IV regarding PTSD diagnosis. The CPSS-SR-IV was mistakenly used (instead of the current CPSS-5) to assess some participants.

The CPSS-IV scale has high internal consistency, good internal, and test-retest reliability and good convergent validity with other measures of PTSD (Gillihan, Aderka, Conklin, Capaldi, & Foa, 2013). The psychometric properties of the CPSS were reported by Foa et al. (2001) for a sample of 75 children aged 8-15 years who experienced an earthquake. Internal consistency was reported at .89 for total score, and test-retest reliability was reported as .84 for total score. The CPSS-IV has been used in a variety of cultures and languages including Spanish, Korean, Russian, and Armenian children (Strand et al., 2004).

6. *A Developmental Neuropsychological Assessment, Second Edition (NEPSY-II)*
(Korkman, Kirk, & Kemp, 2007a)

The NEPSY-II is a child neuropsychological battery suitable for ages 3-16 years. The NEPSY-II is used to assess children who may present with a variety of clinical and developmental needs, including verbal, motor and attention difficulties; attention deficit/ hyperactivity disorder (ADHD); autism spectrum disorder (ASD) and traumatic brain injury (Pearson Clinical, 2007). Additionally, the NEPSY-II has been used to assess neuropsychological status in children who have been neglected and those who have been diagnosed with PTSD (De Bellis et al., 2009). The full battery contains 32 subtests and four delayed memory tasks divided into six content domains: attention and

executive functioning, language, memory and learning, social perception, sensorimotor, and visuospatial functioning (Korkman, Kirk, & Kemp, 2007b). Scores produced are scaled for age and sex.

The NEPSY-II is described by Brooks, Sherman, and Strauss (2010) as the only battery for children that is conceptualised as truly flexible. This flexibility allows for the selection of appropriate subtests appropriate to the referral. The current study used a battery of 13 subtests from the NEPSY-II, selected by the researcher to cover a broad range of functions and abilities across five domains (attention and executive functioning; language; memory and learning; social perception; and visuospatial processing), relevant to the participant age range. The selection of subtests covers each domain of the NEPSY-II except the sensorimotor domain, as the age range for subtests in this domain does not cover the full age range for participant inclusion criteria in the current study. A summary of each subtest is provided in Appendix E.

The NEPSY-II normative sample of 1200 children was representative of the US population of children aged 3-16 years. The sample was stratified according to key demographic variables such as age, sex, race/ethnicity and geographic region. Most of the NEPSY-II subtests have adequate to high internal consistency or stability, with a range from .44-.80 (Korkman et al., 2007b). For those subtests with lower scores, this was likely the result of practice effects influencing test-retest reliability (Korkman et al., 2007b). Evidence of convergent and discriminant validity is provided by correlation studies with a number of similar instruments. For instance, NEPSY-II subtests were found to have moderate to high correlations with similar subtests on assessments including the Wechsler Intelligence Scale for Children – Fourth Edition (WISC-IV) and the Delis-Kaplan Executive Function System (DAS-II) (Korkman et al., 2007b). Although the NEPSY-II has not been normed for New Zealand children, it is designed

for use across a range of cultural and ethnic groups, and the items appear to be culturally fair (Thickpenney-Davis, Ogden, & Fernando, 2005).

Brief assessment battery

A shorter assessment ('brief assessment battery') was intended to be administered weekly during the baseline phase, as well as at the beginning of each therapy session. However, measures were not always completed weekly during baseline or at every therapy session, as described below. This assessment took 5-15 minutes and comprised the following primary measures:

1. The Coping Questionnaire (CQ-C) (Kendall, 1994)

At each brief assessment, the child rated the 3 situations they had chosen as distressing (in the initial assessment) on a 7-point Likert scale.

2. The Child PTSD Symptom Scale-5 (CPSS-5) (Foa et al., 2001)

At each brief assessment, the child rated the CPSS items according to the distressing situation they had chosen in their initial assessment session.

Assessment timepoints and adherence

Due to the busy clinical setting in which research was conducted; the complex nature of children's histories, symptoms, and environments; and unforeseen circumstances such as changes in staff and caregivers, variations to baseline periods were necessary. For example, in some cases, clinical judgement determined therapy should begin as soon as possible following assessment, and in other cases, abuse disclosures (resulting in evidential interviews or removal from caregivers) or changes in caregivers necessitated a much longer gap between assessment and therapy, and the measures were often not completed during this time. Baseline periods are depicted in Table 3 for all five Study 2 participants. It was additionally difficult to collect data for every week during the waitlist period due to a number of reasons. Commonly, both caregivers and social workers were too busy to help the child complete the measures or

were unable to isolate the child in a safe and private location to complete the measures. Similarly, assessment and therapy sessions did not always take place weekly and consecutively, as planned. Sessions were missed for a variety of reasons, including for school camps, sickness, lack of available transport, changes in caregivers, and caregivers forgetting about sessions (despite reminders). Data are, therefore, recorded by baseline data collection points, rather than by weeks.

Follow-up assessments

It was intended that all participants would engage in follow-up assessments 3 and 6 months following completion of therapy, to determine whether treatment gains were sustained over time and contribute to evaluation of the ongoing effectiveness of TF-CBT. These follow-up assessments were identical to the full assessment, with the exception of the NEPSY-II, and were planned to be conducted at 3 and 6-month follow-up periods. A shorter NEPSY battery was planned to be administered at the 3-month follow-up. However, actual follow up periods differed from planned design. Emily had not reached 3 months post-therapy within the study timeframe so had no follow up. Blake reached 3 months post-therapy, but a follow-up assessment could not be arranged due to clinician unavailability and the summer holiday period. Keira completed a follow-up assessment only at 6 months post-therapy, as there were no clinicians available to complete the assessment sooner.

Table 3. *Assigned vs actual baseline periods for Study 2 participants*

| Participant Code | Assigned baseline (weeks) | Actual baseline (weeks) | Actual baseline (data points) | Reason for variation |
|------------------|---------------------------|-------------------------|-------------------------------|--|
| Ari ⁵ | 5 | 8 | 4 | Completed measures in 4 out of 5 assessment sessions. Waitlisted* for 3 weeks before beginning therapy – no measures completed. |
| Blake | 3 | 12 | 6 | Completed measures in 4 out of 5 assessment sessions (not always weekly) and twice during waitlist period. |
| Keira | 9 | 10 | 6 | Completed measures in 4 out of 5 assessment sessions and twice during waitlist. Part of sibling group so started therapy in same week as others. |
| Maia | 7 | 26 | 4 | Completed measures in 4 assessment sessions. There were 20 weeks between the last assessment session and first intervention session (caregiver changes, measures not completed). |
| Emily | 5 | 21 | 3 | Collected measures during 3 assessment sessions, then participant made a disclosure, followed by caregiver changes – no measures completed. Then urgency to begin therapy overrode baseline requirement. |

*“waitlist” refers here to time between assessment and therapy occurring for various reasons, and was not prescribed by the research design.

⁵ Participant names are pseudonyms.

Subjective data

As described in Chapter 4, subjective data were recorded throughout the study and used to contextualise results, give children a voice, and support quantitative data. Subjective data collection specific to Study 2 are described here.

Opportunity for children to provide feedback was given at the end of each TF-CBT session as part of the CBT model (and any spontaneous comments were recorded by the therapist in session notes), and children were also asked to provide final feedback following their last session, as part of an informal discussion with the researcher. The researcher also reviewed participants' files and session notes and recorded written notes. As recommended by Kazdin (2003), subjective data (including session notes) also helped to contextualise the quantitative results and demonstrate the effects of the intervention beyond those measured by psychometrics, such as changes in behaviour and functioning at home and at school, external events that may have influenced participants' mood, engagement and progress in therapy, information about session content, and the means of achieving change.

Additional subjective data were collected from the staff at Clinical Services who delivered TF-CBT. Prior to commencing recruitment, an introductory training day was provided for Clinical Services about the project (delivered by the author and her primary supervisor), and staff offered various suggestions for TF-CBT. Subjective data were also collected from clinicians during training days and presentations from the researcher in an informal manner, such as discussion around implementation of TF-CBT prior to the current research. Following the completion of data collection, a semi-structured feedback/debrief session was held with staff, facilitated by the researcher and her primary supervisor, and discussion covered aspects of the therapy such as session length, session number, and perceived engagement of the child and their caregiver, as well as suggestions for possible improvement. Feedback was recorded in a handwritten

form by the author and was considered during the evaluation and as part of developing the combined intervention (Study 4). Staff were also asked to complete a questionnaire about the interventions, including the proposed combined intervention: STF-CBT (see Appendix D).

Procedure

Setting

Research took place at the Clinical Services division of Oranga Tamariki; at both Puawaitahi and Te Pou Herenga Waka sites (see Chapter 4). Clinical Services have a number of rooms dedicated to therapy at both sites, including for sandtray work. As TF-CBT was used by clinicians prior to this research, there were a wide range of resources available. These included sand trays, miniature figures, paints, coloured pens, stickers, puppets, games and books.

Treatment protocol

As described in Chapter 2 and Appendix B, TF-CBT is a four phase, 16 session therapy for children and young adolescents who have PTSD symptoms as the result of child maltreatment and related traumatic experiences (J. A. Cohen & Mannarino, 2008; Feather & Ronan, 2010). Therapists in the current study adhered to TF-CBT as detailed in the 2010 New Zealand manual (Feather & Ronan, 2010).

The TF-CBT programme format is designed to be adapted for each individual child, depending on their needs and presentation. Each session is designed to take about one hour, but longer sessions (1.5 to 2 hours) are recommended for the trauma processing phase (Phase 3) (Feather & Ronan, 2010). The average number of total sessions is 16, but the optimal length of intervention varies depending on the degree of the exposure and loss, and severity of post-traumatic adversity and distress (Foa et al., 2009). It was predicted that most children participating in this research would require more than 16 sessions, due to the complexity of presentations typical in the setting.

The four phases of TF-CBT are described below. Each phase is preceded by a parent/caregiver session. Therapists delivered sessions according to the TF-CBT manual (Feather & Ronan, 2010), which describes the purpose and goals of each session, session format, associated activities, materials and homework tasks.

1. Psychosocial strengthening: This phase focusses on building rapport and orientating children and caregivers to therapy. Children are also introduced to the workbook and the reward chart. Sessions include formulating goals for therapy; identifying the child's social and caregiving context and support networks; and developing a timeline of the child's history, with psychoeducation around the impact of trauma. The STAR plan is introduced as a coping model.

2. Coping Skills: Children learn to recognise and manage emotions, body reactions, and thoughts. They are taught relaxation and self-calming techniques, how to recognise and modify unhelpful thoughts, and to self-evaluate and self-reward.

3. Trauma Processing: The trauma processing phase involves the use of gradual exposure to create a trauma narrative and allow emotional processing of traumatic memories. Exposure is graduated from the least to the most traumatic memories, and the four step STAR plan is used to manage trauma symptoms. Trauma processing modalities are chosen by the child, and may include sand play, clay, art, and puppets. Children learn that the more they confront the memories that once upset them, the less the memories are associated with anxiety. Children also learn that they are able to use coping skills to help calm themselves, if necessary.

4. Special Issues and Completion of Therapy: During the final phase of TF-CBT, the focus is on addressing any special issues that have been identified (for example in the caregiver sessions). Special issues may include anger, guilt, shame, grief and loss, personal safety, and social skills. The final phase also focuses on preventing

relapse and celebrating the child's progress in therapy. If the child is willing, the therapist will help them to share their trauma narrative with their caregivers.

The four-phase module of TF-CBT combines a number of therapeutic approaches which aim to best address the needs of the child. TF-CBT is a culturally sensitive treatment (Murupaenga, Feather, & Berking, 2004) developed in a New Zealand setting that has strong empirical support and benefits children by involving caregivers in the therapy. Despite these strengths, TF-CBT may have room for improvement. For instance, there may be a greater need for non-verbal activities and a greater focus on coping strategies in TF-CBT. An evaluation of the programme was, therefore, considered to have significant benefit to children and clinicians.

Protocol training

A number of treatment protocol training sessions were given to staff over the 1.5 years prior to the first assessment and throughout the data collection phase of this study. A full day training session prior to commencing recruitment was delivered by the researcher and her primary supervisor (JF), the author of the TF-CBT manual. This training included details on methods and design, TF-CBT theory and practice examples.

A further TF-CBT training was delivered by the author of the TF-CBT manual as a refresh for staff before they were required to begin delivering the intervention. This training additionally identified some areas for further discussion and training. In response, Clinical Services offered staff sandtray training, and additional training specifically focussed on the trauma processing phases of the programme.

However, due to staff turnover, not all clinicians who participated in the research were present for all training days. To ensure new staff were knowledgeable about the research process, the researcher was always available to answer questions about assessment delivery and scoring and refreshed staff on the research methods (particularly with regards to assessment) a number of times throughout the duration of

data collection. Additionally, the author of the TF-CBT manual shared her expertise throughout conduct of the research, as she had conducted similar research in the same setting 10 years earlier.

Data analysis

Full assessment data were analysed according to the standards of each assessment and compared to relevant norms, where available. The results for each participant are provided and compared at each time period (pre, post, and follow up). Brief assessment data were graphed and visually inspected, as described in Chapter 4. Subjective data is used to contribute to explanation and interpretation of the results for each participant, and to contribute to evaluation of the feasibility and effectiveness of TF-CBT.

Study 2 Results

Pre-recruitment assessment and PTSD screen

All children in Study 2 met PTSD criteria when screened (both self-report and caregiver reported ADIS-IV). Although PTSD symptoms as measured on the CPSS were sometimes reported to be in the mild range or below clinical levels at the pre-intervention assessment and/or during baseline, caregivers, social workers, and children themselves continued to report concerns and/or symptoms that were representative of PTSD and suggested a strong need for treatment.

Participant attrition

Two participants in Study 2 were lost to attrition. Their pre-intervention assessment data are included in Table 4 which depicts the range of symptomology experienced by participants prior to beginning therapy.

Ari

Ari dropped out of the study after completing 13 sessions of TF-CBT as he declined to continue coming to therapy. Therefore, there are no post-therapy assessment results. His initial data and a case study are included at the end of this section to demonstrate the complexity of cases referred to Clinical Services.

Maia

Maia dropped out of the study after completing four sessions of TF-CBT. She missed five scheduled therapy sessions over a three month period, during which she also experienced a change in caregivers. Maia informed the therapist she no longer wanted to proceed with therapy after four sessions, but she did not provide any reasons as to why this was, and the therapist was later unable to contact her caregiver. Soon after, the family relocated outside of Auckland.

At her pre-therapy assessment and during her completed therapy sessions, it was noted that Maia had difficulties processing information, managing difficult feelings, and presented with low self-worth. Further therapeutic intervention and caregiver support was recommended to address these difficulties, including making relevant adjustments to home, school and therapeutic environments to suit her needs. Insufficient data were collected to draw conclusions about Maia's progression in therapy, although she was able to build rapport with the therapist and begin to discuss her traumatic experiences.

Brief assessment results - overview

For children who completed therapy, the self-reported post-traumatic stress symptom scores as measured on the CPSS and self-reporting coping as measured on the CQ-C over the baseline, intervention, and follow-up phase are reported in Figure 5 and Figure 6, respectively.

Baseline data (PTSD symptoms and coping)

Baseline data were examined for stability. It was intended that the brief outcome measures would be completed during assessment sessions and at home during the waiting list period to obtain a baseline for each participant. Blake and Keira completed measures consecutively and their first intervention session was one week following their last baseline session. Emily experienced a four month delay between her assessment (BL3) and her first therapy session (INT1) due to a disclosure against her caregivers and subsequent change in placement. She did not complete any measures during this time.

Intervention data (PTSD symptoms and coping)

Participants completed between 20 and 24 sessions of TF-CBT. Participants were asked to complete measures of PTSD and coping in every intervention session, although this did not always occur. Sessions in which measures were not completed are represented as gaps on Figure 5 and Figure 6. Participant data generally represented a trend of decreased PTSD symptoms and increased coping since baseline, with some variability.

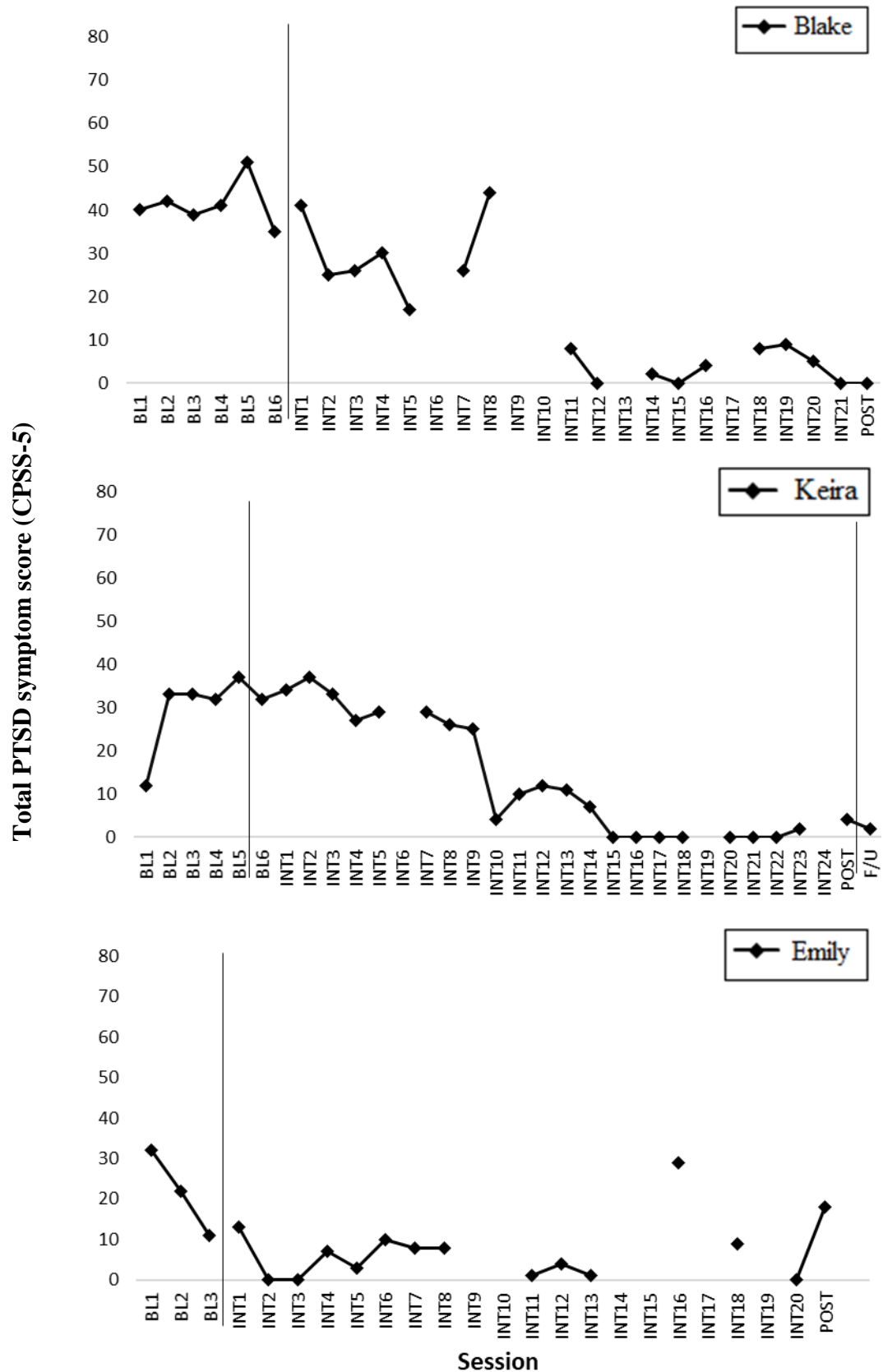


Figure 5. Study 2: Self-rated PTSD symptoms (on CPSS) at baseline, intervention, and follow-up stages

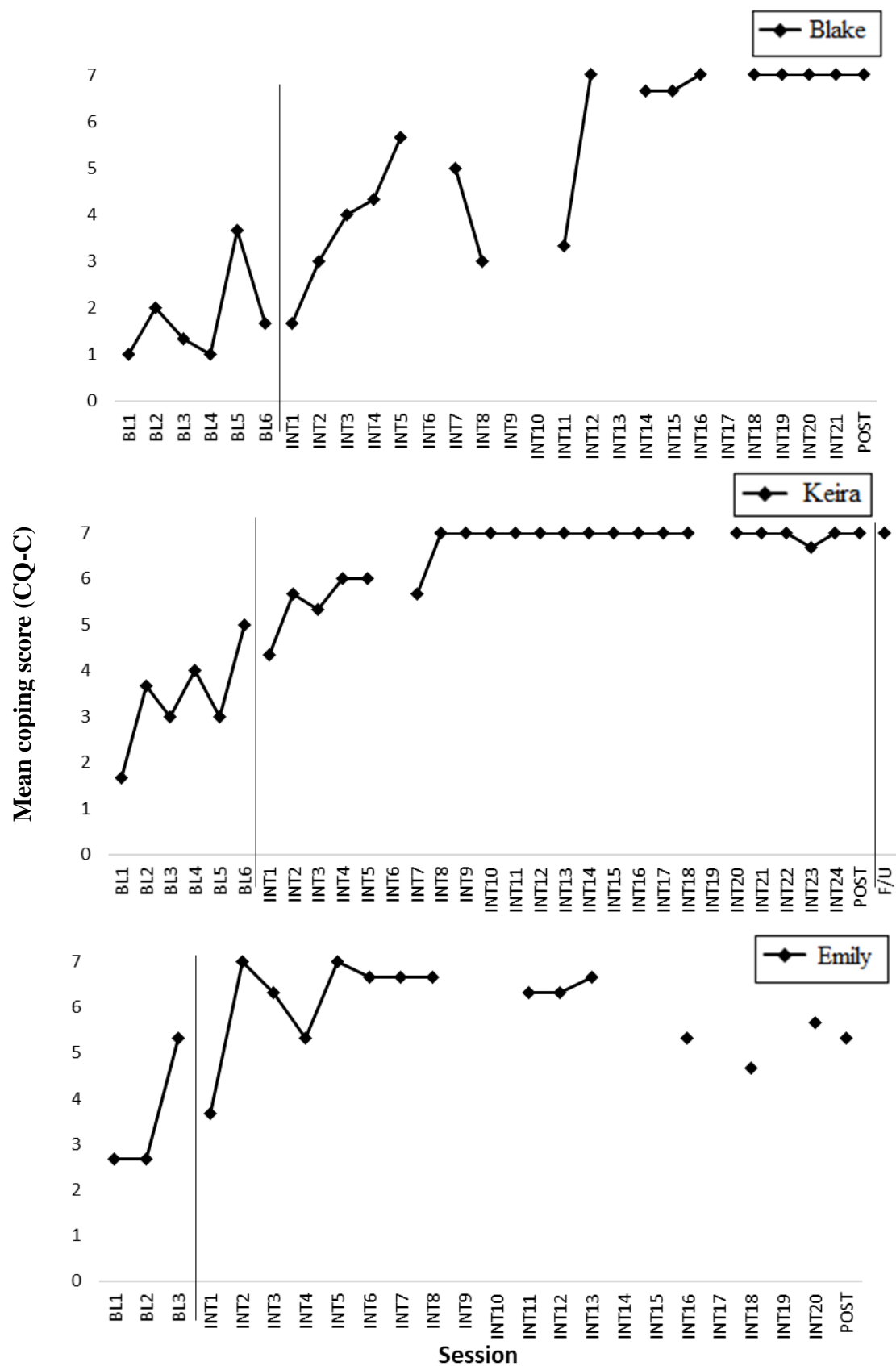


Figure 6. *Study 2: Self-rated coping (on CQ-C) over baseline, intervention and follow-up stages*

Brief assessment results – detailed single case results***Blake***

Blake completed six baseline sessions. On the CPSS, the scenario Blake chose to rate was a recurring nightmare about him and his sisters being killed. This is relevant as nightmares are a common PTSD symptom for children. At pre-intervention (BL1) his CPSS symptom score was 40, indicating moderate symptoms and a *possible* PTSD diagnosis.

He chose the following scenarios to rate on the CQ-C:

3. Being bullied by sisters
4. Told you can't do something you want to
5. Excluded by friends

Blake had a relatively stable baseline on the self-rated coping scale (CQ) with the exception of session 5, where his mean coping score increased to 3.67. This increase in self-perceived coping in BL5 results in a variance of 72.75% during the six session baseline. However, it was deemed important that he commence therapy immediately so he progressed despite the requirement for a stable and non-trending baseline.

Blake had a total of 21 sessions of TF-CBT, including one family session focussed on cultural heritage (INT13) in which no measures were completed. Blake also chose not to complete the measures in three sessions (INT6, 9, 10) and they were not completed in INT17 as therapy was prioritised over assessment. The sessions where measures were not completed are represented as gaps on Figure 5 and Figure 6.

Blake's scores on the CPSS-5 during the intervention phase ranged from 0–44, with a decreasing trend. There was some variability in this trend around sessions 6–11, during which he refused to complete the measures three times, and rated his PTSD symptomology more highly. This is likely due to the caregiver instability as discussed earlier. In session 14, although his overall PTSD score was low (2) and he reported he

no longer had nightmares, he endorsed the item referring to sleeping difficulties. In his final therapy session, Blake rated his PTSD symptoms on the CPSS as 0.

Blake's average coping scores on the CQ-C ranged from 1.67–7 during the intervention phase, with an overall increasing trend. Decreased coping and refusal to complete the measures occurred between sessions 6–12, during which time Blake was facing significant instability at home, including a disclosure against his caregivers and subsequent change in caregivers (discussed in more detail on p. 134). In the last few sessions of therapy, his coping remained high. At the post-intervention assessment, Blake rated his PTSD symptoms as 0, and coping as 7, consistent with his scores in his last therapy session (INT21) and suggesting no PTSD symptoms and a high self-perceived ability to cope with distress from his chosen scenarios. Blake did not complete a follow-up assessment due to time limitations.

Keira

Keira completed six baseline sessions. On the CPSS, the scenario Keira chose to rate was: “not living with Mum and Dad because of bad stuff that happened.” This scenario is relevant to her trauma experience, and PTSD symptoms. Keira reported low PTSD symptoms in her first session (BL1), which may be attributed to her generally reserved personality and a lack of rapport with the therapist. In her first baseline session, her CPSS scores suggest subclinical to mild PTSD using the CPSS-IV criteria. She was not withdrawn from the study as reports from caregivers and teachers indicated that she was experiencing avoidance, hyper-arousal, and re-experiencing symptoms consistent with a PTSD diagnosis. It was also noted that Keira appeared avoidant, which likely contributed to her subclinical scores. In her second session, Keira was observed to be more open with the assessor and CPSS scores reflect severe PTSD according to the CPSS-5. This increasing pattern in PTSD scores is common in children with significant

avoidant symptoms (J. A. Cohen & Scheeringa, 2009). In BL sessions 2-5, scores were relatively stable and did not vary beyond 50% (see Figure 5).

The scenarios Keira chose to rate on the CQ-C were:

6. Didn't get to watch a movie
7. People don't let me play with them
8. Don't get to see parents

Keira reported a trend of increasing coping throughout the baseline phase, which may be attributed to two of the scenarios she chose, which became less relevant over time. She progressed into therapy despite the requirement for a stable, non-trending baseline.

Keira completed 24 sessions of TF-CBT, including one session focussed on cultural heritage (INT19) in which no measures were completed. The measures were also not completed in INT6, represented by gaps on Figure 6. Keira's average coping scores on the CQ-C ranged from 4.33–7 during the intervention phase, with an overall increasing trend. However, her therapist noticed a response set in which Keira would circle 7 automatically from INT9 onwards. Keira's scores on the CPSS-5 during the intervention phase ranged from 0–37, with a decreasing trend. From session 15, she reported few to no symptoms (CPSS-5 score range = 0–2), which coincided with more placement stability, and more supportive caregivers than earlier in therapy.

At the post-intervention assessment, Keira had a small increase in PTSD symptoms as reported on the CPSS-5 but symptoms remained *minimal* (see Figure 5). These symptoms decreased again at follow-up. As symptoms were minimal and not clinically significant, these small fluctuations likely reflected changes in mood on the day of the assessment. Keira rated her coping as 7 at post-intervention and at follow-up suggesting a high self-perceived ability to cope with distress from her chosen scenarios.

Emily

Emily had a baseline period of three sessions. On the CPSS, the scenario Emily chose to rate was: “Dad passing away”. Emily demonstrated variability above 50% for her scores on the CPSS (variability = 65.63%) and an apparent decreasing trend (see Figure 5). However, despite these baseline results, there was a four month delay between assessment and therapy due to further disclosures and caregiver changes, and it was necessary to begin therapy. An exception to the baseline requirements was made for Emily due to clinical judgment.

Emily chose the following scenarios to rate on the CQ-C:

1. Being annoyed by brother or he’s [brother] being naughty
2. Being bullied
3. Having nightmares

Like Keira, two of Emily’s chosen scenarios do not directly relate to traumatic events. Emily’s mean coping increased in BL3 as a result of higher scores for scenarios 2 and 3, and score variability over the three sessions was 51.22%.

Emily completed 20 sessions of TF-CBT. Measures were not completed in a number of these sessions due to the prioritising therapy or being preoccupied trying to catch up from missed sessions. Emily had some variability in her coping scores on the CQ-C, with a range of 3.67–7, and a generally increasing trend. Emily had an increase in coping in session 5 (she reported being “completely able to help” herself for all 3 items) which coincided with her transition to a new placement and may be the result of expressing her happiness at this placement to avoid being moved. Emily rated her coping as lower during the trauma processing sessions (INT16–INT19) which is expected (Feather & Ronan, 2010) and due to her discussing and processing the traumatic events from her past. There was, however, an overall increasing trend in mean coping from the baseline to the final intervention session.

Emily's scores on the CPSS-5 during the intervention phase ranged from 0–29, with a somewhat decreasing trend with some variability. Emily mostly reported subclinical scores on the CPSS throughout the intervention phase. She reported no PTSD symptoms on the CPSS in INT2 and INT3, possibly due to her happiness at her current placement, as per her high coping scores in the same sessions. From sessions 4–15, her PTSD symptoms remained low (<11), with a peak in session 16, the first trauma processing session. In this session her total score was 29, reflecting *moderate* PTSD symptoms. An increase in symptoms during trauma processing can be expected (Feather & Ronan, 2010). Emily reported no PTSD symptomology in her final therapy session.

At the post-intervention assessment, Emily demonstrated an increase in PTSD symptoms as reported on the CPSS-5, and *mild* PTSD symptoms (see Figure 5). This may have reflected a desire to continue therapy, or suggest that she needed more time to process the memory of her Dad passing away (her chosen scenario on the CPSS-5). She also had a very minor decrease in her mean coping score rated on the CQ-C (5.33) at post-intervention due to rating her ability to cope with nightmares (scenario 3) as lower (4) than in INT20 (7). Emily did not receive a follow-up assessment as she finished therapy close to the end of the research timeframe.

Full assessment results - overview

The full assessment battery was administered to all participants at pre-intervention and post-intervention periods and for Keira at follow-up. Results from full assessment measures are reported in Table 4 (p. 126).

Depression (CDI-2)

Study 2 participants varied in their self-report of depressive symptoms on the CDI-2 at pre-intervention. Two participants in Study 2 (Blake, Emily) yielded a very elevated total score, suggesting a high number of depressive symptoms for children their age. Across all five participants who completed the pre-intervention assessment,

average symptomology was below the clinical cutoff (see Table 4). However, just including the three participants who completed therapy, at baseline, their average self-rated depression symptom score was $T=67$ (*elevated*).

Anxiety (MASC-2)

All Study 2 participants had elevated scores on at least one subscale of the MASC-2 at the pre-intervention assessment, suggesting all participants were experiencing some symptoms of anxiety, although the symptoms and severity differed. Only one participant (Keira) had a high probability for anxiety at pre-test. Again, it is important to note that underreporting or avoidance of symptoms is common in children with PTSD (J. A. Cohen & Scheeringa, 2009).

General psychopathology (SDQ)

The SDQ is administered as a parent/caregiver report for children aged 2-10, and as a self-report measure for children aged older than 11. In Study 2, Keira was the only child old enough to complete the SDQ self-report; however, an error in data collection meant that the SDQ was only completed by her caregiver. Changes in caregivers for all participants between pre-intervention assessment and post-intervention means that the SDQ was completed by different raters at these two stages, and scores cannot be directly compared. Psychopathology symptoms according to the SDQ varied for participants, with only Emily's scores being below the clinical cutoff (see Table 4).

Table 4. Study 2. Child self-report and caregiver report scores on full assessment

| Measure | Participant code | Pre-intervention | Post-intervention | Follow-up |
|--|------------------|------------------|-------------------|------------|
| Coping (CQ-C mean) | Ari | 4.5 | | |
| | Blake | 1 | 7 | |
| | Keira | 1.67 | 7 | 7 |
| | Maia | 2 | | |
| | Emily | 2.67 | 5.33 | |
| | Mean | 2.37 | 6.44 | 7 |
| PTSD symptoms (CPSS total score) | Ari | 26** | | |
| | Blake | 40** | 0 | |
| | Keira | [12] | 4 | 2 |
| | Maia | [18]* | | |
| | Emily | 32** | 18* | |
| | Mean | 25.6 | 7.33 | 2 |
| Depression (CDI-2 <i>T</i> score) | Ari | 64 | | |
| | Blake | 76* | 61 | |
| | Keira | 51 | 51 | Incomplete |
| | Maia | 51 | | |
| | Emily | 74* | 56 | |
| | Mean | 63.2 | 56 | - |
| Anxiety (MASC-2 <i>T</i> score) | Ari | 59 | | |
| | Blake | 56 | 43 | |
| | Keira | 60* | 40 | Incomplete |
| | Maia | 58 | | |
| | Emily | 50 | 41 | |
| | Mean | 56.6 | 41.33 | - |
| Strengths and Difficulties (SDQ total score) | Ari | 18* | | |
| | Blake | 32* | 4 | |
| | Keira | 17* | 9 | 8 |
| | Maia | 20* | | |
| | Emily | 13 | | |
| | Mean | 20 | 6.5 | 8 |

[] Scores on CPSS-IV (Maximum possible score = 51; clinical cutoff for PTSD diagnosis ≥ 16)

*Clinically elevated scores compared with age and gender norms (CDI, $T > 64$; MASC, $T > 59$; CPSS-IV ≥ 6 ; CPSS-5 ≥ 11 , SDQ (caregiver) > 16 ; SDQ (self-report) > 17)

**Clinical cutoff for moderate PTSD symptoms (CPSS-5 = 21-40)

Note: shaded areas represent measures that were not completed (Ari and Danielle did not complete therapy, Blake and Emily did not complete follow-up assessments and Emily did not complete a SDQ at post-intervention).

Neuropsychological functioning (NEPSY-II)

All participants completed selected subtests of the NEPSY-II at the pre-intervention assessment. Neuropsychological profiles are described on p. 131 based on the NEPSY-II as administered at pre-intervention for all participants in Study 2, as well as results at follow-up, where available.

Full assessment results – detailed single case results

Blake

Blake scored in the *very elevated* ($T=76$) range overall at the pre-intervention assessment, with particularly elevated scores on the emotional and negative mood subscales. These scores and the particular items endorsed suggests that Blake was experiencing symptoms manifesting as sadness or irritability, as well as physical symptoms relating to sleep, appetite, fatigue and aches/pains. Blake also had *elevated* scores on the negative self-esteem, functional problems and interpersonal scales, with item endorsements suggesting some feelings of being lonely and unloved, as well as difficulty interacting with peers and low self-esteem. At post-intervention, Blake's total score on the CDI-2 fell within the *average or lower* range ($T=51$), suggesting a decrease in depressive symptoms since pre-intervention. However, Blake did have clinically significant scores on the functional problems subscale ($T=69$) and ineffectiveness subscale ($T=74$) at post-intervention. These scores both increased since pre-intervention. As the functional problems subscale is a combination of ineffectiveness and interpersonal problems, these scores suggest that Blake may have been evaluating his abilities and academic performance negatively, and may have an impaired capacity to enjoy activities.

Blake scored in the *high average* range ($T=59$) for overall anxiety symptoms at pre-intervention and reported *elevated* scores ($T=65$) for the obsessions/compulsions scale at pre-intervention. This was the only subscale with clinically significant scores

and suggests Blake may have been experiencing some unwanted obsessive thoughts and compulsive behaviours; however, these symptoms may be accounted for by co-occurring anxiety or PTSD symptoms (Mathews, Kaur, & Stein, 2008). At the post-intervention assessment, Blake scored in the average range for overall anxiety symptoms ($T=43$), and no subscale scores were clinically elevated. This reflects a reduction in overall anxiety symptomology from pre-intervention to post-intervention.

Blake had a total difficulties score of 32 at pre-intervention as assessed on the SDQ, categorised as *very high*. Blake's caregiver rated him to be experiencing a high number of externalising symptoms (19 out of a total 20). The SDQ was completed by a different caregiver at the post-intervention assessment. At post-intervention, Blake's total difficulties score was rated as 4 by his caregiver, classified as *close to average*. This suggests that Blake was not experiencing any abnormal psychopathology at post-intervention as rated by his caregiver on the SDQ.

Keira

Keira scored in the average range for depressive symptoms on the CDI-2 at the pre-intervention assessment ($T=51$), suggesting she was experiencing average symptomology associated with depression for children her age. At post-intervention, her scores remained stable and there was no change to her total score on the CDI-2 ($T=51$). It is not possible to compare Keira's scores at follow-up, as she completed only half of the CDI-2 and, therefore, it could not be scored in full. Keira did not report any depressive symptoms on any of the items she rated at follow-up.

Keira had a *slightly elevated* total score on the MASC at pre-intervention assessment ($T=60$), and a *high* probability of anxiety. She had *very elevated* scores on the social anxiety ($T=73$) and performance fears subscales ($T=76$), as well as *slightly elevated* scores for humiliation/rejection ($T=62$) and *elevated* for obsessions/compulsions ($T=67$). These scores and the items endorsed reflect Keira's

concerns about what other people think of her, that other people will laugh at her, and some obsessions regarding cleaning and checking that “nothing terrible has happened.” At the post-intervention assessment, Keira’s total score on the MASC was not clinically elevated ($T=40$) and all subscale scores were within the *average* range ($T_{\text{range}}=40-50$). Keira’s scores on the MASC following the intervention reflect a reduction in self-rated anxiety symptoms to below clinical level. At follow-up, like the CDI-2, Keira only completed half of the MASC-2 so scores cannot be compared to pre-intervention. However, the items she endorsed suggest some anxiety symptoms related to harm avoidance, such as avoiding things that upset her, checking things first, and keeping her eyes open for danger.

Keira had a *slightly raised* total score (17) on the SDQ at pre-assessment, as completed by her caregiver at the time. Caregiver responding indicated *very high* scores on the conduct scale (7), and *low* on the *prosocial behaviours* scale (5). At post-intervention, Keira’s total difficulties score was *close to average* (9), with all subscale scores also *close to average*. This suggests that Keira was not experiencing any abnormal psychopathology at post-intervention as rated by her caregiver on the SDQ. At follow-up, Keira had a total difficulties score of 8 (*close to average*) on the SDQ, as rated by the same caregiver. Keira also rated her own psychopathology on the self-report SDQ at follow-up, with similar scores to her caregiver, except she rated her conduct problems to be lower (self-report=0, caregiver report=2). These scores indicate good consistency between raters and minimal psychopathology.

Emily

At the pre-intervention assessment, Emily had *very elevated* depressive symptoms overall ($T=74$) and had *elevated* or *very elevated* scores on all subscales except negative self-esteem, which she scored in the *average* range. These scores suggest that Emily was experiencing a greater number of depressive symptoms than

other children her age at pre-intervention. The items endorsed by Emily suggest that she may have had symptoms manifesting as sadness or irritability; problems interacting with peers; may have been feeling lonely and unimportant; and may have evaluated her abilities and school performance negatively. At post-intervention, Emily's total score on the CDI-2 suggests that her depressive symptoms had decreased since the pre-intervention assessment, with a total score in the average range ($T=51$). All other subscale scores had also decreased since pre-intervention, and only her scores on the interpersonal problems subscale remained clinically elevated ($T=70$; *very elevated*), although decreased from pre-intervention. This suggests that although Emily had decreased depression symptoms, she was continuing to experience some interpersonal difficulties such as interacting with peers and feelings of loneliness and unimportance.

Emily presented with anxiety scores within the *average* range and had a *low* probability of anxiety according to scores on the MASC-2 at the pre-intervention assessment ($T=50$). However, Emily had an *elevated* score on the separation anxiety/phobias subscale ($T=66$) suggesting that Emily was more anxious about being alone, or more scared of certain places or things than other children her age. At post-intervention, Emily again presented with anxiety scores in the average range, and a low probability of anxiety according to the MASC-2. All subscale scores were within the *average* range at the post-intervention assessment, suggesting Emily was no longer experiencing symptoms related to separation anxiety and phobias and had a reduction in self-rated symptoms of anxiety.

Emily had a total difficulties score rated as *close to average* at pre-intervention (13), with a *very low* score (5) on the prosocial subscale, but all other subscale scores in the close to average range. A low prosocial score may suggest that Emily was observed by her caregiver to be inconsiderate of other people's feelings, unkind to younger children, unhelpful if someone is hurt and not share or volunteer to help others. The

SDQ was not completed at follow up as it was difficult to contact the caregiver over the summer holiday break.

Neuropsychological functioning

Blake – Neuropsychological profile

At the pre-intervention assessment, Blake demonstrated some scores *below expected* level for his age on subtests of attention and executive functioning and language domains. For instance, he had a high number of errors on the animal sorting task. However, a high number of errors on this task may be due to apparent random sorting of cards and defiance against instructions. Additionally, scores *below expected* level on the language-based tasks (such as word generation and speeded naming) seemed to reflect poor organisation and retrieval of information and poor self-monitoring of errors, rather than a deficit in language production. Blake's scores also suggested that he may need some prompting to recall information, as he scored within the *expected* range on the recognition task of narrative memory (where prompts are given) but was *borderline* on the free recall task of this subtest. Blake's scores at pre-intervention also suggested he may have difficulty understanding the perspectives of others (theory of mind), particularly when information is presented verbally.

Keira – Neuropsychological profile

At the pre-intervention assessment phase, Keira demonstrated good vocabulary and ability to retrieve categorically organised information, as well as a well-developed ability to encode and understand prose and express salient points in a passage. Keira also scored above the expected level for children her age on the design copying task.

Interpretation of Keira's scores on language, and attention and executive functioning domains at pre-intervention suggests that she may have some difficulty with impulsivity, as she often compromised accuracy for speed. She may also have some diminished inhibitory control and difficulty with working memory; deficits reported to

occur in PTSD (Falconer et al., 2008). PTSD is documented to result in deficits in attention regulation and those with PTSD may direct attention to environmental cues and trauma-associated stimuli (Aupperle, Melrose, Stein, & Paulus, 2012). At follow-up Keira's scores on the attention and executive functioning subtest improved, but she remained *below expected* level on many scores. However, she made fewer errors and completed the task more slowly, which may suggest reduced impulsivity since her pre-intervention assessment. Keira also had increased scores on the language subtest requiring her to comprehend instructions, which may be the result of increased attention regulation.

Emily – Neuropsychological profile

Emily demonstrated good conceptual knowledge and cognitive flexibility compared to other children her age at the pre-intervention assessment. She also scored at the expected level for her age on all subtests administered in the memory and learning domain and demonstrated ability to retrieve semantically organised words and sound vocabulary. Emily was at the expected level for her age on the design copying task of visuospatial processing domain, indicating good fine-motor control, ability to represent the overall gestalt of the design and design features.

Emily did not complete a follow-up assessment and there is no data available regarding her neuropsychological functioning following the intervention.

TF-CBT subjective data

Subjective data is provided below to elaborate on participant's engagement and progress in therapy, and to highlight external contextual factors experienced by participants during the course of this study. Feedback from child participants and therapists is also described.

Blake - therapy progress

Blake completed a total of 22 sessions of TF-CBT, over a period of nine months. There was an additional conjoint sibling session after the long summer break to reduce anxiety about returning to therapy in which no measures were completed (prior to INT11, not recorded on figures). During the therapy period the three siblings (Blake, Keira, and Faith) also had a cultural session in which they explored and discussed their whakapapa (geneology) and were given a book outlining their heritage.

At his pre-intervention assessment, Blake reported having frequent, recurring nightmares. He also said that he did not think there was much point in therapy, as it has not worked before. Blake also said that he did not feel like he had anyone to talk to about his feelings, whether they are good or bad. Outside of therapy, he was aggressive towards his siblings and peers.

In initial therapy sessions, Blake was observed by his therapist to be defensive, to have difficulty focussing, and be avoidant of his past and his family. However, his therapist observed that Blake seemed to bond well with him. For the first 8 weeks of TF-CBT, Blake was defiant and reluctant to participate in sessions. He sometimes refused to complete the brief weekly measures or therapy activities and demonstrated a need for control over what he did. Engagement and productivity in sessions was not consistent, and often a productive session would be followed by a session in which he chose not to participate.

About halfway through therapy (around session 10), Blake made a physical abuse disclosure against his current caregivers and was moved into respite care with his two siblings (Keira and Faith). These respite carers eventually became the three siblings' fulltime caregivers, but there was initially significant uncertainty and disruption as a result of this change. During this time of uncertainty, Blake remained defiant in therapy and drew detailed violent pictures. Between INT10 and INT11, there

was a two month break due to the summer holidays, during which time the placement became more long-term.

After improved stability in his placement, Blake's attitude and engagement in therapy, and behaviours outside of therapy, improved significantly. While he was resistant about completing the measures in the past, he began to remind the therapist about these. He had a noticeable improvement in mood, and reported the ability to control his anger and not engage in fights. Blake was also more able to talk about his past and his memories, and used sandtray and play with a dolls house to describe experiences of abuse and neglect in the trauma processing sessions. By the end of therapy, Blake was no longer angry or disruptive. He became a school ambassador and worked to stop fights in the playground and teach other kids how to manage their anger. Following his post-assessment, Blake spent three sessions in the sensory room further developing anger-management and calm-down skills. This additional therapy was the request of the participant.

Keira – therapy progress

Keira completed a total of 24 sessions of TF-CBT, over a period of nine months. These sessions included a conjoint sibling session and additional cultural session as described above. At the beginning of therapy, Keira was described as being eager to please and self-critical. She listed the things she would like help with as: to be happier, be able to control her feelings so she didn't hurt other people, and to learn to stay calm. Keira had a complex abuse history, and was close to her mother prior to removal from her care in 2012. Throughout therapy, Keira was observed to be defensive and afraid to delve deeper into her trauma history.

As described in Blake's therapy overview, a disclosure was made against Blake, Keira, and Faith's caregivers around session 10, resulting in placement with respite caregivers who eventually became the siblings' fulltime caregivers. The new

caregivers were noted to be more affectionate, and Keira observed to be more comfortable with them. Despite having spent four years with her previous caregivers, Keira showed little attachment to them. Her first sandtray was about her experiences with these caregivers, and she described disappointment and anger that they were not better caregivers, and said she felt nothing for them.

In her 13th therapy session, Keira noted that she was still bothered by past sexual abuse, removal from parents, her mother hitting her brother, and her previous caregivers not looking after her and her siblings very well. Trauma processing tasks were directed towards these issues in a number of sessions, but she was observed to still be reluctant to explore deeper or let her defences down. Trauma processing modalities mostly involved drawing and sandtray. In one of her trauma processing sessions she chose to draw “when I got taken from my parents” and although she was visibly emotional she denied being upset and said she was bored.

By the end of therapy, Keira seemed less concerned with people-pleasing, demonstrated increased confidence, and an improved ability to express her wants and needs. However, she was still avoidant of discussing her past in depth. Following her post-intervention assessment, Keira requested further therapy to explore sexual abuse, as she said she felt like she needed longer to talk about her experiences. She therefore received approximately 10 further CBT-based sessions. These sessions included painting and sandtray around her feelings and memories, and writing letters to her mother and brother (perpetrators).

Emily – therapy progress

Emily completed 20 sessions of TF-CBT, over a period of 13 months. She missed many scheduled sessions, and attended approximately every third scheduled appointment, despite the therapist reminding the caregiver about upcoming sessions.

These missed sessions hindered engagement and progress as the therapist needed to spend extra time re-capping previous sessions.

A few weeks prior to beginning therapy, Emily moved to a new placement, her fifth since initial removal from her parental home less than two years earlier. Her therapist noted that she seemed to be idealising her new caregivers and trying to bury the past and separate herself from it. Following concerns about discipline at home, the therapist met with the caregivers to provide advice on managing behaviour and providing boundaries for Emily and the other children at home.

At the beginning of the intervention phase, Emily said she wanted help with “bad thinking”, bad dreams and memories, her behaviour, frustrated feelings, and “stop people getting bullied at school”. She was able to identify bad things that had happened to her, including abuse and neglect. During trauma processing sessions she initially denied having any troubling memories but was able to identify five things that still bother her, and she completed sandtrays and artworks to process these memories. Other sessions focussed on learning healthy adaptive strategies to manage distress, anxiety, and traumatic memory. Emily was engaged in the sessions and put in a good effort when completing self-help tasks.

Emily completed TF-CBT near the end of this research project, and due to the summer holidays had not yet resumed therapy at completion of this study. However, it was intended that she would complete approximately ten further CBT based sessions, focusing on trauma processing.

Participant feedback

All three participants reported benefits of TF-CBT, especially the use of creative activities to explore their feelings and experiences, and learning calming strategies. Keira said that at first she was worried the therapist was judging what she was saying, and she found it hard to share her feelings. However, she reported that

using art and sandtray to express her feelings helped, and that one thing she liked about therapy was being able to get rid of her feelings.

Similarly, Emily said she did not like talking about the “really hard stuff” but she enjoyed being able to draw “her feelings out” and using the sandtray. Emily also liked knowing that she could talk to someone who would keep what she said confidential, and who had helped other children with similar experiences.

Both Keira and Emily reported using the calm-down tricks learnt in therapy when they were feeling angry. These included screaming into a pillow and deep breathing. Blake reported he had learnt some of the therapist’s “superhero powers”, embodying the “becoming your own therapist” concept of TF-CBT.

Therapist feedback

Therapists identified both positive and negative aspects of TF-CBT. Blake’s therapist discussed how it can be difficult to use a manualised programme with children with such complex histories, as it often takes a long time before they are willing to talk about their experiences. On the other hand, the other therapist in Study 2 (who worked with both Keira and Emily) said that a positive aspect of TF-CBT was that each session has a structure, timeline, and session plan. However, she did say that sessions can feel rushed if the children bring other issues into therapy that need to be addressed.

Like the participants in Study 2, Blake’s therapist identified the benefits of creative activities for making it easier for children to express their thoughts and feelings when they are not able to verbalise them. Keira/Emily’s therapist said that children who are very hyperactive or not good communicators tended to struggle with TF-CBT. Another therapist at Clinical Services supported this, and said that worksheets become irrelevant when children were unwilling to talk about their experiences. This applied to both homework and in-session worksheets.

Again, mirroring participant feedback, Keira/Emily's therapist reported that the most important concepts of TF-CBT are the child learning new coping skills and having the opportunity to process their traumatic memories. Blake's therapist suggested the potential benefits of combining strategies from different therapies such as CBT, sensory approaches and psychotherapy, and identified a need for more relational work to help the child trust and engage with the therapist.

Subjective data overview

Participant and therapist feedback provided valuable information about the feasibility of TF-CBT for this clinical population. Overall, results suggest that TF-CBT is a beneficial intervention for children exposed to maltreatment trauma, especially in helping them process their traumatic experiences and develop coping skills. However, participants found it difficult to share their feelings and experiences, and were often difficult to engage in sessions. There may need to be more focus on building the relationship between the child and the therapist prior to asking children to share traumatic memories, and worksheets may be of little use for children who are not yet willing to talk about their traumatic experiences. Although TF-CBT is designed to be a flexible intervention, this may need to be emphasised more so that therapists feel comfortable adding extra sessions and activities where necessary. Taking advantage of the flexibility of the intervention may also come with therapist experience with TF-CBT and therapy in general.

Both children and therapists praised the use of creative activities for trauma processing, as these allowed children to share their experiences without having to verbalise them. Additionally, calm-down tricks and emotional regulation skills were valued by participants and continued to be used at post-intervention and follow-up stages.

Case Study (Ari)

Although Ari did not complete therapy, his case reflects some of the complexities associated with delivering therapy in a care and protection setting. Ari's case is, therefore, presented here in a format that differs to the presentation of the rest of Study 2 results; providing more discussion of background, context, and behaviour, along with available data.

Ari's background

Ari was a New Zealand Māori male who was uplifted from his parent's care at age 8 by CYF (now Oranga Tamariki), owing to care and protection concerns related to neglect, exposure to domestic violence and parental drug and alcohol abuse. His mother had a history of mental illness and drug abuse, and had been both a victim and perpetrator of domestic violence. Ari was also alleged to have witnessed physical abuse of his half-brother and been exposed to pornographic images.

Ari was initially placed in a group home, and he returned to this home several times over the next few years following placement breakdowns. These placement breakdowns were observed to occur as a result of Ari's behaviour, including severe aggression toward other children and caregivers, impulsivity, self-harming behaviours, low stress tolerance, hyper-arousal, and probable disorganised attachments to significant others. A paediatrician assessment reported a long-standing history of behavioural concerns for Ari, including self-harming, occasional sexual behaviours, soiling and bedwetting. These behaviours were found to escalate during periods of stress. Ari was additionally found to be below national standards for reading, writing, and maths. Although Ari had previously attended 13 sessions of play therapy, he continued to present with ongoing concerns about suicidal ideation and intent, particularly in response to periods of stress.

Ari's assessment and therapy progress

Ari was referred to the (then named) CYF Specialist Services Unit (SSU) for an assessment (aged 10) owing to increasingly challenging behaviours at home and school. Referral reports described him as being impulsive, inattentive, absconding, destroying property, having tantrums, and being verbally and physically aggressive toward children and adults. Other concerns noted include his difficulty sustaining relationships and his lack of remorse. As stated above, Ari also presented with concerns about suicidal ideation. Assessment on both the self-report and caregiver report ADIS-IV indicated Ari was experiencing symptoms consistent with PTSD.

At the time of referral, Ari was having regular access with his mother, but CYF assessments deemed her unable to prioritise her son's needs in order to become the primary carer. Access with his father had ceased due to his father's aggressive behaviour.

The assessment was conducted over five sessions. During the assessment, Ari did not present with any difficulties sustaining attention or concentration, used clear language, and was fully engaged. He was polite and friendly to the assessor. However, he presented with avoidance and denial regarding traumatic experiences. Ari denied any current suicidal ideation or intent, but did acknowledge that he experienced suicidal thoughts when he became angry; consistent with caregiver and school reports. A safety plan was implemented with home and school to provide support with these concerns. High risk situations were identified to be placement instability, unpredictability, and situations evoking high levels of distress. Ari did not demonstrate any anger or aggression during the assessment sessions, but the assessor noted that he presented with a restricted affect, displaying a limited range and intensity of emotions.

Ari's assessment was completed six months after his initial referral. There had been no improvements in his behaviour during this time, and he had been suspended

from school due to his difficult behaviours. The assessment identified an additional need to conduct caregiver psychoeducation sessions to assist the caregiver to support his progress and development of self-regulation strategies.

The results of this assessment are shown in Table 4 earlier in this chapter, and described on page 143, following a description of the intervention phase. The brief outcome measures are described first, as data were collected in most sessions and provides an overall picture of Ari's symptomology throughout baseline and intervention phases. This is followed by results from the full outcome measures, providing a picture of comorbid symptomology at the pre-intervention assessment.

Intervention (TF-CBT)

Ari began TF-CBT in the week following his final assessment session as concerns about his behaviour and suicidal intent necessitated that therapy begin urgently. In the month prior to beginning therapy, he had been suspended from school after 15 "major incidents" in two weeks, including putting staff and other students at risk. The therapist (an intern child and family psychologist) noted that Ari was difficult to engage in therapy and was not willing to open up or share experiences.

Ari completed 13 sessions of TF-CBT according to the therapy manual (described on p.112). His behaviour was frequently avoidant, and he often tried to control the session content. Inconsistent with caregiver, social worker, and school reports, Ari minimised his behavioural difficulties, including denying engaging in any aggressive behaviours. He additionally denied experiencing any kind of negative emotion, including worry, anger, or sadness. This avoidance meant it was difficult for Ari to identify his own therapy goals, which limited session engagement.

However, Ari received psychoeducation around anger and violent behaviours, and worked with the therapist to develop coping strategies and to identify helpful and unhelpful thoughts. Skills practiced during therapy included breathing and relaxation

exercises, ways to recognise triggers and body reactions, and how to express his anger in safe ways. Ari enjoyed using play, and the therapist was sometimes able to integrate play with the concepts of TF-CBT. However, Ari tried very hard to redirect the focus away from topics of thoughts, feelings, body reactions, and coping strategies. After 13 sessions of therapy, Ari declined to return.

Caregiver involvement and behavioural difficulties

As the assessment identified a need to support and educate Ari's caregiver to manage his behaviour, this support was offered. His caregiver was also updated on coping strategies Ari had been learning in therapy, and psychoeducation about reactions to trauma. However, the caregiver did not appear open to discussing the therapy process or receiving advice about behaviour management. Additionally, Ari's caregiver did not support him to complete the homework tasks, which limited practice and generalisation of strategies learned in therapy sessions. As caregiver support and involvement is a key aspect of TF-CBT, this lack of support likely limited Ari's progress.

Throughout the intervention phase, Ari's behaviour continued to escalate. He was reported to lash out physically, with biting, yelling, swearing, kicking and punching doors, at home and at school. He was also verbally and physically aggressive towards others. In his seventh session, Ari made a physical abuse disclosure against his group home caregiver, with whom he had spent a significant portion of the last few years, and to whom he had always returned following the breakdown of other placements. Upon investigation, his allegation was supported by other children in the home, one of whom was fearful to return. He was not willing to complete a Specialist Child Witness Interview with regards to his disclosure.

Ari was subsequently moved to a family placement. Ari's new caregivers reported there to be no violent, aggressive or defiant behaviour in the home, but he was still demonstrating behavioural difficulties at school resulting in multiple suspensions.

His school behaviour, resulting in suspension, included disobedience, hitting a teacher, jumping on tables, and aggression to property. Ari continued to attend therapy for six weeks following his disclosure and move from the group home, but was still difficult to engage.

Ari later moved to a new placement with his grandmother, and behavioural problems continued. He was ultimately expelled from school after violence towards school staff and the school determining that they could not risk the safety of other students. It is likely that Ari's aggressive behaviour continued in response to disruptions at home coupled with difficulty regulating affect and emotions. In the relatively brief 3-month period of the intervention phase, Ari was physically abused, disclosed this physical abuse, had two changes in caregivers and faced further disruption to routine following school suspensions. He then faced starting a new school, and making new friends, while suffering significant behavioural difficulties likely as a result of PTSD from past (and ongoing) traumas, and a lack of self-regulation skills. Until Ari feels like he is in a safe environment with people he can trust, it is unlikely he will be able to engage fully in TF-CBT.

Ari's assessment results

Brief outcome measures

Self-rated PTSD symptoms and self-rated coping is depicted during baseline and intervention phases according to scores on the CPSS-5 and CQ-C (see Figure 7 and Figure 8).

Baseline data

Ari completed four baseline sessions. As Ari denied being affected by traumatic experiences, the assessor was not able to get him to rate scenarios relevant to the trauma. For instance, he denied having any experiences of anxiety-provoking situations or trauma, and even with the assessor prompting and suggesting possible situations, he

had difficulty choosing scenarios. Despite this, he completed the measures in each assessment session before progressing to therapy.

On the CPSS-5, Ari chose the scenario “ISIS killing children”. In the first two sessions, his total self-rated PTSD symptoms related to this scenario was 26, reflecting moderate PTSD. However, in the following two baseline sessions, his scores dropped to 9 (mild PTSD) and 2 (not clinically elevated). This reflects variability of 92.31%.

Again, a necessity to begin therapy overrode the requirement for a stable baseline.

CPSS-5 scores are depicted on Figure 7.

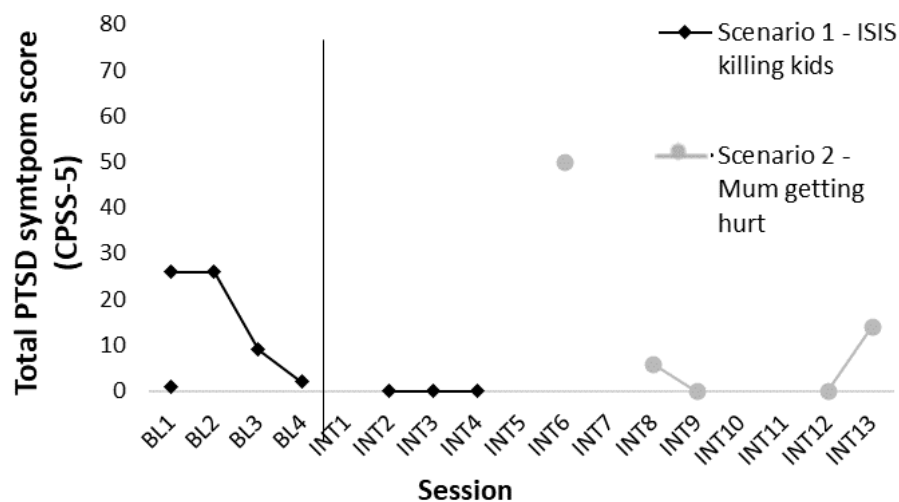


Figure 7. Ari Self-rated PTSD symptoms (on CPSS-5) at baseline and intervention

On the CQ-C, Ari chose the following three scenarios to rate:

4. “Not able to see friends”
5. “My watch breaking”
6. “Denting the wall at school”

Ari’s mean coping during baseline was 3.76. There was 59% variability in his scores during the baseline phase. However, the need for therapy was prioritised over the need for a stable baseline. See Figure 8 for a visual representation of Ari’s mean coping.

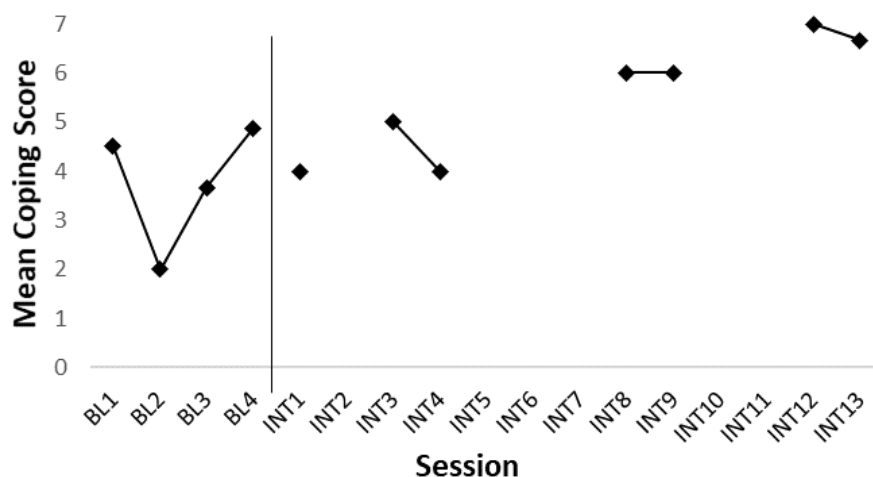


Figure 8. *Ari Self-rated coping (on CQ-C) over baseline and intervention*

Intervention data

Ari did not complete the CQ-C and CPSS-5 in every therapy session, depicted by gaps on Figure 7 and Figure 8. On the CPSS-5, the therapist observed him to often endorse 0 automatically, without reading the full question. In his sixth therapy session (INT6), he wanted to change his scenario to “worried about Mum getting hurt/thinking about her getting hurt.” A willingness to be more open about a situation he found distressing suggests that Ari may have been beginning to build a trusting therapeutic alliance with his therapist. Although a change in scenario to be rated means that Ari’s PTSD scores during therapy cannot be compared to baseline scores, it was predicted that these scores may more accurately depict his functioning, as well as help guide therapy. Rating against this new scenario, Ari’s total score was 50, reflecting severe PTSD. However, in the following sessions, still rating the new scenario, his ratings returned to below clinical significance. See Figure 7 for a depiction of this variation.

On the CQ-C, Ari’s scores did vary during the intervention period, but generally remained high (mean coping score range = 4–7). These high coping scores despite continued difficulties reported by caregivers and teachers may have been the result of his chosen scenarios becoming less significant over time. However, there was also an increasing trend in mean coping scores, and Ari did report having learnt some

coping skills during his time in therapy. Additionally, moving placements around INT7 may have contributed to the increasing trend in coping at that time.

Full assessment measures

Depression (CDI-2)

Ari had a high average score for depressive symptoms ($T=64$) measured on the CDI-2. He had clinically elevated scores on the negative self-esteem ($T=67$; *elevated*) and ineffectiveness ($T=70$; *very elevated*) subscales. A *very elevated* ineffectiveness score suggests Ari may have had an impaired capacity to enjoy activities.

Anxiety (MASC-2)

Ari scored in the *high average* range ($T=59$) for overall anxiety on the MASC-2. He had clinically elevated scores on the general anxiety disorders ($T=64$), humiliation and rejection ($T=61$), and obsessions and compulsions ($T=60$). His score on the total physical symptoms scale was *elevated* ($T=66$), which comprised the subscales panic ($T=68$) and tense/restless ($T=64$). These scores reflect anxious symptoms across a range of domains. However, a validity check within the measure indicates that his responding may have been inconsistent and should be interpreted with caution.

General Psychopathology (SDQ-child rated)

Ari's responses on the SDQ indicated a *high* score for overall stress (18). He reported *high* scores on the conduct subscale, and *slightly raised* scores on the emotional problems, hyperactivity, and peer problems subscales. His prosocial score was *slightly lowered*.

Neuropsychological measures

Ari was assessed on selected subtests of the NEPSY-II for any neuropsychological difficulties. Ari had below expected scores on subtests of the attention and executive functioning, language, and visuospatial domains, and well below expected scores on one subtest of the memory and learning domain. For instance,

Ari scored well below the expected level for his age on the word list repetition subtest, which may suggest a limited capacity in working memory, reported to occur in children with PTSD (Falconer et al., 2008). Ari may also have some attention difficulties, with a below expected score on auditory attention suggesting poor selective and sustained attention. Deficits in attention regulation have been reported in those with PTSD (Aupperle et al., 2012). Additionally, he may have poor cognitive flexibility, and self-monitoring, reflected in a below expected score on the animal sorting subtest. Finally, borderline scores on design copying and geometric puzzles may suggest some difficulty with visuospatial and visuo-constructional skills. Low design copying scores for neglected children have been reported in the literature (for example De Bellis et al., 2009). Ari, therefore, presented with some deficits in neuropsychological functioning at his pre-intervention assessment, and these deficits are consistent with those previously reported in children with PTSD.

Ari - conclusions and recommendations

Although Ari was difficult to engage in therapy, and only attended a proportion of the sessions he would have needed to gain maximal benefit, he did report some progress. For example, he said that he learnt some strategies to better manage his anger, but he forgot these in the moment. In his new placement, he was observed to regulate his anger and emotions by taking himself to a room alone to calm down. This suggests that ongoing therapy may have been beneficial for Ari, especially with regards to affect and behavioural regulation, as well as helping him to process past and present traumatic experiences.

There are many factors that influence a child's therapy outcome. For instance, Ari experienced multiple placement breakdowns, with five placements in three years. Frequent changes in caregivers likely exacerbated and maintained behavioural and emotional difficulties. It is also important to consider how it may have been difficult for

Ari to engage in therapy and discuss past traumas, when he was still experiencing instability and trauma in his day-to-day life.

It was recommended that there be a more co-ordinated approach to care and support for Ari and his family, caregivers, and teachers. Future caregivers may need more targeted support and education around how to manage complex behavioural difficulties, to promote more stable placements and fulfil Ari's right to a safe and nurturing home. Teachers and school support staff could work with caregivers, social workers, and therapists to develop strategies to manage escalating behaviour before it becomes destructive, as well as to identify areas of concern or where support is lacking. As Ari appears to have difficulty with self-regulation, introducing sensory tools into his home and school life may also be beneficial.

Ari's case detailed here is reflective of the complexity of children receiving therapy at Oranga Tamariki Clinical Services. Children who have experienced maltreatment are often avoidant of their traumatic experiences, and difficult to engage in therapy. They have often had lives punctuated with multiple or ongoing traumas, and are often experiencing continued trauma while they are engaged in therapy. For instance, the majority of children in the current research had at least one placement change and/or disclosed further abuse during the course of the research. This is a difficult population with which to conduct research, but also a population with complex needs that need to be understood and addressed. Further discussion is provided in Chapter 9.

Study 2 Discussion

The results of this study suggest TF-CBT can be effective and feasible for children with PTSD who have experienced multiple maltreatment. For the three participants in this study who completed therapy, all had reduced self-rated PTSD

symptoms and increased coping at post-intervention, as well as reduced comorbid symptoms relating to depression, anxiety, and general psychopathology.

All participants were diagnosed with PTSD, according to the ADIS-IV at their initial assessment, and were experiencing a range of symptoms related to trauma and PTSD before beginning therapy. This included symptoms of anxiety and depression, having nightmares, difficulty regulating emotions, thinking bad thoughts, aggression, and avoidance of traumatic experiences and related symptoms. At post-intervention, participants reported that they had learned skills to help them calm down and cope with difficult situations, and that talking and processing their feelings and experiences through creative methods helped them feel better.

The use of a single-case design allowed interpretation of the results in line with participants' experiences outside of therapy, such as contact with parents and changes in caregivers that may have influenced their symptomology. A strength of the study design is the use of subjective data from participants and caregivers to expand and contextualise results. For example, participants' self-reported PTSD symptoms fluctuated throughout baseline and therapy, and can be explained by avoidance, disruptions to their home life, and participants beginning to process the trauma. For example, one participant (Emily) reported PTSD symptoms below clinical levels by the end of the baseline period, but reports from caregivers and social workers suggested she was continuing to experience symptoms consistent with PTSD.

Subjective data from participants and therapists also helped to identify the aspects of TF-CBT that work well for children who have experienced multiple maltreatment, and the aspects that do not work so well. All participants in Study 2 went on to receive further therapy after completion of TF-CBT, although the nature of the additional therapy differed across participants. It is not unusual for trauma therapy to be extended, as children who are experiencing strong avoidance and struggle to trust

authoritative figures may struggle to initially connect to their therapists (Konanur et al., 2015). For instance, although Keira was reluctant to discuss her experiences throughout TF-CBT, she requested further therapy to explore her sexual abuse experiences. This may suggest that Keira felt like she could trust her therapist, and that she found therapy valuable, but needed more time to process her trauma.

The Study 2 results highlight the importance of a stable placement and sense of safety for children before they are able to engage in discussion and processing of past traumas. Caregiver changes resulted in a lack of stability for the participants in Study 2, as well as likely feelings of confusion, betrayal, and anxiety, compounded with the multiple traumas already experienced by the children (for an example see Unrau, Seita, & Putney, 2008). This may contribute to variability in participant data, particularly on the brief outcome measures. For instance, both Blake and Keira demonstrated decreases in PTSD symptoms, increased coping, and decreased behavioural problems reported by social workers and caregivers, once they were moved to a more positive placement. Emily demonstrated an increase in coping coinciding with a move to a new placement, which may be reflective of the increased support and sense of safety provided in her new placement, or a fear of being uplifted, as there was some fluctuation in her scores later in therapy. Emily's placement at this stage was her fifth since being uplifted from her family home two years previously, so it is understandable that she wanted to avoid jeopardising a placement that she was happy at. The influence of a safe and stable placement is a significant finding and has implications for the nature of care and protection work in New Zealand. A more in-depth discussion relating to caregiving context is provided in Chapter 9.

Although the single-case design of this study has strengths, there are also limitations. One limitation is the use of self-report data collected at every session. Although children are best able to report on their own internalising symptoms, the

participants in Study 2 were often reluctant to complete the measures, refused to complete the measures, or were observed to be scoring automatically. For example, Keira was observed to score the CQ-C automatically which could be attributed to high self-perceived coping, but could also be explained by boredom with completing the measures, avoidance, or possibly not wanting to jeopardise her new placement. Avoidance of trauma-related symptoms and traumatic experiences may mean participants reported their symptomology as lower than it was. While a multi-informant assessment is recommended, frequent changes in caregivers and teachers meant this was difficult. Additionally, this study comprised a small sample, with a small age range of 9-11 years, and all Māori/Pacific Island participants. Generalisation of results to other cases is limited.

To summarise, the results from Study 2 demonstrate that TF-CBT was an effective and feasible intervention for treating PTSD and trauma symptoms in children with multiple maltreatment experiences. Both participants and therapists identified strengths and weaknesses of TF-CBT. However, the complex population necessitated variations to the method, and there were limitations to the measures, discussed further in Chapter 9. Despite limitations, Study 2 captures both the complexity of children's symptoms, backgrounds, and ongoing stress that must be considered by clinicians when implementing an intervention for PTSD from child maltreatment. Further discussion of this context is provided in Chapter 9. Study 3 results are reported and discussed in the following chapter.

Chapter 7

Study 3: The Sensory Intervention

This chapter describes the method, results and discussion pertaining to Study 3; a single-case multiple-baseline evaluation of the feasibility and effectiveness of a SI for child maltreatment trauma at Clinical Services, Oranga Tamariki. This chapter provides a description of the method, along with an overview of the SI developed for this research (the treatment protocol). Following this, the results of Study 3 are presented, beginning with an overview of the results and followed by detailed single case results, for both the primary outcome measures and measures of comorbid symptoms. These results are followed by subjective data, including a description of therapy progression to contextualise the results and provide insight into feasibility. The chapter ends with a discussion of the study results. Further explanation of the implications of these results and general discussion can be found in Chapter 9.

The major goal of Study 3 was to evaluate the feasibility and effectiveness of a sensory modulation approach—SI—in a population of children with PTSD from maltreatment, referred to Auckland’s Clinical Services unit of Oranga Tamariki. Two children received five sessions of sensory modulation therapy. Therapists followed a sensory modulation session guide developed by the researcher and guided by literature on sensory modulation and trauma (described on p. 166), and sessions took place in the sensory room developed for this study at Clinical Services Puawaitahi. Participants received the same battery of tests as in Study 2 and, depending on their progress, received additional therapy of the clinician’s choosing following the SI.

The evaluation of the SI and its feasibility was based on improvements made during therapy as measured by pre- and post- assessments (the full assessment battery) and data from the brief assessment battery, as well as subjective data/feedback collected from clinicians and child participants. It was predicted that, like in Study 2, participants would show a reduction in PTSD and comorbid anxiety, depression, and behavioural

symptoms, and an increase in coping, and that these gains would be maintained at follow-up. It was also predicted that at initial testing, Study 3 participants would present with difficulties in a number of neuropsychological domains (on the NEPSY-II), and it was predicted that participants' performance in these domains would be improved following SI.

Study 3 Method

Design

Overall method is described in Chapter 4 and a flow diagram specific to Study 3 is depicted in Figure 9 below. Study 3 was a quasi-experimental single case design, using a non-concurrent multiple baseline design. Single case design was chosen based on utility for developmental projects and evaluation of psychological interventions in clinical practice (as described in Chapter 4). Inherent to single case design is the ability to evaluate treatment effects at an individual level, and use subjective data to contextualise quantitative results.

Following participant and caregiver consent, the first eight consenting participants in this research were randomly assigned to either Study 2 or Study 3, determining the type of intervention they would receive. As discussed in Study 2 (TF-CBT, p. 97), due to practical reasons, Maia was not able to participate in the SI (Study 3) and was therefore moved to Study 2. The main reason was that the sensory room was only set up at one of the two sites involved in the study, and Maia was unable to travel to this site.

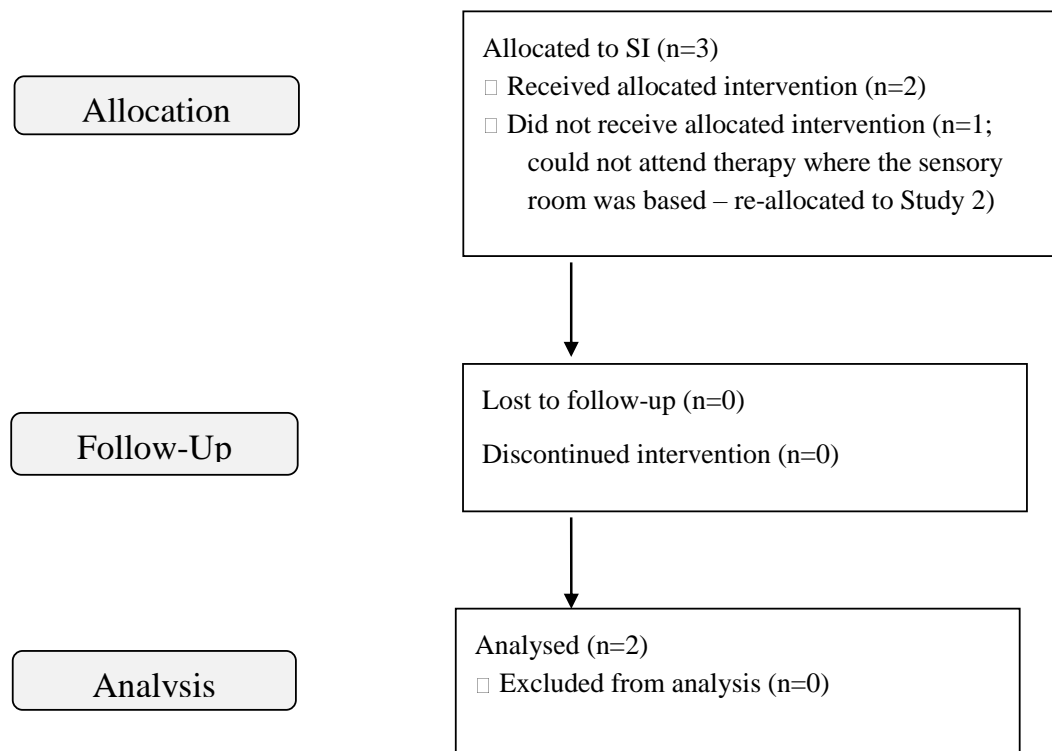


Figure 9. *Study 3 flow diagram (adapted from CONSORT, 2010)*

Participants

Two 9 year old children who met DSM-IV criteria for PTSD participated in Study 3. Participants experienced maltreatment and neglect (Faith), and a single-type trauma (Niko). An overview of children's demographics and histories is reported in Table 5. One of the Study 3 participants (Faith) experienced changes in caregivers during the course of the research, and shortly following her post-intervention assessment (prior to follow up assessment). This caregiver change occurred due to a physical abuse disclosure against the caregivers (described in Study 2) as Faith, Blake, and Keira are siblings. Although Niko did not experience any changes in caregivers during the course of the research, he was legally adopted by a family member between the pre-intervention assessment and the beginning of the intervention.

Table 5. *Study 3: Participant overview and trauma background*

| Participant code | Sex | Age* | Ethnicity | PTSD severity (baseline)** | Trauma exposure |
|------------------|-----|------|------------------|----------------------------|--|
| Faith | F | 9 | Māori and Samoan | Mild | Exposure to domestic violence, physical violence and family drug and alcohol abuse. Emotional abuse and neglect, and alleged sexual abuse. |
| Niko | M | 9 | Tuvaluan | Severe | Caused an accidental disaster resulting in the death of his primary caregiver. Parents deported at age 3/4 - no contact since. |

*Age at time of initial assessment **PTSD severity measured on CPSS (all participants met PTSD criteria on the ADIS-C/P)

PTSD diagnosis and symptomology

Both participants in this study had difficulties in a range of areas related to trauma and PTSD, including symptoms of anxiety and depression, difficulty regulating emotions, and behaviour and conduct issues including defiance and violence. Faith was reported to be unstable, impulsive and irrational, and to not like talking about her family. General areas of concern for Niko were grief and loss and engaging in harmful behaviours. He was reported to have behavioural difficulties hypothesised by clinicians to be due to boredom and experimentation, rather than conduct problems. Both participants had significant difficulty with emotional adjustment, including regulating and managing their emotions.

As is usual practice at Clinical Services, all caregivers of children who have been referred meet with staff for an initial appointment and assessment. For the purpose of the research project, a caregiver report PTSD assessment measure (ADIS-IV-P) was included in the assessment to help determine the child's suitability for the research

study. This assessment, the ADIS-IV-C, was also administered to children during the assessment phase. All participants were additionally assessed on the Child Post Traumatic Stress Scale (CPSS), which suggested probable PTSD diagnosis and symptom severity according to the DSM-5.

Measures

As described in Chapter 4, measures were employed in the form of the pre-recruitment assessment and PTSD screen, brief assessment battery, and full assessment battery. Measures were the same as in Study 2 (TF-CBT) and are described in detail below.

Pre-recruitment assessment and PTSD screen

The Anxiety Disorder Interview Schedule IV: Child and Parent versions (ADIS-IV-C/P)

The ADIS-IV is a semi-structured clinical interview for children and adolescents (ADIS-IV-C), with a parallel version for parents/caregivers (ADIS-IV-P), developed to be compatible with the DSM-IV⁶ to provide diagnoses for anxiety and related disorders (Silverman & Albano, 1996). DSM-IV symptoms are judged by the child and the caregiver (in their respective assessments) to be present or absent with yes or no answers. The total number of “yes” responses is calculated to obtain a total symptom score and to determine whether the number of symptoms is sufficient to meet DSM-IV criteria (Silverman et al., 2001). For the purposes of this study, only the PTSD section of the ADIS was administered, and a diagnosis of PTSD was made by the assessor (an intern or registered psychologist) on the basis of the results of both the child and caregiver ADIS, in addition to clinical judgement. At the time of research, there had not yet been a version of the ADIS updated for the DSM-5, so PTSD symptoms were also corroborated with the Child Post Traumatic Stress Scale 5 (CPSS-

⁶ An ADIS updated for the DSM-5 was not available at the time of data collection.

5, described below). The ADIS-IV has been demonstrated to be reliable in diagnosing anxiety disorders and symptoms in children and adolescents, with acceptable to excellent test-retest and interrater reliability for child, parent, and combined diagnoses (Linning & Kearney, 2004; Silverman et al., 2001).

Full assessment battery

The full assessment was multi-modal, comprising five measures of mental health and trauma related symptoms, as well as a measure of neuropsychological functioning assessing children across six domains (described below). All the measures used were designed specifically for use with child populations and have been shown to be reliable, valid, and (other than the neuropsychological battery) sensitive to the effects of treatment.

The full pre-intervention assessment took 4-6 sessions that were 1-1.5 hours in length, depending on the content of the session. The full assessment was repeated at post-intervention and follow-up stages. Children were assessed by a Clinical Services staff member who was either an intern psychologist or a registered psychologist. The assessor differed to the person assigned to deliver the intervention and, where possible, was the same clinician at each assessment stage. The assessment included an initial session of rapport building to allow the child to become comfortable with the assessor before being questioned about traumatic experiences. Staff also collected their own information to support the psychometric data when writing their clinical reports. Assessment measures are detailed below.

1. The Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997).

The SDQ is a brief, single page measure of the prosocial behaviour and psychopathology of 4-17 year olds. It is completed as a self-report for those aged 11-17 years, or completed by parents of children aged 4-11 (Goodman, 2001). The questionnaire consists of 25 items relating to psychological attributes, divided between

5 scales; emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behaviour (Goodman, 1997). The SDQ is scored using a 3 point Likert scale where (0) is 'not true', (1) is 'somewhat true' and (2) is 'certainly true'. Scores are produced for each of the 5 subscales as well as a total difficulties score, which is the sum of the emotional, conduct, hyperactivity and peer-relationship scales (Goodman, 1997, 2001; Warnick et al., 2008). The SDQ has been translated into more than 60 languages and there is good evidence of its psychometric properties across different cultures (Goodman, 2001; Stone et al., 2010; Vostanis, 2006). Additionally, the SDQ is freely available to download from the internet (www.sdqinfo.com).

In New Zealand, the SDQ is used by the Ministry of Health for free routine before school checks provided for all children at the age of four (Kersten et al., 2015). The SDQ has additionally been used in an investigation of the health and wellbeing of secondary school students in New Zealand (Fortune et al., 2010).

The psychometric properties of the SDQ were assessed in a representative sample of 10,000, 5-15 year olds and the questionnaire was found to have satisfactory reliability and validity (Goodman, 2001). It is additionally suggested to be a useful measure of treatment outcome and to evaluate interventions (Goodman, 2001; Youth in Mind, 2012), as it served in the current study.

2. The Children's Depression Inventory (CDI-2) (Kovacs, 2010)

The CDI-2 was developed based on the Beck Depression Inventory for adults (Beck et al., 1996) and adapted and revised from the CDI (Kovacs, 1992). The CDI-2 assesses cognitive, affective, and behavioural signs of depression in children and adolescents 7-17 years old. It is the most widely used self-rating scale for depression in children and adolescents (Timbremont et al., 2004) and has been used in a variety of populations, including to screen for depression in sexually abused girls (Daignault & Hébert, 2009).

The CDI-2 is a 28 item scale, with three choices per item (rated as 0, 1, or 2). Children select the statement that best describes him/her during the past two weeks. For example; “I am sad once in a while”, “I am sad many times”, “I am sad all the time”. Total scores for the CDI range from 0-56 (Kovacs, 2010).

The CDI-2 includes a self-report form and a parent rating form. For the current research, only the self-report form was administered. The test comes in a paper-based and a computer-based format, and for the current research the paper-based format was used and tests were hand scored. The normative sample included 1100 children ages 7 to 17 years of age from 26 different states in the US. The sample is evenly proportioned in terms of age and gender, and the ethnic distribution of the sample closely matches with distributions in the 2000 US Census report (Kovacs, 2010). The CDI-2 manual provides normalised T-scores for two ages groups; 7-12 years and 13-17 years (Kovacs, 2010). A “normal” sample of New Zealand children closely reflected normative samples reported for the original CDI manual (Ronan, 1997) and the same is expected with the CDI-2 norms.

The CDI has high internal reliability, test-retest reliability, and discriminant and convergent validity (Bae, 2012). The scale has been used to assess children from a variety of cultures, and has been translated into 23 different languages (Kovacs, 2003). Reliability scores are consistently high across the different translations of the scale (Sun & Wang, 2015). The CDI has been used to assess depressive symptomology in a number of settings involving children exposed to traumatic events, including in New Zealand (Feather, 2007; Huzzif & Ronan, 1999). For example, the CDI has been used to assess outcomes in children and adolescents after the 2010 earthquake in Haiti (Blanc et al., 2015; Cenat & Derivois, 2015; Derivois et al., 2017); in child victims of sexual abuse (Aydin et al., 2016; Signal et al., 2013); in maltreated and war traumatised

children in Uganda (Olema et al., 2014); and in children with PTSD receiving TF-CBT (Feather, 2007; Goldbeck et al., 2016).

3. *The Multidimensional Anxiety Scale for Children (MASC-2) (March, 1998)*

The MASC-2 is a self-report questionnaire that assesses the presence and severity of symptoms related to anxiety disorders in youth aged 8-19 years. The questionnaire consists of 50 self-rated items and takes 15 minutes to complete (March, 1998). Symptoms are assessed across six scales: separation anxiety/phobias, social anxiety, general anxiety disorder (GAD) index, obsessions and compulsions, physical symptoms, and harm avoidance. There is an additional inconsistency index (March, 2004). The MASC-2 normative sample for the self-report questionnaire includes 1800 children aged 8-19 years. All normative data are representative of the US population in terms of ethnicity/race, gender and age (March, 2004), but evidence has also been found for cross-cultural validity (Stevanovic et al., 2017).

The MASC has been used to measure anxiety symptoms in a range of populations, including adolescents with Functional Somatic Syndromes receiving mindfulness-based therapy (Ali et al., 2017); children with autism spectrum disorders receiving CBT (J. J. Wood et al., 2009); adolescent female rape survivors (Oshodi et al., 2016); institutionalised adolescent females with PTSD (Diaz & Motta, 2008); adolescents who had experienced multiple trauma (Suliman et al., 2009); and children receiving TF-CBT after sexual abuse (Deblinger et al., 2011). In New Zealand, a subscale of the MASC (the Anxiety Disorder Index) has been used to identify anxiety symptoms in a large sample of secondary school students who participated in the Youth2000 Health and Wellbeing Survey (Mariu et al., 2011).

4. *The Coping Questionnaire – child version (CQ-C) (Kendall, 1994)*

The CQ-C measures the self-perceived coping ability of a child in specific and individualised anxiety-provoking situations. It is designed to capture fears and anxieties

specific to the child (Kendall, 1994). The child identifies three distressing situations and rates these on a 7 point Likert scale, ranging from (1) not at all able to help myself to (7) completely able to help myself feel comfortable. The average of the three ratings provides a measure of the child's perceived coping ability (Girling-Butcher & Ronan, 2009). The CQ-C can include an additional question to assess treatment expectations. The child is asked to rate how much they think the treatment programme will help them cope, and then are asked subsequent to the programme how much they thought it had helped them (Huzzif, 2004).

The CQ-C has been documented as a useful measure of improvement and has been shown to have adequate internal consistency (Kendall & Marrs-Garcia, 1999). The CQ-C has good test-retest reliability and internal consistency (Kendall, 1994) and the questionnaire has been proven sensitive to treatment in a range of settings, including in New Zealand (Feather, 2007; Huzzif, 2004; Kendall, 1994).

5. *The Child PTSD Symptom Scale Self Report for DSM-5 (CPSS-SR-5) (Foa et al., 2001)*

The CPSS was developed to assess the severity of PTSD symptoms in children exposed to trauma (Foa et al., 2001) and was updated to reflect the new diagnostic criteria in the DSM-5. The measure is a self-report questionnaire suitable for children and adolescents aged 8-18 years. Children are asked to rate the frequency and distress associated with each of the 20 PTSD symptom items on a scale ranging from 0 (not at all) to 4 (six or more times a week, severe). The questionnaire contains an additional seven questions to gauge the impact of symptoms on daily functioning, rated as either absent (0) or present (1). The scale has a total of 27 items.

The CPSS is a recommended measure of trauma and PTSD in children according to the US Department of Veterans Affairs National Centre for PTSD (2015) and the NCTSN (Strand et al., 2004). The CPSS-SR-5 has excellent internal consistency

for total symptom severity, and good test-retest reliability (Foa, 2016). A cutoff score can be used to determine the possibility of a PTSD diagnosis, as well as the severity of symptoms. The CPSS-5 was used in the current study to support information gained from the ADIS-IV regarding PTSD diagnosis. The CPSS-SR-IV was mistakenly used (instead of the current CPSS-5) to assess some participants.

The CPSS-IV scale has high internal consistency, good internal, and test-retest reliability and good convergent validity with other measures of PTSD (Gillihan et al., 2013). The psychometric properties of the CPSS were reported by Foa et al. (2001) for a sample of 75 children aged 8-15 years who experienced an earthquake. Internal consistency was reported at .89 for total score, and test-retest reliability was reported as .84 for total score. The CPSS-IV has been used in a variety of cultures and languages including Spanish, Korean, Russian, and Armenian children (Strand et al., 2004).

6. *A Developmental Neuropsychological Assessment, Second Edition (NEPSY-II)*
(Korkman et al., 2007a)

The NEPSY-II is a child neuropsychological battery suitable for ages 3-16 years. The NEPSY-II is used to assess children who may present with a variety of clinical and developmental needs, including verbal, motor and attention difficulties; attention deficit/ hyperactivity disorder (ADHD); autism spectrum disorder (ASD) and traumatic brain injury (Pearson Clinical, 2007). Additionally, the NEPSY-II has been used to assess neuropsychological status in children who have been neglected and those who have been diagnosed with PTSD (De Bellis et al., 2009). The full battery contains 32 subtests and four delayed memory tasks divided into six content domains: attention and executive functioning, language, memory and learning, social perception, sensorimotor, and visuospatial functioning (Korkman et al., 2007b). Scores produced are scaled for age and sex.

The NEPSY-II is described by Brooks et al. (2010) as the only battery for children that is conceptualised as truly flexible. This flexibility allows for the selection of appropriate subtests appropriate to the referral. The current study used a battery of 13 subtests from the NEPSY-II, selected by the researcher to cover a broad range of functions and abilities across five domains (attention and executive functioning; language; memory and learning; social perception; and visuospatial processing), relevant to the participant age range. The selection of subtests covers each domain of the NEPSY-II except the sensorimotor domain, as the age range for subtests in this domain does not cover the full age range for participant inclusion criteria in the current study. A summary of each subtest is provided in Appendix E.

The NEPSY-II normative sample of 1200 children was representative of the US population of children aged 3-16 years. The sample was stratified according to key demographic variables such as age, sex, race/ethnicity and geographic region. Most of the NEPSY-II subtests have adequate to high internal consistency or stability, with a range from .44-.80 (Korkman et al., 2007b). For those subtests with lower scores, this was likely the result of practice effects influencing test-retest reliability (Korkman et al., 2007b). Evidence of convergent and discriminant validity is provided by correlation studies with a number of similar instruments. For instance, NEPSY-II subtests were found to have moderate to high correlations with similar subtests on assessments including the Wechsler Intelligence Scale for Children – Fourth Edition (WISC-IV) and the Delis-Kaplan Executive Function System (DAS-II) (Korkman et al., 2007b). Although the NEPSY-II has not been normed for New Zealand children, it is designed for use across a range of cultural and ethnic groups, and the items appear to be culturally fair (Thickpenney-Davis et al., 2005).

Brief assessment battery

A shorter assessment ('brief assessment battery') was intended to be administered weekly during the baseline phase, as well as at the beginning of each therapy session. However, measures were not always completed weekly during baseline or at every therapy session, as described below. This assessment took 5-15 minutes and comprised the following primary measures:

7. *The Coping Questionnaire (CQ-C) (Kendall, 1994)*

At each brief assessment, the child rated the 3 situations they had chosen as distressing (in the initial assessment) on a 7-point Likert scale.

8. *The Child PTSD Symptom Scale-5 (CPSS-5) (Foa et al., 2001)*

At each brief assessment, the child rated the CPSS items according to the distressing situation they had chosen in their initial assessment session.

Assessment timepoints and adherence

As described in Chapter 6, due to the busy clinical setting in which research was conducted; the complex nature of children's histories, symptoms, and environments; and unforeseen circumstances such as changes in staff and caregivers, it was not always possible to adhere to assigned baseline and follow up periods. Actual baselines for participants in Study 3 are depicted in Table 6. Similarly, assessment and therapy sessions did not always take place weekly and consecutively, as planned. Sessions were missed for a variety of reasons, including for school camps, sickness, lack of available transport, changes in caregivers, and caregivers forgetting about sessions (despite reminders). Data are, therefore, recorded by baseline data collection points, rather than by weeks.

Table 6. *Assigned vs. actual baselines for Study 3 participants*

| Participant Code | Assigned baseline (weeks) | Actual baseline (weeks) | Actual baseline (data points) | Reason for variation |
|------------------|---------------------------|-------------------------|-------------------------------|---|
| Faith | 9 | 8 | 2 | Chose not to complete measures in most baseline sessions. |
| Niko | 3 | 20 | 6 | Completed measures during assessment sessions, did not complete measures during 5 month waitlist period*. |

*“waitlist period” refers here to time between assessment and therapy occurring for various reasons, and was not prescribed by the research design.

Follow-up assessments

It was intended that all participants would engage in follow up assessments 3 and 6 months following completion of therapy, to determine whether treatment gains were sustained over time, but the timing of follow ups varied in actuality. Faith completed a follow-up assessment 7 months post-therapy, as she was experiencing significant disruption to her home life in the months following therapy completion, and clinicians did not want to add to this distress by asking her to complete the assessment battery. Niko completed a 3 month follow-up assessment, but did not complete a 6 month follow-up assessment due to time constraints.

Subjective data

As described in Chapter 4, subjective data were recorded throughout the study and used to contextualise results, give children a voice, and support quantitative data. Subjective data collection specific to Study 3 are described here.

Any spontaneous feedback comments made by participants during sessions were recorded by the therapist in session notes. Session notes were reviewed by the researcher and handwritten notes made. Children were also asked to provide final

feedback following their last session, as part of an informal discussion with the researcher. As recommended by Kazdin (2003), subjective data (including session notes) also helped to contextualise the quantitative results and demonstrate the effects of the intervention beyond those measured by psychometrics, such as changes in behaviour and functioning at home and at school, external events that may have influenced participants' mood, engagement and progress in therapy, information about session content, and the means of achieving change.

Additional subjective data were collected from Clinical Services staff following completion of data collection. Staff attended a semi-structured feedback/debrief session facilitated by the researcher and her primary supervisor, and discussion covered aspects of the therapy such as session length, session number, and perceived engagement of the child and their caregiver, as well as suggestions for possible improvement. Staff were also asked to complete a questionnaire about the interventions, including the proposed combined intervention: STF-CBT (see Appendix D).

Procedure

Setting

Research took place at the Clinical Services division of Oranga Tamariki; at both Puawaitahi and Te Pou Herenga Waka sites (see Chapter 4). Sensory modulation had not been offered at Clinical Services before, and resources needed to be purchased for this intervention. A spare therapy room at Puawaitahi was dedicated specifically to the purposes of this research and was fitted according to principles of sensory modulation therapy. The sensory room is described below.

Treatment protocol

Sensory modulation theory and practice applications are described in Chapter 2 and Appendix C. As described, a key part of the SI is use of a sensory room, which

children can explore to develop understanding of their sensory preferences, triggers, and tools for self-regulation. A sensory room was set up at Puawaitahi with items purchased specifically for the room. The sensory room at Puawaitahi included weighted animals and blankets, an exercise ball, lycra wraps, various light-based accessories including fairy lights and a lava lamp, a bean bag, rocking chair, and various small sensory items such as bubbles, hand creams, scented oils and lotions, mints, stress balls, play-dough and kinetic sand, and feathers.

The SI developed for this research was delivered by therapists with expertise including clinical psychology and play/art therapy. The therapists participated in additional training in sensory modulation, delivery of the sensory intervention, and use of the Sensory Profile prior to commencement of this phase. The sensory module used in this research was developed based on current literature and advice from experts in this field⁷, and was delivered in the purpose-designed sensory room at Puawaitahi. Therapists were provided with session outlines, and suggested activities for each session, with some flexibility allowed to suit the individual needs of the child. Worksheets included a combination of those used in other interventions (MacLachlan & Stromberg, 2018) or adapted from other interventions (Champagne, 2011c) and original worksheets developed by the author of this thesis. The five sessions followed the following format (see Appendix I for full session breakdown):

1. Introduction to sensory modulation: The first session focused mostly on developing a relationship with the child, giving an overview of the programme and an opportunity to briefly explore the sensory room. The therapist should begin to get some idea of the child's sensory preferences in this session, and children may be prompted to consider these themselves.

⁷ **Eve Leonard** NZROT, Practice Supervisor CAMHS & Tupu Ora Child and Family Unit Starship Hospital (previously Lecturer and Clinician Auckland University of Technology (AUT)); **Dr Daniel Sutton**, Senior Lecturer in Occupational Therapy, AUT.

2. *Psychoeducation and introducing sensory concepts:* Session 2 centres on a discussion of the zones of arousal and introduces the concepts of calming and alerting stimuli, and the seven senses. Children will learn about how their arousal can fluctuate, and how they can use different items (or “tools” or “tricks”) to help get them into the “just right” zone (see Appendix J for examples). The idea of having a Sensory Kit to use in times of stress or anxiety is introduced.

3. *Review triggers and expand on calming/alerting and senses:* Session 3 expands on how the child can use calming and alerting stimuli from each of the seven senses to help modulate their own arousal and get into the “just right” zone. Body reactions to trauma are explored and normalised.

4. *Development of a sensory plan:* Session 4 consists of using what children have learnt so far to develop a sensory plan—examples of triggers or distressing situations and strategies the child can use to get into the “just right zone”. An important aspect of this session is reinforcing that the child is able to control their own reactions and is able to bring themselves into the “just right” zone, using techniques that work especially for them and suit their sensory preferences.

5. *Making a sensory kit:* The final session is a fun session, in which children can design their own sensory kit to take home with them. The session should begin with an overview of what the child has learnt so far, and reflection and review of the sensory plan created in the previous session. The child is reminded that they can continue to develop and alter their sensory plan, and add to their sensory kit, when they need to, and a safe and accessible storage place for the sensory kit is planned.

Protocol training

A number of training sessions and were provided for Clinical Services staff prior to the first participant assessment and throughout the data collection phase of this study. A full training session prior to commencing treatment session covered both TF-

CBT and sensory intervention training. As part of this training, sensory modulation theory overview and training was delivered by an occupational therapist experienced in working with children and young people. A subsequent sensory modulation training session was delivered by an experienced occupational therapist working in a community setting. This training focussed on helping staff to understand the principles of a sensory modulation approach, arousal, and the senses, and to help staff feel comfortable explaining these principles, supporting clients to use the sensory equipment safely and effectively, and implementing practical strategies to support the young people referred to Clinical Services. This training approach was recommended by Scanlan and Novak (2015) to support staff using sensory approaches. A discussion of the draft sensory modulation module for use at Clinical Services was also provided.

Data analysis

Full assessment data were analysed according to the standards of each assessment and compared to relevant norms, where available. The results for each participant are provided and compared at each time period (pre, post, and follow up). Brief assessment data were graphed and visually inspected, as described in Chapter 4. Subjective data is used to contribute to explanation and interpretation of the results for each participant, and to contribute to evaluation of the feasibility and effectiveness of TF-CBT.

Study 3 Results

Pre-recruitment assessment and PTSD screen

All children in Study 3 met PTSD criteria when screened using the self-report and caregiver reported ADIS-IV. Although PTSD symptoms as measured on the CPSS were sometimes reported to be in the mild range or below clinical levels at the pre-intervention assessment and/or during baseline, caregivers, social workers, and children

themselves continued to report concerns and/or symptoms that were representative of PTSD and suggested a strong need for treatment.

Brief assessment results - overview

Each child's self-reported post-traumatic stress symptom scores as measured on the CPSS and their self-reporting coping as measured on the CQ-C over the baseline, intervention, and follow-up phase are reported on Figure 10 and Figure 11, respectively.

Baseline data (PTSD symptoms and coping)

Baseline data were examined for stability. It was intended that the brief outcome measures would be completed during assessment sessions and at home during the waiting list period to obtain a baseline for each participant. However, Faith only completed the measures once during her assessment period, and once at home. Niko only completed the measures in his assessment sessions.

Intervention data (PTSD symptoms and coping)

Both participants completed 5 sessions of the sensory intervention, according to the treatment protocol. Participants were asked to complete measures of PTSD and coping in every intervention session, although this did not always occur. Sessions in which measures were not completed are represented as gaps on Figure 10 and Figure 11. Participant data represented an overall decrease in PTSD symptoms over the intervention period, although Faith rated her symptoms as 0 from INT2. There was a general increasing trend in coping for both participants, with some variability.

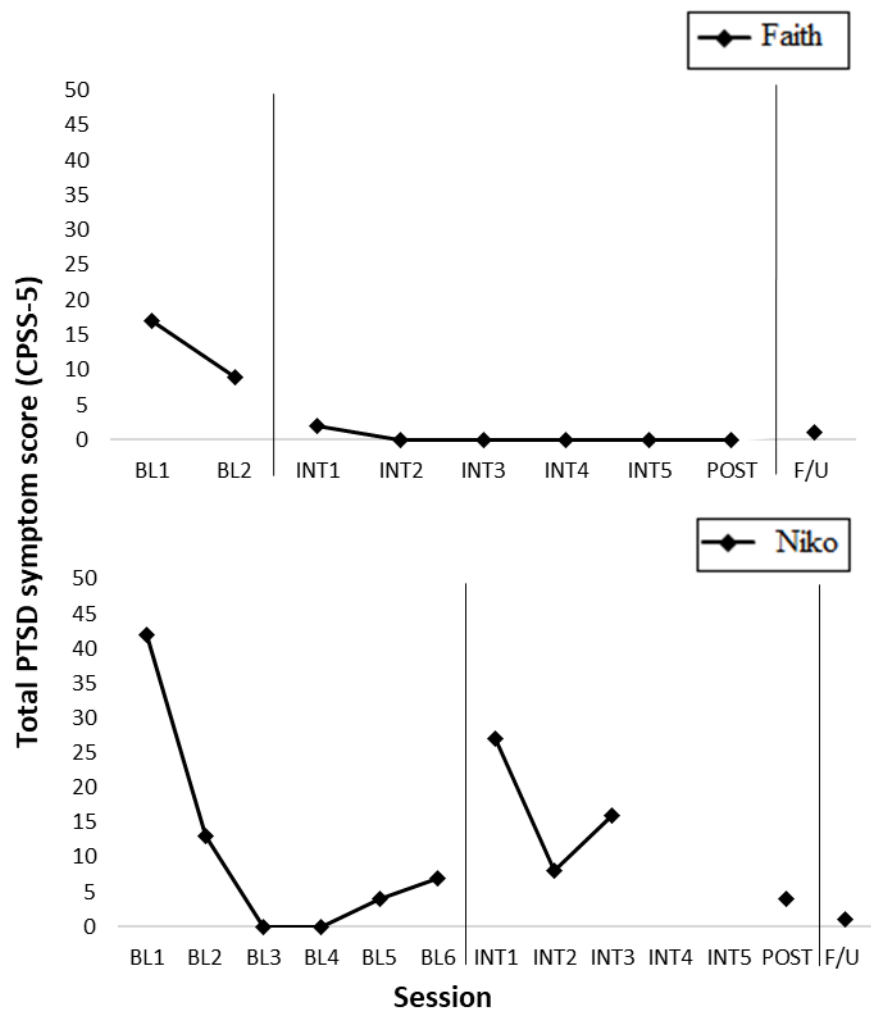


Figure 10. *Study 3: Self-rated PTSD symptoms (on CPSS-5) at baseline, intervention, and follow up stages*

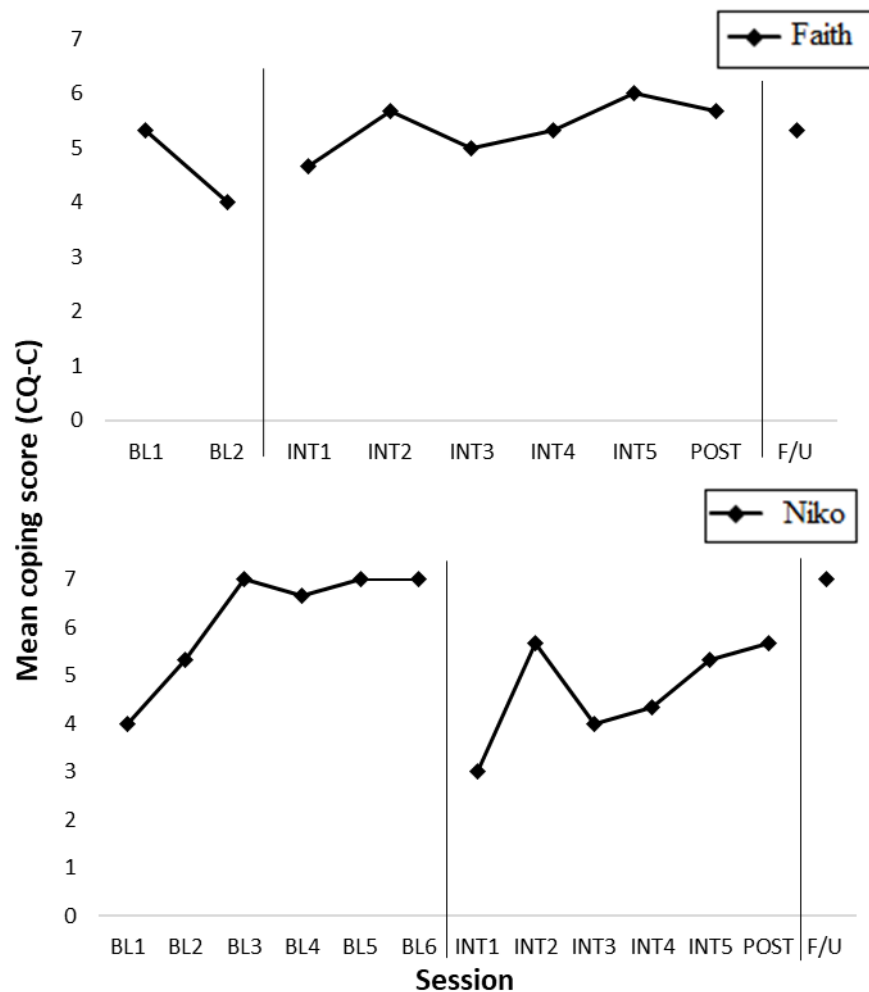


Figure 11. *Study 3: Self-rated coping (on CQ-C) over baseline, intervention, and follow-up stages*

Brief assessment results – detailed single case results

Faith

Faith had only two baseline data points recorded, as she was reluctant to complete the measures and often refused to do so. On the CPSS-5, the scenario she chose to rate was: When [my sister] stabbed a pen on [my brother's] head. Faith's scores on the CPSS at pre-intervention (BL1) indicated symptoms consistent with *mild* PTSD (17). This score decreased in the following baseline session (BL2=9) and was no longer clinically significant. The variability between these two scores is 47.06%, so despite the decreasing trend, the variance is still within the single case design requirement of less than 50%.

Faith chose the following scenarios to rate on the CQ-C:

1. When I broke my arm
2. When [my brother] stopped me coming down the tree
3. When [my brother] and [my sister] whisper to each other and run away and don't play with me

Faith's average coping in BL1 was 5.33, and decreased to 4 in BL2. This reflects variability of 24.95% during baseline. During assessment sessions, Faith's assessor noted that she had low affect and caregivers reported that she did not like talking about the past. Faith's baseline scores are, therefore, likely to be reflective of avoidance and the scenario chosen, rather than minimal symptomology, and therapy therefore commenced despite the trending baselines.

During therapy, Faith's coping fluctuated minimally, with a slight increasing trend. Her self-rated coping remained high (average rating range=4.67–6) throughout therapy. Her high coping scores may be due to the scenarios she chose, which were unrelated to the maltreatment and may have lost significance over time. However, as previously discussed, Faith was reluctant to talk about her feelings and about the past, which likely also influenced her overall high ratings on the CQ. Faith's PTSD score in her first therapy session reflected a decrease from baseline. In her second and subsequent therapy sessions, Faith scored 0 on the CPSS. This may have been because she was no longer distressed about her chosen scenario, "When [my sister] stabbed a pen on [my brother's] head". These scores are, therefore, unlikely to be an accurate reflection of her PTSD symptomology. At post-intervention assessment, Faith had a mean coping score of 5.67 and PTSD symptom score of 0. This reflects a slight reduction in coping since the INT5 ($INT5_{\text{coping}} = 6$). At follow up, Faith had a mean coping score of 5.33, reflecting a slight decrease in self-perceived coping since post-intervention. All three individual scores were above 5 (5, 6, 5 respectively) reflecting a

self-perceived notion of being somewhat able to help herself feel less upset, but not completely (a score of 7). At follow-up, Faith had a PTSD symptom score of 1. This reflects a slight increase in PTSD symptoms from her post-intervention assessment but remains below clinical threshold for PTSD.

Niko

Niko completed baseline measures over six sessions. On the CPSS-5, Niko's chosen scenario was the key traumatic event identified at referral and is highly relevant for rating PTSD symptoms. Niko exhibited *severe* PTSD symptoms according to his scores on the CPSS-5 at pre-intervention (BL1). However, in the second and subsequent sessions, his self-reported PTSD symptomology decreased. Again, this may be due to his relationship with the assessor instilling hope. Therefore, although Niko's baseline CPSS scores had 100% variability (range 0–42) this may have been due to his relationship with the assessor and as therapy was still deemed necessary, he continued to the intervention phase.

Niko chose the following scenarios to rate on the CQ-C (edited to protect confidentiality):

1. Thinking about [deceased caregiver]
2. Hear [sound related to the disaster]
3. Thinking about Mum and Dad

In the first baseline session, Niko's mean coping score was 4, with ratings of 4, 1, and 7 for each of the three scenarios. Niko's coping ratings increased during the baseline phase, and he reported high coping (mean=6.67–7) from baseline sessions 3–6. Reasons for this trend are not known, but it is possible that by the third baseline session, Niko was beginning to develop a relationship with the assessor in which he felt safe and hopeful, and therefore rated his ability to cope more highly. The variance for Niko's coping scores over baseline is 42.86%, which falls within the less than 50% requirement

for single case study design. Despite these high coping scores, it was still deemed necessary that Niko continue to the intervention phase.

There was a period of 5 months between completion of the Niko's final baseline session and his first therapy session due to a long break over the summer holidays and staff turnover. Although he was given blank questionnaires to take home, these were not completed as the break limited staff contact with the participant and his family. Niko's self-reported PTSD fluctuated during the intervention phase. For example, his score in INT1 reflected an increase from his final baseline session (moderate PTSD symptoms), followed by a decreased score in INT2 (below clinical threshold), and an increase in INT3 (mild PTSD symptoms). This may reflect the fluctuating nature of PTSD, as symptoms can be influenced by both internal and external events (Feather, 2007). Niko had English as a second language and throughout therapy Niko struggled with the CPSS and had to have every question read out loud and explained to him. His therapist found this to be draining on the participant so did not complete the questionnaire every week, thus the gaps depicted on Figure 9.

Niko's self-reported coping in his first therapy session reflected a decrease from his last baseline session, although the trend throughout therapy was generally increasing. Niko met with the therapist three times before beginning the sensory intervention, and no measures were completed in these sessions. The lower coping score in INT1 compared to BL6 may, therefore, reflect an increased willingness to discuss his true feelings as a result of the bond built between him and the therapist. Niko denied being affected by separation from his biological parents, and consistently rated this item on the CQ as a "7" ("completely able to help myself feel comfortable") which contributed to a higher average score. Excluding this item, average scores on the other two scenarios rated on the CQ ranged from 1 (INT1) to 5.67 (post-intervention). Figure 12 depicts Niko's scores individually for each of the three CQ scenarios. Figure 12 depicts more

variability in scores, but there remains a general increasing trend during baseline, followed by a decrease in coping in INT1 and a subsequent increasing trend in the remaining intervention sessions.

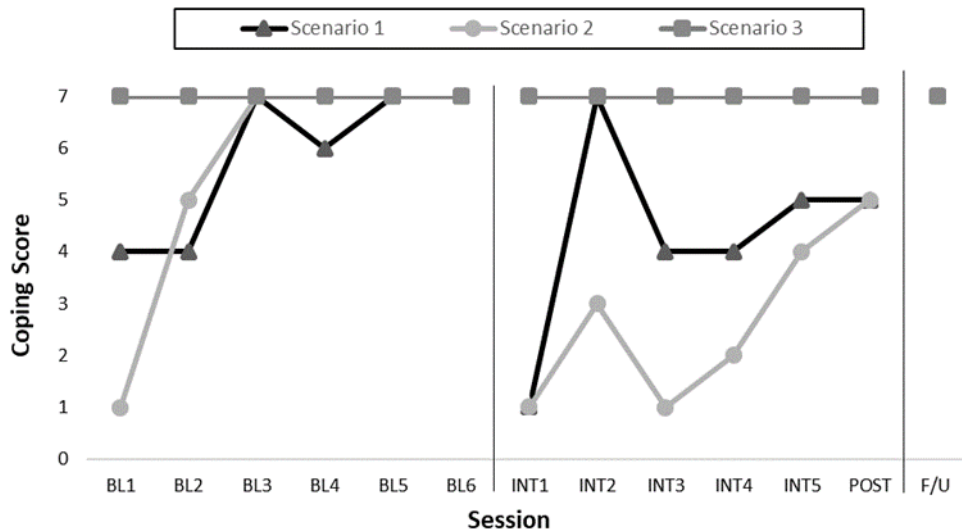


Figure 12. *Niko: Self-perceived coping scores for each CQ-C scenario*

At post-assessment, Niko had a mean coping score of 5.67 and PTSD symptom score of 4. At post-intervention, Niko rated his coping as 5 and 4 on scenarios one and two, but by follow-up, he rated all three scenarios as 7 “completely able to help myself”. Niko therefore had a mean coping score of 7 at follow-up, and a PTSD symptom score of 1. This reflects a decrease in PTSD symptoms from the intervention phase and from post-intervention, and may be the result of additional therapy received during this time (described on p. 186).

Full assessment results - overview

The full assessment battery was administered to all participants at pre-therapy, post-therapy, and at follow up periods (approximately 7 months post-intervention for Faith, and 3 months post-intervention for Blake). Full assessment measures are reported in Table 7.

Table 7. *Study 3: Child self-report and caregiver report scores on full assessment*

| Measure | Participant | Pre-intervention | Post-intervention | Follow-up |
|--|-------------|------------------|-------------------|-----------|
| Coping (CQ-C mean) | Faith | 5.33 | 5.67 | 5.33 |
| | Niko | 4 | 5.67 | 7 |
| | <i>Mean</i> | 4.67 | 5.67 | 6.17 |
| PTSD symptoms (CPSS total score) | Faith | 17* | 0 | 1 |
| | Niko | 42*** | 4 | 1 |
| | <i>Mean</i> | 29.5 | 2 | 1 |
| Depression (CDI-2 <i>T</i> score) | Faith | 55 | 51 | 46 |
| | Niko | 61 | 49 | 49 |
| | <i>Mean</i> | 58 | 50 | 47.5 |
| Anxiety (MASC-2 <i>T</i> score) | Faith | 50 | 69* | 40 |
| | Niko | 40 | 53 | 44 |
| | <i>Mean</i> | 45 | 61* | 42 |
| Strengths and Difficulties (SDQ total score) | Faith | 33* | 27* | 8 |
| | Niko | 13 | 16 | 11 |
| | <i>Mean</i> | 23* | 21.5* | 9.5 |

[] Scores on CPSS-IV (clinical cutoff for PTSD diagnosis ≥ 16)

*Clinically elevated scores compared with age and gender norms (CDI, $T > 64$; MASC, $T > 59$; CPSS-5 ≥ 11 ; SDQ > 16) **Clinical cutoff for moderate PTSD symptoms (CPSS-5=21-40),

***Clinical cutoff for severe PTSD symptoms (41-60)

Compared to the Study 2 sample, Study 3 participants reported lower depression, anxiety, and PTSD symptoms, and higher coping at pre-intervention testing. However, their caregivers reported higher psychopathology as rated on the SDQ. Average general psychopathology, depression, and PTSD scores decreased between each assessment period, and coping increased. Anxiety scores increased for participants at post-intervention, but reduced again at follow-up. Possible reasons for this anomaly are described below.

Both participants completed additional therapy following sensory modulation, so improvements at follow-up cannot be attributed to the sensory modulation intervention. However, therapy received during this time still provided a valuable contribution to the current research, as it reflected the needs of participants that were not sufficiently addressed with the sensory intervention. Details regarding additional therapy received by participants are described on page 186. Furthermore, as well as additional therapy, movement to a positive and stable placement likely contributed to the reduced symptomology for Faith between post-intervention and follow-up assessments.

Depression (CDI-2)

Study 3 participants varied slightly in their self-report of depressive symptoms on the CDI-2 at pre-intervention. While Faith was in the *average or lower* range for overall depressive symptoms at the pre-intervention assessment, Niko scored at the *high average* range for depressive symptoms at pre-intervention. Niko's scores also indicated that he was experiencing an *elevated* number of symptoms on the negative mood subscale prior to beginning therapy, compared to children his age ($T=66$).

Anxiety (MASC-2)

Both Study 3 participants scored in the *average* range for anxiety symptoms on the MASC-2 at pre-intervention. Anxiety scores increased for both participants between pre- and post-intervention assessments (see Table 7). This may be due to avoidance at pre-intervention, inconsistent scoring, or greater rapport with the assessor and therefore more willingness to express negative emotions on the self-reported measure.

General psychopathology (SDQ)

In Study 3 the SDQ was administered as a parent/caregiver report for both participants. Faith changed caregivers during her participation in this study; therefore, the SDQ was completed by different caregivers at post- and follow-up intervention

assessments. Due to different raters, scores cannot be compared, but may still provide an idea of the participant's overall psychopathology at each stage. Only Faith's caregiver-reported scores on the SDQ were clinically elevated.

Neuropsychological functioning (NEPSY-II)

All participants completed selected subtests of the NEPSY-II at the pre-intervention assessment only. Neuropsychological profiles are described on p. 182 based on the NEPSY-II as administered at pre-intervention for all participants in Study 3.

Full assessment results – detailed single case results

Faith

Faith was in the *average or lower* range for overall depressive symptomology at both pre- and post-intervention assessments. However, at both stages, her scores on the negative mood subscale were *elevated* ($T=65$ at post), suggesting she may have some depressive symptoms related to mood that were not alleviated in therapy (sensory intervention). At the follow-up assessment, Faith demonstrated improvements on the negative mood and emotional problems subscale, with her scores for negative mood now falling within the *average or lower* range ($T=46$). As mentioned, reductions in depressive symptomology at follow-up were likely due to a combination of additional therapy and placement stability.

Faith presented with anxiety scores as assessed by the MASC-2 in the *average* range overall at pre-intervention. At post-intervention, her total score was in the *elevated* range ($T=69$), but with a *low* anxiety probability score. This suggests that although Faith reported some symptoms of anxiety at post-test, she was unlikely to be experiencing an anxiety disorder. Higher scores on self-report measures post intervention may also be reflective of greater rapport with the assessor, and a willingness to be more open about experiences and feelings. Additionally, an abuse

disclosure was made against her caregivers not long after the post-assessment; so at the time of the assessment Faith was likely experiencing some distress at home contributing to anxiety symptoms. At follow-up, Faith's anxiety total score decreased from post-intervention, and she was within the *average* range ($T=53$). This was likely an effect of the additional therapy she received, which is likely to have contributed to a reduction in anxiety. Movement to a placement with more supportive caregivers may have also contributed to a reduction in anxiety. However, she did report *slightly elevated* symptomology on the performance fears subscale, an aspect of social anxiety. This also contributes to a borderline probability of anxiety according to the MASC-2 at follow-up.

At pre-intervention, Faith's total score on the SDQ was classified as *very high* (33), with *very high* scores on the conduct, hyperactivity and peer problems subscales, and a *very low* score for prosocial behaviours. At post-intervention, scores on the SDQ were lower (27), but with a total score still in the *very high* range (≥ 17). Additionally, Faith's score on the emotional problems subscale falls in the *very high* range at post-intervention (normal at pre-intervention). However, Faith's emotions were likely affected by a visit with her biological mother the week prior, of which Faith's caregivers did not tell her about until a few days prior. This may have caused elevated behaviours and influenced her total difficulties score. At follow-up, caregiver rated scores fall in the *close to average* range on all subscales, however, as noted above, the SDQ at follow-up was completed by a different caregiver so scores cannot be directly compared to pre- and post-intervention scores.

Niko

Niko scored within the *high average* range ($T=61$) on the CDI-2 at pre-intervention. Niko's scores also indicated that he was experiencing an *elevated* number of symptoms on the negative mood subscale prior to beginning therapy, compared to

children his age ($T=66$). Elevated symptoms on this scale generally suggest depressive symptoms that manifest as sadness or irritability. Following the intervention, Niko scored within the *average or lower* range overall ($T=49$) and on all subtests of the CDI-2 ($T_{\text{range}}=42-50$). These scores were maintained at follow up, with a total depression score on the CDI-2 of $T=49$ (*average or lower range*).

Niko had *average* scores on all subscales of the MASC-2 at pre-intervention, and a *low* anxiety probability score, suggesting an average number of anxiety symptoms compared to other children of his age. At the post-intervention assessment stage, Niko exhibited some higher scores on the MASC-2 than prior to intervention, with an *elevated* score on the humiliation and rejection subscale ($T=69$), and a *borderline anxiety probability* score. However, his inconsistency score was high (10), suggesting that results should be interpreted with caution. At follow up, Niko scores on the MASC-2 were all within the *average* range, with a total score of $T=44$, suggesting he was experiencing fewer symptoms of anxiety.

Niko's caregiver rated total difficulties score on the SDQ at pre-intervention was *close to average* (13). However, he scored *very low* on the prosocial scale, and he was noted to have some hyperactive symptoms (*slightly raised*). Niko's post-intervention SDQ was completed by the same caregiver, so rating consistency should be high. At post-intervention, Niko's total difficulties score was *slightly raised*, due to a higher rating for peer problems, now in the *high* range. At follow-up, Niko's total difficulties score on the SDQ falls within the *close to average* range, but with a *very high* score for peer problems. Niko's caregiver reported he has a lack of friends, which may be reflected in the elevated peer problems score.

*Neuropsychological functioning**Faith - Neuropsychological profile*

At the pre-intervention testing period, Faith generally performed well for a child of her age. For example, she performed above the expected level on tests of attention, memory, and visuospatial processing. She demonstrated well-developed abilities to encode and understand prose and express the salient points; strong visuoconstructional skills on two-dimensional tasks; and good sustained and selective attention. Additionally, Faith performed at the expected level for all subtests in the language and social perception domains. However, at the pre-intervention assessment, Faith did demonstrate some executive functioning deficits, specifically difficulty with inhibitory control and poor self-monitoring of errors.

At follow-up assessment (3 months after completing the SI), Faith was reluctant to complete the NEPSY, and she refused to do the narrative memory subtest. It was proposed that this may have been due to a lack of rapport with the assessor, whom she had not seen for many months, as well as disruptions within her home life including disclosures of abuse against her caregiver and subsequent change in caregiver. However, at the follow-up assessment, Faith performed at, or above, expected level on all subtests administered. Her results on the inhibition subset (measuring attention and executive functioning), which were below expected level at the pre-intervention assessment, had improved. This may be a result of her time in therapy helping her to develop stronger attentional control, but cannot be attributed to the sensory intervention since she had additional therapy in the interim.

Niko Neuropsychological profile

Niko had English as a second language and was vision impaired, so neuropsychological results should be interpreted with these factors in mind. At the pre-intervention assessment, Niko demonstrated good sustained and selective attention on

tests of attention and executive functioning, and a good ability to encode novel faces into memory. Niko also performed adequately on the three subtests in the language domain, with some borderline scores that could be attributed to having English as a second language. However, the NEPSY-II pre-intervention assessment suggests that Niko may have had some difficulties with memory and learning. For instance, Niko performed poorly when asked to recall newly learned faces after a delay, suggesting he may have a higher rate of forgetting and more memory decay than is expected for his age range. Although he was able to encode faces well, he had difficulty recognising these newly learned faces. Niko may benefit from prompting to access information, as he was able to recall more information on the narrative memory subtest when provided with prompts. Niko additionally scored poorly on the Inhibition subtest at the pre-intervention assessment, suggesting poor inhibitory control.

At the follow-up assessment (3 months after completing the SI), Niko again scored below the expected level for his age on the narrative memory and inhibition subtests, suggesting continued difficulty with inhibitory control and memory for prose.

The sensory intervention – subjective data

Subjective data is provided below to elaborate on participant's engagement and progress in therapy, and to highlight external contextual factors experienced by participants during the course of this study. Feedback from child participants and therapists is also described.

Participant feedback

Both children participated in five sensory sessions, as per the outline. Both participants were engaged in sessions and responded positively when asked about their therapy experience. However, Niko had three sessions with his therapist preceding the SI, which makes it difficult to evaluate the intervention on its own. In these preceding sessions, the therapist focussed on building rapport, developing a timeline, and finding

out Niko's concerns and worries. The therapist chose to include these additional sessions for clinical reasons to help develop a case conceptualisation as she predicted SI alone would not be a sufficient intervention for this participant.

Faith reported that her favourite part of therapy was making the sensory kit, and she was excited to take it home and start using it. She was observed to be actively using sensory strategies; for example when chatting with the researcher and therapist after her post-intervention assessment, she sat bouncing on the Swiss ball and took a scented bag out of her kit to smell. Faith also said that on the way to the session in the car she was counting the number of cars going past to prevent fighting with her siblings, indicating that became more aware of what she could do to keep herself calm.

Faith confirmed very enthusiastically when asked if she could use what she had learned to help herself feel safe and well. However, she did say that there were a lot of worksheets which she did not like. At her follow-up assessment (approximately 6 months after therapy completion) she reported to still be using her sensory kit when upset. Caregivers reported improvement into behaviours after four sessions of the sensory intervention.

Niko was also positive about his experience with the sensory intervention, saying that he learned "how I can help myself". He was able to identify things that made him feel upset using the Safety Tool (MacLachlan & Stromberg, 2018) and identify calming sensory items. At Niko's follow-up assessment, he reported that he has continued using the sensory kit and that it calms him down. He finds tactile stimuli calming; for example, he reported to use the clay in his sensory kit the most, and that it helps him when he is feeling stressed or sad. Niko also reported that touching the soft and fluffy sensory items helped him feel calm and relaxed.

Therapist feedback

Therapist feedback provided valuable information about the suitability and feasibility of the SI, and the content of sessions for this clinical population. Feedback about SI was generally positive, with therapists observing children to be engaged in sessions and to enjoy the content, while therapists themselves enjoyed delivering the therapy. Therapists noted that sensory modulation was a good start to therapy, and was good for building and strengthening rapport between the child and the therapist. However, it was noted that there was too much content to get through in each session, and that additional therapy was needed following sensory modulation to process the trauma. Therapists also mirrored Niko's feedback about worksheets, saying that creative activities work much better to engage the child.

They found that some of the children's favourite sensory activities were not practical for use at school or in the car, and they reflected that they would need to spend more time designing and suggesting more portable objects in the future. Similarly, it was reported that sensory modulation required extra time outside of sessions for therapists to create resources and required creativity from the therapists.

Encouragingly, other therapists who were not a part of this study began to incorporate use of the sensory room and sensory strategies into their therapy, noting that it is a beneficial intervention for this population. Therapists choosing to use sensory strategies on their own accord demonstrate the ease at which the programme can be accepted and implemented. This also suggests demand for sensory approaches, which is a key aspect of feasibility (Bowen et al., 2009).

As the sensory modulation model was new at Clinical Services, it was anticipated that there would be some initial difficulties with implementation, which could be improved over time. For example, therapists would be able to build a pool of resources and activity ideas as they, and their colleagues, become more familiar with the

therapy. Overall, feedback from both child participants and their therapists was positive and demonstrates the potential feasibility of a sensory intervention in this setting, although adaptations may be required to enhance both feasibility and effectiveness.

Additional therapy received

The sensory modulation intervention had a focus on psychoeducation and sensory strategies for coping with triggers, but did not include opportunity to process the trauma. Both participants required further therapy following the SI.

Faith engaged in an extra term (approximately 10 weeks) of individual CBT-based therapy, followed by another term of joint child and caregiver sessions. This therapy worked to help Faith process the trauma, develop a timeline of experiences, and strengthen the bond between child and caregiver. Niko engaged in additional therapy that focussed on processing the main trauma event. This included gradual exposure through sandtray and artwork, and engaging in activities related to the traumatic event (not specified for confidentiality).

The additional therapy needed by participants helped to highlight treatment components that were not included in the SI, but that may be beneficial for children with PTSD as a result of exposure to trauma. These components may include developing a timeline of traumatic experiences, processing the traumatic experience/s through exposure and trauma narrative, and collaboration with caregivers, including providing psychoeducation on the effects of trauma and use of sensory strategies for coping.

Study 3 Discussion

The results of this study suggest the potential benefits and feasibility of a SI for children with PTSD who have experienced multiple maltreatment and single type trauma. For the two participants in this study, both had reduced self-rated PTSD

symptoms and increased coping at post-intervention, maintained at follow-up. Both participants also reported lower depression symptoms, and maintained at follow-up.

Both Study 3 participants were diagnosed with PTSD according to the ADIS-IV at their initial assessment, and were experiencing a range of symptoms related to trauma and PTSD before beginning therapy. These symptoms included difficulty regulating emotions, behaviour, and conduct issues including defiance and violence, and symptoms of anxiety and depression. Compared to Study 2 participants, participants in Study 3 reported clinically lower self-rated symptoms of depression, anxiety, and PTSD at pre-intervention.

Both participants in Study 3 reported an increase in anxiety symptoms at post-intervention and caregivers and clinicians reported ongoing trauma symptoms. This may indicate a limitation of the intervention, as although participants were asked to think about traumatic experiences and feelings that bothered them, there was no trauma processing component included in the intervention. Increased reported anxiety symptoms may also be linked to limitations of self-report measures (discussed further in Chapter 9). For example, greater rapport with the therapist and decreased avoidance of symptoms may have resulted in higher self-reported anxiety. However, participants reported to have learned sensory strategies to calm themselves down and help them feel less upset. This suggests the potential benefits of an intervention combining CBT and sensory approaches, as developed for Study 4.

As in Study 2, the use of a single-case design allowed interpretation of the results in line with participants' experiences outside of therapy, as well as the use of subjective data to expand and contextualise results. Feedback from therapists and the nature of additional therapy received by participants after SI further demonstrates the need for trauma processing in an intervention for children with PTSD from multiple traumas. Additional therapy received by participants also suggests a need for more

emphasis on building the relationship between both child and therapist, and child and caregiver. For example, Faith received additional combined child/caregiver sessions after the SI to strengthen the relationship between her and her caregiver, and Niko received additional sessions before the SI to help build rapport,

Due to difficulties with recruitment and the time restrictions imposed on this research, the sample was limited to two participants, both 9 years old. This limits generalisation of the results to other cases. However, the differences in trauma histories between the two participants suggest that the SI may be beneficial for the treatment of PTSD from various traumas. Limitations also exist regarding the single case data for Faith, as the scenarios she chose to rate were not related to her maltreatment. This is reflected in her relatively high self-rated coping and low self-rated PTSD symptoms throughout baseline and therapy.

To summarise, although Study 3 consisted of a small sample and participant avoidance makes it difficult to draw conclusions from the single-case data, the sensory intervention was well received by therapists and participants, and children learned skills for coping with sensory arousal, which they continued to use post-intervention. This suggests the intervention may be feasible. Study 3 highlights a need to include trauma processing components in therapy for children with PTSD, and initial results indicate that combining TF-CBT with SI may be a promising intervention. The following chapter, Study 4, will therefore focus on development of the combined intervention, and preliminary feedback from therapists.

Chapter 8

Study 4: TF-CBT Combined with Sensory Approaches

Study 4 aimed to develop an evidence-based intervention that reflected the latest research in child trauma and that would be effective in reducing symptoms of maltreatment trauma in children. Findings from Studies 1–3 informed the development of a new intervention combining both TF-CBT and sensory approaches. Participant subjective data about what aspects of therapy they did and did not enjoy were collected during therapy, and at post- and follow-up-assessments. This child subjective data were taken into account when developing the intervention as well as quantitative data from participant outcome measures. Subjective data from therapists were also used to guide development of the combined intervention. This data included feedback from therapists regarding their experiences with TF-CBT and SI, as well as suggestions for improvement. Additionally, development of the combined intervention was guided by evidence from the systematic review (Study 1), an additional literature review, and advice from experts in sensory modulation⁸.

Due to time limitations, the intervention could not be trialled as planned, but a proposed combined intervention, Sensory and Trauma Focussed Cognitive Behavioural Therapy (STF-CBT) was developed and has begun to be disseminated. A first draft outline of the combined intervention was presented to therapists at Clinical Services, and further refinements were made based on their feedback. Preliminary feedback was also collected from Clinical Services therapists regarding the utility of a combined intervention. This chapter outlines the intervention, its development, and initial feedback.

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Development of Sensory and Trauma-Focussed Cognitive Behavioural Therapy (STF-CBT)

As described in Chapter 7, the five-session sensory intervention used in Study 3 was developed based on current literature and advice from occupational therapists. Additionally, Study 1 depicted the potential utility of combining sensory and cognitive approaches; six of the nine interventions included in the review included cognitive aspects. As reported in Study 3 results, the SI was well-received by participants and therapists, and successful in teaching participants skills for regulating their own arousal. The combined intervention, therefore, integrated the SI with the current TF-CBT protocol, with adjustments made to the CBT components based on recommendations from Clinical Services clinicians and participant feedback.

Development goals and intervention overview

As identified from Studies 1–3 results, the major goals guiding the development of the new intervention were as follows:

- An increased focus on relational aspects of therapy, including building trust and rapport between the child and the therapist
- An increased focus on strengthening relationships with parents/caregivers and engaging caregivers in the therapy process
- Less focus on worksheets and more focus on hands-on activities and exploration
- Greater focus on developing skills to cope with ongoing distress and trauma reminders
- A new focus on developing self-regulation skills and skills for recognising personal ‘triggers’ for dysregulated arousal
- Development of a ‘kit’ that ties together skills learnt in therapy and can be used outside of therapy

The full STF-CBT session outline can be found in Appendix K.

It is intended that sessions will take place in a dedicated sensory room (described in Chapters 2 and 7). Depending on the modalities used, trauma processing sessions may take place in a different room, but children should still have access to calming and alerting items relevant to their preferences.

STF-CBT maintains the phase-based approach of TF-CBT, with sessions divided into four phases. The most significant changes were made to Phases 1 and 2 of TF-CBT, with some changes to Phase 3, and Phase 4 remaining much the same. An overview of each phase follows.

Phase 1: Orientation and engagement

A major difficulty identified in Study 2 was engaging participants in therapy, and the building of a strong relationship between the child and the therapist where the child felt able to share their feelings and experiences. This indicated a need to include a greater focus on relational work and rapport building. The new version of Phase 1, therefore, consists of a session orientating children and caregivers to therapy, where therapy goals are identified, and any questions can be answered. This is followed by a session focussed on building rapport and getting to know each other and two sessions on relationships and support networks, one with the child alone and one with both the caregiver and child. The final session of STF-CBT Phase 1 involves developing a timeline and introducing coping strategies as in TF-CBT.

The majority of participants in Study 2 and Study 3 experienced caregiver changes throughout the course of the research, and it was often difficult to engage caregivers in therapy. In Study 1, many of the reviewed studies involved caregivers in the intervention, including encouraging caregivers to employ sensory activities at home. STF-CBT, therefore, includes combined child and caregiver sessions from the outset of therapy, with the aim of strengthening the relationship the child has with their caregiver, as well as aiming to immerse the caregiver more fully in the therapy process. These

combined sessions begin in Phase 1 and continue throughout therapy. The extent to which the caregiver is included will depend on the nature of the caregiving arrangement and caregiver availability, and more sessions can be added if the clinician determines this may be beneficial.

Phase 2: Sensory-focussed coping

Participants in Study 2 and Study 3 continued to face ongoing trauma and distress while engaged in therapy, and are unfortunately likely to continue to do so in the future. There is, therefore, a need for therapy to teach children positive ways to cope with distress, and to self-regulate. TF-CBT includes sessions on coping skills, and these are expanded in STF-CBT to include methods of regulating arousal using calming, alerting, or grounding sensory input.

Phase 2 expands on the coping skills phase of TF-CBT, including sessions on sensory arousal, body reactions, sensory preferences (a combined child/caregiver session), emotional regulation, the role of thoughts, developing a sensory plan, and a final session on self-reward with the child and their caregiver. The sensory focussed coping phase of STF-CBT consists of seven sessions, at least two of which are recommended to be combined with the child's caregivers. A strong focus on coping skills and self-regulation in Phase 2 will aid the child in managing distress throughout the following trauma processing phase.

Phase 3: Trauma processing

Phase 3 focuses on trauma processing and remains much the same as the trauma processing phase of TF-CBT (outlined in Chapter 6). It includes a minimum of four sessions, including an introduction to imaginal exposure and three gradual exposure sessions. Depending on the child's progress, extra sessions should be added to this phase to enable adequate processing of the child's traumatic experiences.

Throughout Phase 3, the child should use their coping skills/sensory strategies as needed. If Phase 3 sessions do not take place in the sensory room, selected sensory items should still be available to the child.

Phase 4: Sensory kit and closure

Phase 4 includes a fun session putting together a sensory kit containing their sensory plan, some small items to be used for sensory regulation, and other items from throughout therapy, such as positive affirmations. The child should spend time decorating their box, coming up with a name, and thinking about a safe place to keep it. This session begins the end of therapy and should reinforce that the child has learnt many ways of coping with difficult situations, and has many strengths and social supports in place to aid coping. The final session of Phase 4 is a celebration session, shared with the caregiver, in which achievements in therapy are celebrated.

Special issues

In the TF-CBT manual, special issues are addressed in Phase 4. However, due to the complexity of the lives of children referred to Clinical Services, special issues (such as grief, anger management, preparation for evidential interviews) frequently arise and need to be addressed at the time. The STF-CBT intervention, therefore, does not leave special issues to be addressed at the end of therapy, but it is intended that additional sessions be added throughout therapy where required.

STF-CBT Dissemination and Preliminary feedback

The draft STF-CBT outline has been disseminated to Clinical Services clinicians at a professional development workshop attended by psychologists and occupational therapists, and at a mental health symposium. Initial feedback is positive, with clinicians identifying the value of combining sensory approaches with TF-CBT for children who have experienced multiple maltreatment.

Clinical Services staff gave feedback that they would use the STF-CBT intervention. Clinicians reported that the children they see for therapy often have sensory processing difficulties, and the STF-CBT intervention provides more tools to help a child with emotional regulation, as well as being good for tactile children as an alternative to visual material. Staff suggested that a potential challenge could be the timeframe of the intervention, proposing that at least 20 sessions may be needed to adequately integrate the new material. Staff also requested the inclusion of more creative suggestions for presenting the material, which may be reflective of clinician experience (see Chapter 9). Finally, staff suggested that the timeline session (the last session of Phase 1) may be better placed later in the intervention when children are feeling more able to talk about their experiences. These suggestions should be considered in future evaluation of the STF-CBT protocol.

Study 4 Conclusions

SFT-CBT is a new intervention designed to treat PTSD in children who have been exposed to trauma, including multiple maltreatment. The intervention was developed in response to research conducted in Studies 1–3, in which the literature for sensory approaches was systematically reviewed, and TF-CBT and a sensory intervention were evaluated. STF-CBT is designed as a flexible intervention, delivered in four phases, with a focus on building a therapeutic relationship, strengthening relationships with caregivers, developing sensory as well as cognitive behavioural coping skills to help with arousal regulation, and processing the traumatic experiences using gradual exposure.

STF-CBT is still in a draft form and is yet to be trialled. In the first instance, single-case design studies are necessary to determine its effectiveness within a clinical setting, and clinicians will need to undergo training prior to delivery. However, the draft STF-CBT has been disseminated and initial feedback suggests it will be a positive

intervention for treating children experiencing PTSD and will also provide children with skills to cope with ongoing or future traumas.

Chapter 9: General Discussion

This chapter provides a summary of the results of the systematic review of sensory approaches for treating child trauma (Study 1), evaluation of TF-CBT (Study 2) and a SI (Study 3), as well as potential applications of the newly developed intervention, STF-CBT, described in Chapter 8 (Study 4). The results are interpreted in light of key themes and the existing literature. Limitations of the current research, as well as suggestions for future research, are provided. The chapter ends with a final conclusion.

Summary of Results

The purpose of this research was to develop an evidence-based intervention combining sensory and TF-CBT approaches, designed to best suit the needs of children and families presenting for therapy at New Zealand's statutory care and protection agency. A systematic review was conducted to examine the evidence for the use of sensory approaches for the treatment of trauma in children. This was followed by an evaluation of the feasibility and effectiveness of TF-CBT and a sensory modulation approach, and the development of a combined intervention.

A systematic review was conducted (Study 1) following PRISMA guidelines to identify what sensory-based interventions are used for children aged 0–18 years who have experienced trauma, and to determine what the evidence is for the use of sensory-based interventions for treating trauma-related symptoms in children. The review retrieved nine studies that met inclusion criteria conducted over the past 11 years, with variety both in the nature of the intervention and the quality of evidence described. Study 1 suggested that although sensory approaches have potential for the treatment of trauma symptoms in children, there is limited empirical evidence and a need to evaluate such interventions.

In Study 2, TF-CBT was delivered according to the published manual (Feather & Ronan, 2010) and evaluated using a single-case multiple baseline study with three children, aged 9–11, with PTSD from multiple maltreatment who completed treatment (and two who did not complete treatment). Overall, compared to pre-intervention, participants demonstrated increased self-perceived ability to cope with distressing situations, decreased PTSD symptoms, and decreased comorbid depression, anxiety, and general psychopathology symptoms at completion of TF-CBT. For those participants who completed follow-up assessments, these treatment gains were maintained or improved more than 3 months post-intervention.

In Study 3, a five session SI was developed based on relevant literature, empirical research, and consultation with experts in the field. SI was evaluated using single-case multiple baseline study with two children aged nine, one of whom was experiencing PTSD from single-type trauma and the other PTSD from multiple maltreatment. Compared to pre-intervention, both participants demonstrated increased self-perceived ability to cope with distressing situations, decreased PTSD symptoms, and decreased comorbid depression and general psychopathology symptoms at completion of the SI. These treatment gains remained relatively stable, or improved, for both participants at follow-up. Both participants reported increased anxiety post-intervention and clinicians and caregivers reported ongoing trauma symptoms, which indicates the need for interventions for child trauma and maltreatment to contain trauma processing components.

As described in Chapter 6, the results of Study 2 suggested TF-CBT may be both feasible and effective for children with PTSD presenting for therapy in a care and protection setting. Subjective data additionally provided insight into the aspects of TF-CBT that work well, and those that do not work so well, from the perspectives of both children and clinicians within this setting. Study 3 results suggested the potential

benefits and feasibility of a SI for children with PTSD who have experienced single type trauma or multiple maltreatment. While Study 3 was limited to two participants, both participants reported to enjoy SI and learnt skills for coping with dysregulated arousal.

Study 4 described the development of an intervention combining TF-CBT and the SI, guided by results from Studies 1, 2, and 3; and feedback from therapists at Clinical Services. Although the new intervention could not be trialled within the scope of this research, initial feedback suggested it may have acceptability and utility with children who have developed PTSD as a result of exposure to trauma, including multiple maltreatment. The following section provides an interpretation of the results, particularly within the context of child maltreatment and welfare in New Zealand.

Context and Interpretation

This research captures the complexity of child maltreatment, both from the perspective of the child and their family systems, and from a clinical perspective. In addition to suffering PTSD from past traumas, participants in this research experienced ongoing distress and instability, including being abused by their caregivers, moving placements (sometimes multiple times), and changing schools. With these events likely came a growing distrust of adults, as participants were repeatedly hurt or removed from those who were put in charge and meant to provide a safe and nurturing environment. These factors all impacted the child's ability to attend therapy sessions, form relationships with the therapist, engage in session activities, and make positive progress.

As outlined in Chapter 3, the last 15 years has seen an increasing focus on reducing child maltreatment and improving child welfare in New Zealand. This has included multiple reviews, amendments to legislation, restructuring of CYF, and finally, the development of the MVCOT (Oranga Tamariki). Despite these changes, a large number of New Zealand children continue to experience maltreatment every year, often

even after they have been removed from what had been assessed as an unsafe home environment. These findings seem to suggest that more needs to be done for the children of New Zealand, and perhaps it is not just as simple as removing children from their parents, placing them in care, giving them therapy, and expecting everything to improve. Although it is therefore important for children suffering from PTSD after maltreatment to receive efficacious, evidence-based treatments, many other factors need to be addressed in combination. These include;

1. Safety and caregiving – Is the child in a safe and supportive environment, free from harm? Are the child’s caregivers well-educated about trauma, well-supported, and well-funded? Have they learnt appropriate behaviour management skills and do they understand the value of therapy?
2. Culture – Do children have access to whānau and whakapapa, and are they able to maintain a sense of cultural identity and connectedness?
3. School – Do teachers and support staff understand the impact of trauma and behavioural manifestations? Do they have strategies to identify and manage hyperarousal, anxiety, and sensory dysregulation?
4. Wider context and systems – Focus on prevention of maltreatment and reduction of risk factors such as structural inequities, poverty, lack of support, and low education.

The current research particularly identified challenges with participants’ caregiving context and the wider context of child maltreatment and welfare in New Zealand. These two factors will therefore be discussed in more detail in the following section.

Caregiving context

A significant barrier experienced by clinicians and the researcher in this study was related to the child participants’ caregiving context. For instance, no participants were living with their biological parents; and during the course of research, participants

experienced abuse from their caregivers, changes in caregivers, and caregivers who were often not able to attend sessions or support the therapy process.

As mentioned in Chapter 3, New Zealand does not have a clear picture of the needs of caregivers or children in care. A shortage of placements means that children may not be matched with caregivers who have skills appropriate to their complex needs. Additionally, caregivers have reported poor support and a lack of information about children's experiences, behaviour, and health needs (Office of the Children's Commissioner, 2016b). Caregivers also reported to experience stress in navigating the system, as well as frustration around not being able to make day-to-day decisions concerning the child (Office of the Children's Commissioner, 2016b). These factors likely contributed to the high number of placement changes experienced by participants in this study, as well as the lack of support for therapy some caregivers demonstrated.

The nature of caregiving arrangements may have contributed to abuse inflicted by caregivers. For example, Euser, Alink, Tharner, van Ijzendoorn, and Bakermans-Kranenburg (2014) found increased risk for physical abuse in residential care compared to foster homes, and proposed that this may be due to having multiple children with difficult behaviours living in one place, with caregivers who are not adequately trained. However, in the current research, Ari was abused by his caregiver in a residential facility, and Blake, Keira, and Faith were abused in their shared foster home. This indicates that foster homes are not necessarily protective, especially perhaps when there are multiple children in the home experiencing trauma symptoms. Children experiencing maltreatment while in State care is not a finding unique to the current research. For instance, a recent report by Oranga Tamariki found that 12% of a representative sample of children in state care experienced at least one incident of harm during 2015-2016 (Oranga Tamariki Evidence Centre, 2017). Furthermore, a Royal

Commission of Inquiry into Historical Abuse in State Care was established by the government in early 2018 (Oranga Tamariki, 2018).

The difficulties conducting therapy with maltreated children and families are well documented, especially when the children are in foster care. While interventions that involve both the child and caregiver (as is often the case for interventions in foster care) make sense in theory, in practice it can be a lot more difficult. For example, caregivers may not perceive therapy to be necessary, and may not “buy in” to the importance of completing treatment (Wamser-Nanney & Steinzor, 2017). Caregiver attitudes about professional mental health services, including their previous experiences and receptivity to involvement, influence their engagement (McKay & Bannon, 2004). In the current research, at least two caregivers approached to participate in the study chose not to proceed with therapy at Clinical Services. One of these caregivers reported distrust in the service and feared that continuing to engage would mean he risked having his child removed from his care again. Furthermore, the frequent changes in caregivers for these children results in having to engage new caregivers in therapy at various stages.

Another difficulty in engaging this population, identified in this research, comes from the challenges often facing children and families involved in care and protection services. For example, families may have increased stress from secondary adversities following the trauma, such as legal involvement, placement in custody or temporary placements, moving schools, and financial strain, as well as the commonly complex nature of the child’s mental health problems (Hambrick et al., 2016; Wamser-Nanney & Steinzor, 2017). Difficulties in the participants’ lives were evident in their session engagement and self-report measures. For instance, Blake was aggressive and non-compliant in sessions for months, refusing to take part in therapy activities. Once

he was moved to a secure placement, his behaviour at home, school, and in therapy improved drastically, and he was able to participate in session activities.

As stated by J. A. Cohen et al. (2010), if families do not attend therapy, attend only occasionally, or attend but do not believe in the value of therapy, therapy is unlikely to make much of a difference. It is possible that caregivers do not see the value of therapy because they (a) lack information on the effects of trauma and benefits of therapy, and/or (b) do not attribute their children's behavioural problems to trauma. Foster caregivers (including whānau placements) should be provided with detailed psychoeducation on the outcomes of trauma, including externalising behaviours, conduct problems, and attachment patterns, prior to the child coming into their care. This education should include parenting advice, where to go for help and information about therapy. For example, Konanur et al. (2015) suggested that presenting research findings about the benefits of TF-CBT to families may help minimise attrition, especially during waitlist or assessment periods. Limited resources may also impact the caregivers' ability to bring their children to therapy and attend themselves, and additional resources (such as transport assistance, childcare for other children, and flexibility with session times) may also be necessary.

Additionally, Day et al. (2018) reported that placement stability and permanency for youth can be increased through training that enhances the knowledge, skills, and abilities of caregivers, including clear communication skills, understanding the effects of trauma, provision of culturally competent care, self-care, valuing a connection to the child's birth family and participating in ongoing learning and education. Identifying the support needs of individual caregivers can also allow customised support to be offered (Randle, Ernst, Leisch, & Dolnicar, 2017). Caring for a child with PTSD or trauma symptoms is no easy feat, and increased education and

support for caregivers may prevent the high number of placement breakdowns; therefore, further benefiting the child.

Child protection in New Zealand context

Since the original New Zealand TF-CBT study in 2007, there has been a recognisable change in the demographics of children referred to Clinical Services. This change has been observed by the manager of Oranga Tamariki Clinical Services Auckland, and by the psychologist team leader at Oranga Tamariki Clinical Services Central Auckland (personal communication throughout the duration of the research). For instance, it was observed during the course of this study that children were presenting with more complex trauma, were more likely to be Māori or Pacific Islanders, and were experiencing a higher number of placement breakdowns. Additionally, staff observed increased pressure on social workers and Clinical Services, noting less staff overall, as well as less experienced staff. As a result, social workers and clinicians had high caseloads, and social workers were less able to transport children to their therapy sessions. Organisational factors, such as high caseloads and understaffing, may contribute negatively to the quality of intervention received by the child. For example, retention of skilled practitioners is a major concern in child and family services (Kagan & Spinazzola, 2013).

As described in Chapter 3, in the last 10–15 years, there has been significant legislature advocating for child wellbeing, a major review and restructure of CYF (now Oranga Tamariki) and a number of initiatives instigated to reduce the incidence of family violence and child maltreatment. However, there has been no co-ordinated approach and little to no monitoring of effectiveness—New Zealand’s child maltreatment statistics remain high. There is an apparent need for a more systemic, ecological approach to child welfare in New Zealand, as described in Chapter 3, to work to support families at risk of maltreating their children and improve organisational

factors that may limit the quality of interventions delivered. For example, rather than a single focus on the harm experienced by the child, and attempts to treat the child without addressing wider factors, there is a need to work with the child and their family to improve their functioning and wellbeing. This is supported by Keddell (2017a), a social work academic in New Zealand who reported that the “individualistic framing of the causes of abuse... downplays key evidence about the relationship between child abuse and the broader social and economic context” (p. 6).

As described in Chapter 1, there are several factors that contribute to maltreatment, including a lack of social and financial support. A focus on quick removal of children from their abusive or neglectful parents not only ignores the ongoing trauma that comes from potential placement breakdowns and isolation from whānau, but also ignores the harsh realities of parenting without appropriate support (Keddell, 2017a). If the parent goes on to have another child, but has not gained any additional skills or resources, they may again be abusive or neglectful and subsequently have their child removed. This cycle is illustrated in a recent news article describing the life of one of the abusers in a high profile child abuse case in New Zealand—Oriwa Kemp (Leask, 2018). Oriwa left home at the age of 12 years, was in a violent relationship and addicted to methamphetamine by the age of 13, had her first child at the age of 14, and was convicted for the ill-treatment and assault of 3 year old Nia Glassie at the age of 17. Although Nia was not her child, when Oriwa went to prison to serve her three-year sentence, her first child was taken into care. Oriwa has since had four more children, all removed and placed in foster care due to ongoing violent relationships and substance abuse. These children may experience trauma from their removal and lack of connection to their family and siblings, as well as require significant resources related to intervention and foster care, all of which could have been avoided with a broader focus on support and prevention in the first instance. For example, support for Oriwa to

process her own traumatic history, manage substance abuse, and learn valuable parenting and life skills would be beneficial to her, her current and future children.

Clinical Implications of the Current Research

Use of a manualised intervention

TF-CBT is designed as a flexible intervention, intended to be applied as suited to the individual case, with extra sessions included where deemed clinically necessary. Although this was discussed with therapists in training sessions, therapist feedback suggests that more emphasis needs to be placed on flexibility. For instance, therapists reported difficulty following a manual with children with such complex histories, as children need more time to build a relationship with the therapist before they feel safe enough to discuss their experiences.

The difficulty maltreated children may have in connecting with their therapists, and the importance of doing so, is well documented (for example J. A. Cohen, Mannarino, Kliethermes, & Murray, 2012; Konanur et al., 2015; Pearlman & Courtois, 2005). Additionally, a weak therapeutic alliance may contribute to therapy drop-out (Garcia & Weisz, 2002). As described in Chapter 2, very few studies have evaluated the use of TF-CBT with maltreated children in foster care. Multiply maltreated children, including those in foster care, have often experienced repeated interpersonal traumas and may view most relationships as potentially threatening, and may also view authority figures such as therapists, social workers, or caregivers as unhelpful (J. A. Cohen et al., 2012). STF-CBT has a greater focus on relational skills and developing coping skills before continuing on to the trauma-processing components of therapy. STF-CBT should, therefore, help support children to build a trusting relationship with their therapist before being expected to discuss their feelings and experiences in depth.

Additionally, clinicians should utilise the flexibility of the STF-CBT manual and their clinical expertise to add additional sessions and substitute or adapt activities where appropriate. More experienced clinicians with training in a range of interventions may be better equipped to tailor the intervention to the needs of their client. However, Clinical Services employs a number of intern or newly graduated psychologists, who may not feel comfortable adapting manualised programmes. In these cases, training and supervision by a more experienced clinician is likely to help build confidence to adapt manualised interventions to the needs of individual children and families.

Length of treatment

Participants in Study 2 had a minimum of 20 sessions of TF-CBT, followed by further therapy received by all participants. All Study 2 participants, therefore, completed TF-CBT over a greater number of sessions than the manual outlines.

The period over which treatment occurred was significantly greater than the number of sessions attended. For example, Study 2 participants spent between 8–13 months in therapy (34–56 weeks) but completed 20–24 sessions of TF-CBT. The length of time spent in therapy was related to contextual factors such as caregiver arrangements, risks to safety, and non-attendance of sessions, as well as holidays. For example, Emily frequently missed scheduled sessions, and her therapist had to spend more time refreshing previous content than if sessions had occurred more regularly.

Study 3 participants completed the five session sensory intervention over a period of five weeks, followed by further therapy focusing on more cognitive-based intervention.

Therapy buy-in

Significant difficulties were encountered in this research relating to recruitment and continuation of therapy, consistent with the literature reporting challenges in maintaining attendance of children and their caregivers in treatment for trauma

(Eslinger, Sprang, & Otis, 2014; Hambrick et al., 2016; Imel et al., 2013), and previous research in New Zealand (Feather, 2007). In some cases, caregivers decided the child no longer needed therapy after their initial appointment with Clinical Services; and in others, caregivers did not seem to actively support attendance of therapy sessions and completion of homework and practice activities. Therapy is usually recommended for these children based on their histories and presenting symptoms, rather than requested by the child or the caregiver themselves. This may limit caregiver and child buy-in if they do not recognise the value of therapy.

Caregivers may also not relate the child's behavioural difficulties to their trauma, viewing the child as "bad" rather than as a child to whom bad things have happened (J. A. Cohen et al., 2012). Instability related to changes in caregivers and schools may also increase PTSD symptoms (Bederian-Gardner et al., 2018), which likely also contributes to increased behavioural problems in this population.

Additionally, because avoidance is a key symptom of PTSD, caregivers may observe their children to be struggling with therapy when trauma-related content becomes a more central focus, and may think therapy is not useful. Previous research has found that children from families with higher income households, no prior child protection services involvement, and parents with more years of education, were more likely to complete TF-CBT (Wamser-Nanney & Steinzor, 2017). It may be that these parents have more resources and motivation to support their children as they have a greater understanding of the impact of trauma, or have more finances and time available to support therapy attendance. Oranga Tamariki caregivers may therefore benefit from additional support and education.

It may also be beneficial to spend more time with the caregivers prior to beginning therapy with the child, to provide information on trauma symptoms, the importance of treating trauma, the benefits of therapy, and behaviour management

skills. Involving caregivers in therapy in the first instance was also noted by research reviewed in Study 1. Additionally, as described earlier in this chapter, it is important to ensure caregivers have sufficient support. As an example, Dorsey et al. (2014) supplemented TF-CBT with evidence based engagement strategies for foster carers. Provision of psychoeducation for caregivers throughout treatment was also supported by Eslinger et al. (2014) and is recommended in TF-CBT and the new STF-CBT. The importance of psychoeducation may need to be further emphasised in treatment manuals.

Engaging children in therapy sessions

Particularly in Study 2, participants sometimes chose not to participate in session activities or were reluctant to do so. This may be due to the more trauma-focussed nature of TF-CBT triggering avoidance, or difficulty forming a trusting relationship with the therapist, as discussed above. Poor engagement may be also be exacerbated by feeling unsafe or experiencing insecurity due to unstable placements or continued abuse. As described in Chapter 1, maltreated children will often try to control situations, environments and people as a way of coping with the trauma (Blaustein & Kinniburgh, 2010). For instance, in the current research, Blake frequently tried to control the session content.

Children will prioritise their needs, and current safety sits far above processing of past traumas, meaning that children are unlikely to want to talk about their feelings if they do not feel they are safe. For example, Ari's case example highlights the ongoing stress and trauma he was experiencing in his placement while in therapy, and his subsequent reluctance to participate in therapy activities. Blake was also living in an unsupportive home and his engagement and progress in therapy improved significantly when he was placed with more positive caregivers. Tarren-Sweeney (2013) suggested that several years of consistent and sensitive caregiving with the same caregivers may

be necessary before meaningful therapeutic change is revealed in some children. Such an experience with caregivers was not the case for the majority of participants in the current research. However, while trauma processing with this population is challenging, it is nevertheless recommended for the resolution of PTSD.

The importance of trauma processing

Although a limitation of this study is that there was no formal measure of treatment fidelity, session notes were reviewed by the researcher for both Study 2 and Study 3. All participants in Study 2 received all phases of TF-CBT, including trauma processing (exposure). However, both participants in Study 3, and two participants in Study 2, required additional therapy, including more focus on trauma processing, following conclusion of the therapy they received as part of the research project. Both participants in Study 3 had heightened anxiety symptoms at their post-intervention assessment, and clinicians and caregivers reported ongoing trauma symptoms. These findings reflect a need for children with PTSD to adequately process their traumatic experiences and associated thoughts and feelings. The therapeutic benefit of including a trauma narrative component in TF-CBT was demonstrated by Deblinger et al. (2011), and rationale for including trauma processing components in therapy for children exposed to trauma comes from cognitive and emotional theories of PTSD. Additionally, research supports the use of sensory approaches as a precursor to other therapeutic components (Racco & Vis, 2015; Sutton et al., 2013).

Although this research highlighted a need to include trauma processing components, Allen et al. (2011) found developing a trauma narrative and cognitive restructuring to be less preferred by clinicians compared to other components of TF-CBT such as psychoeducation and coping skills. Even when clinicians were aware of the support and recommendation for the use of exposure, they often chose not to use it for a number of reasons, including that exposure may exacerbate symptoms, particularly

at the outset (Dobson & Dobson, 2009). The utilisation of components by clinicians has been found to depend on their training (Allen et al., 2011), but experience may also play a role. For example, successful use of exposure components can help build the clinicians' confidence and reduce their own anxiety (Dobson & Dobson, 2009). It may, therefore, be beneficial to provide a clearer rationale for the inclusion of trauma processing in interventions for children with PTSD, as well as regular supervision for those not confident in the trauma processing components of TF-CBT.

The influence of culture

Culture is important to consider when contextualising the results of the current research as all participants were either Māori or Pacific Islanders. Culture influences beliefs about identity, children, family, health, mental health, and treatment, as discussed in Chapter 3; and may influence results of assessments. CBT has been culturally adapted for the treatment of Māori adults with depression, and includes use of culturally relevant examples, extended use of Māori proverbs to guide sessions, referral to Te Whare Tapa Whā, deeper exploration of whakapapa (genealogy), and encouraging whānau involvement (Bennett, Flett, & Babbage, 2007, 2014). TF-CBT has been adapted and successfully applied with Māori and Samoan children and families (Murupaenga et al., 2004), and sensory modulation approaches can incorporate kapa haka and waiata as modulating activities (Hollands et al., 2015). STF-CBT can, therefore, incorporate culturally relevant aspects of CBT, TF-CBT, and sensory modulation.

However, no children in this study were living with their parents (and many did not even have regular contact), and as family is an integral part of Pacific (Manuela & Sibley, 2013) and Māori (Durie, 1999) self-concept and wellbeing, participants may have had a loss of connection with extended family and cultural identity. This can be difficult to address in therapy and may have influenced participants' symptoms and

engagement. Furthermore, cultural dislocation may result in heightened vulnerability to adverse outcomes, and vulnerability may increase exponentially with the number of placements (Atwool, 2006). Again, this highlights the need for a wider systems approach to child maltreatment in New Zealand that includes cultural consultation and culturally responsive interventions.

Acceptability of the interventions

As mentioned in Chapter 2, along with judgements about the effectiveness of an intervention, it is important to consider client preferences and the accessibility and appropriateness of the intervention for their needs (Cusack et al., 2016). Acceptability of the interventions was not directly measured, but based on subjective feedback; both TF-CBT and SI appeared to have good acceptability for participants and therapists in this research. For instance, children reported finding both TF-CBT and SI helpful, and participants in both studies learned coping skills to help them feel less upset. Children reported finding it difficult to talk about their experiences, but they also found processing their thoughts and feelings to be beneficial. This may suggest a need to spend more time discussing the benefits of trauma processing with children, as well as sharing the positive experiences of other children.

Consumer satisfaction is a key component of treatment feasibility (Bowen et al., 2009; Pavuluri et al., 2004) and suggests the potential feasibility of STF-CBT, an intervention combining the well accepted approaches of CBT and sensory modulation. The general acceptability and perceived usefulness of TF-CBT by therapists in this study is consistent with the literature reporting that the principles and therapies included in TF-CBT are widely accepted (Sigel et al., 2013). Integrating feedback from clinicians into the STF-CBT model is a strength of the current research, as collaboration between clinicians and researchers supports the development of interventions that work (Seymour, Cooper, & Stanton, 2016).

Limitations

Limitations of this research come mostly from the difficulties inherent in conducting research in a clinical, statutory child protection setting, with participants with complex experiences and lives. Limitations have been described in Chapters 6, 7, and 8, and are expanded on below.

Assessment measures

Self-report measures

Child self-report measures are essential for gaining understanding of the functional impact of symptoms (Hamblin et al., 2016). Trauma and anxiety related symptoms are subjective, and children may be aware of problems that they are not asked, or are not able, to verbalise to parents (Hamblin et al., 2016). For instance, children are better informants on their internalised mental states, such as their fears, anxieties, and delusional ideas (Renou, Hergueta, Flament, Mouren-Simeoni, & Lecrubier, 2004). Additionally, self-report measures provide an objective measure for tracking progress over the course of treatment and children may find it easier to endorse items on a self-report scale than to express these feelings verbally (Friedberg & McClure, 2002). However, there are several factors that may have influenced the validity of self-report measures in this study.

Some limitations relating to self-report data include a desire to please the therapist (especially when the therapist is present for the assessment) and aversion to test-taking or defiance which may result in “random” or thoughtless scoring of questions (which was observed to occur on a number of occasions). Furthermore, children may attempt to conceal or deny emotional problems to present themselves in a socially desirable manner (Grills & Ollendick, 2003), or they may not perceive their behaviour or symptoms as undesirable, even if they pose a difficulty to others (Hamblin et al., 2016). Children may also be more likely to report symptoms to be interfering if

they cause distress in a context that is valuable and relevant to them, such as in a social setting (Hamblin et al., 2016).

All participants in Study 2 were aged 11 years or younger at their first assessment, and it has been suggested that children this age may not have the verbal, cognitive, memory, and attention abilities to accurately understand and describe their own behaviours (Grills & Ollendick, 2003). For example, self-report measures are limited by the child's awareness of their emotions, and their ability to recall emotional experiences, monitor, and communicate these emotions (Thornback & Muller, 2015). This may be reflected in some underreporting of symptomology and problem thoughts and behaviours. Finally, self-report questionnaires often took longer to complete than had been anticipated and assessors reported that participants appeared to find the questionnaires tiring and boring. This may have influenced the accuracy of their reporting. Children also knew that they were receiving a therapy demonstrated to be effective and, therefore, may have been more likely to rate their symptoms consistent with this, such as rating that their symptoms are or have improved.

Importantly, PTSD is a fluctuating experience and a variety of factors can influence symptoms. PTSD can be triggered or intensified by both external and internal factors, including thinking about the trauma, experiencing reminders of the trauma, or contact with an abusive parent. Furthermore, as well as the potential problems with self-report data discussed above, avoidance and denial of symptoms is common in children who have experienced trauma and it can be contradictory to ask children to report avoidance symptoms (J. A. Cohen & Scheeringa, 2009).

While the measures used in this research were validated and supported for use with children who have experienced trauma, the questions proved to be confronting for the study participants. Furthermore, self-report measures commonly require children to choose one specific traumatic event and rate their symptoms according to that event. All

participants in this study had experienced multiple events, and it is difficult for children to select only one event as “the worst” that they have experienced (J. A. Cohen & Scheeringa, 2009). This applies particularly to the brief outcome measures, where children were asked to select distressing scenarios to rate each session on the CQ-C and CPSS. As participants had usually only met their assessor once prior to this, they were often reluctant to discuss their experiences and struggled to report scenarios relevant to their trauma. Furthermore, after a few sessions with the assessor, participants began to develop a relationship with their assessor, but were then introduced to a new clinician who they saw for therapy, as required by the research protocol.

A comprehensive assessment that includes multiple informants (such as child, caregiver, and teacher) is recommended to enhance assessment validity (Feather & Ronan, 2010) but this was difficult in practice due to changes in caregivers and schools limiting the reliability of information that could be obtained from caregiver and teacher report measures.

Research design

Single-case design is well supported and recommended for evaluation studies (Kazdin, 2000; Morgan & Morgan, 2009). The reporting of the methods, results, and discussion of the current research mostly reflects recommendations in the Single-Case Reporting Guideline in Behavioural Interventions (SCRIBE; Tate, Perdices, Rosenkoetter, McDonald, et al., 2016; Tate, Perdices, Rosenkoetter, Shadish, et al., 2016), although there were limitations as previously discussed. Some of the challenges relating to single-case design in clinical settings are discussed by Manolov, Gast, Perdices, and Evans (2014), including the balancing of methodological rigour with what is ethical and feasible for the clinical setting. The benefits of applying this design to the current research are clear, as brief outcome measure data could be contextualised using subjective data from children and clinicians, along with further qualitative data from

session notes. However, asking participants to complete self-report measures in every session (usually once a week) did not appear to provide valid information about participants' symptoms. For instance, as discussed in Chapters 6 and 7, participants became bored with completing the questionnaires and saw it as a chore or chose scenarios that became less relevant over time. Feather (2007) also observed children to tire of completing weekly measures in her research evaluating TF-CBT in New Zealand. Internationally, it is reported that repeated exposure to the same questions may result in stereotyped answers (Perone & Hursh, 2013), but boredom associated with repeated measures is not frequently reported.

Underreporting of traumatic experiences and related problems is common in children who have experienced multiple maltreatment. For instance, J. A. Cohen et al. (2012) described that underreporting may be related to avoidance or attachment difficulties resulting in difficulty trusting their therapist. Additionally, children may view the chronic trauma, associated symptoms and dysregulation as part of their normal life (J. A. Cohen et al., 2012); and therefore see no need to report it. This may have applied in particular to the measure of coping, as although participants may have been experiencing continued anxiety and PTSD symptoms, they may have seen this as the status-quo and therefore rated their ability to cope as high.

As discussed in the results of Study 2 and Study 3, it was difficult to adhere to the multiple baseline periods randomly allocated to participants based on the design of this research. For instance, in some cases (Emily, Niko) participants had waited many months to receive therapy and caregiver instability and holidays made it difficult to complete measures during this time. When these children returned to Clinical Services it would not have been ethical to ask them to remain in the baseline phase when they were in urgent need of therapy.

In addition to it not being possible to collect brief outcome measure data for every participant in every session, not all participants had follow-up assessments for a range of reasons related to the child protection context as described. Although this limits observations made about single case data and symptom improvement over time, as J. D. Smith (2012) reported, it is often difficult to avoid missing data.

Limitations of the sample

As discussed, the sample size for this research was small and reflected a narrow range of participants. For example, all participants were aged 9-11 years and none were living with their parents (although Niko was legally adopted during the course of the research). Due to the limited age range, it is not possible to draw conclusions about differential responses to TF-CBT or SI as a result of age. However, past research suggests that there may be a minimum age for TF-CBT due to the level of cognitive development required to understand and assimilate the cognitive components of TF-CBT (Feather, 2007), although adaptations are available for younger children (Dalglish et al., 2015; Salloum et al., 2016). With regards to the SI, it is unclear what age range may benefit from the intervention due to both Study 2 participants being 9 years old. However, it is proposed that due to the non-verbal components of SI, it may be an appropriate intervention for younger children who may not have the cognitive capacity for TF-CBT.

Discussion with Clinical Services staff suggests that they receive the most complex of child maltreatment cases, as less complex referrals are passed on to other agencies. However, children included as participants in the study, while they had complex histories and presentations, may also represent a compliant sample of children referred to Oranga Tamariki Clinical Services. For instance, participants were required to both consent to take part in the research, and have the cognitive capacity for the

assessment process and intervention they were assigned to. Not all children who fit the age and diagnostic criteria also fit the criteria for cognitive capacity and consent.

Participants' cognitive capacity and ability to engage in therapy may have been affected by in-utero exposure to drugs and alcohol. For example, it is likely that many of the participants had experienced alcohol in-utero, but had not been assessed for foetal alcohol spectrum disorder (FASD). The Ministry of Health reported that about 50% of children and young people in care are affected by FASD (FASD Working Group, 2016). It was, therefore, not practical to exclude participants based on FASD or alcohol in-utero, although it is well recognised that in-utero exposure can have significant effects on children's development, including cognition and behaviour (Hellemans, Sliwowska, Verma, & Weinberg, 2010). Furthermore, methamphetamine use in New Zealand is a significant problem, and although little is known about the prenatal effects of methamphetamine, it is likely to result in negative outcomes (for example LaGasse et al., 2011). However, children's exposure to methamphetamine in this research was unknown.

The sample also included a set of three siblings, which may have posed a threat to internal validity. For instance, siblings share variance that is not present among other participants (Thornback & Muller, 2015). Additionally, for the first half of the study, these siblings had caregivers who were unsupportive and believed that all three children should be offered the same things, which posed difficulties for organising appointments and prescription of homework tasks when the participants were all at different stages in therapy.

An initial intention of this study was to develop a briefer intervention for treating trauma in children. However, it became clear that the complexity of the participants' trauma, and their complex lives, meant that they require intensive therapy delivered over a longer period of time.

Neuropsychological assessment

The NEPSY-II was included in this research to provide a measure of pre- and post-neuropsychological functioning in children with PTSD from maltreatment. The intention was to administer a battery of 13 subtests across five domains of neuropsychological functioning at the pre-intervention assessment and again at the follow-up assessment. However, the NEPSY was not usually used at Clinical Services, and clinicians were mostly unfamiliar with the test. The researcher had also never administered the NEPSY-II due to the requirement that it be administered by a registered psychologist. This requirement also limited the number of staff available to administer the assessment, as some staff were trained in psychotherapy or art therapy and were not registered psychologists. For these reasons, extra training and guidance on use of the test, particularly relating to scoring and interpreting results was given by a psychologist experienced in the use of this measure.

Both staff and participants found administration and interpretation of the NEPSY to be draining and time consuming, consistent with literature reporting limitations of this measure (Brooks et al., 2010). It was anticipated that the NEPSY assessment would be completed within one 1.5 hour session, but in reality it took 2–3 sessions to administer. To reduce the burden on participants and clinicians, and to account for possible practice effects, the battery delivered at follow-up period was briefer than at pre-intervention, consisting only of four subtests. The flexibility of the NEPSY-II allowed the selection of key subtests to form a shorter battery (Brooks et al., 2010). Not all participants completed a follow-up assessment, so comparing results over time was not always possible.

It is difficult to interpret NEPSY scores in isolation, as results across a number of domains can help to demonstrate underlying deficits. That is, scores from multiple domains should be interpreted together, considering the influence on each other, along

with the influence of external factors such as alertness and psychopathology. As participants were also experiencing symptoms of anxiety at the time of assessment, deficits may reflect this, rather than lasting neuropsychological deficits as a result of trauma. Improvements in neuropsychological functioning do not necessarily reflect the role of the intervention in reversing damage, but may reflect the improved mental state of the participant at the time of the assessment.

Despite limitations, participants did demonstrate improvements relating to attentional control (Faith), and improved impulsivity and attentional regulation (Keira) at the follow-up assessment. However, the additional therapy received by participants post-intervention meant it is not clear whether improvements were the result of TF-CBT (for Keira) or SI (for Faith) alone.

Therapist and assessor factors

Participants in this research all had different therapists, except for Keira and Emily who received therapy from the same clinician. Results may have been influenced by therapist factors such as experience, techniques used, alliance with participants, and adherence to the study procedure. For instance, TF-CBT clinicians can enhance the intervention through creative methods to improve outcomes (Lenz & Hollenbaugh, 2015). More experienced clinicians with training in TF-CBT were likely in a better position to do so. All participants received the core aspects of each treatment modality, that is, all phases of TF-CBT and all sessions of SI, relative to the treatment condition they were assigned to. However, there were no data collected regarding the specific details of the interventions received by each participant, including the extent to which clinicians used additional intervention tools or resources to enhance engagement and success in treatment. It is a limitation of this research that a table providing details of treatments received by participants cannot be provided. A lack of details regarding the

above described therapist factors and treatment adherence also limits conclusions that can be drawn regarding the effectiveness of the interventions.

In addition, due to staff availability or staff turnover, the post or follow-up assessor was often a different clinician to the pre-assessor. This may have had some effect on children's scores if they did not have a good level of rapport or feel comfortable reporting their symptoms in the presence of a new clinician.

Dissemination

This research has been disseminated with Oranga Tamariki practice leaders, therapists, and social workers; clinicians from other services including psychologists and occupational therapists; and other researchers. Throughout the course of the research, presentations were made to staff at CYF/Oranga Tamariki, including the staff at Clinical Services, and at CYF regional and practice leader's meetings. These presentations included overviews of TF-CBT and the SI, as well as preliminary research findings.

In September 2017, the researcher and her primary supervisor ran a workshop at Massey University on TF-CBT and sensory approaches for treating trauma, and presented a draft of STF-CBT including applications for clinical practice. This workshop was attended by a range of clinicians and students, including intern clinical psychologists, occupational therapists, and registered psychologists working in Non-Governmental Organisations and District Health Boards. Attendees of the workshop gave positive feedback about the applications of STF-CBT and the potential usefulness of the intervention within their own practices. A similar workshop was delivered at Safe Network (a specialist treatment service for harmful sexual behaviours) in February 2018.

An overview of the STF-CBT intervention and applications for treating children exposed to trauma was presented by the researcher at the 2017 Te Pou Mental

Health Symposium, attended by a range of mental health practitioners. Feedback was positive and clinicians indicated that they could see the utility in an intervention for treating trauma that combines CBT and sensory approaches, as well as recognising the difficulties inherent in conducting research in a clinical setting.

Future research

This research has highlighted the need for further investigation in a number of areas related to treating PTSD in maltreated children, including the application of sensory approaches and, in particular, the newly developed combined intervention: STF-CBT. Importantly, it has highlighted the current need to examine a wider systems approach for the prevention and treatment of maltreatment.

STF-CBT needs to be trialled and evaluated. The intervention should be trialled at Clinical Services, as well as at other agencies, to determine its effectiveness in treating childhood trauma, with children who have experienced child maltreatment, and children who have experienced other types of trauma such as from natural disasters and refugee children. The SI and STF-CBT also need to be trialled with a wider range of age groups as the greater focus on non-verbal components could make an effective intervention for younger children. A dismantling study could examine the inclusion and order of components of this intervention, with amendments made as necessary for specific populations. Challenges from the current research, such as those relating to collection of brief outcome and full assessment measures, should be used to guide method for future research. For example, a fewer number of full assessment measures and brief outcome measures collected at key points during the intervention, rather than weekly, may be a more practical and feasible approach.

Given rapidly advancing technology and the role technology plays in children's lives, future research could investigate inclusion of computer-based components of STF-CBT or TF-CBT. If these components could be accessed from home they could be

used in lieu of homework to assist with generalising and practicing skills, or to enable therapy to continue when there are barriers to attendance such as time or transport.

Further research is also necessary to enhance the cultural suitability of STF-CBT, including the relevance of components for Māori and Pacific children and families. This could include investigation into the cultural appropriateness of psychometric measures, and/or adaption or development of psychometrics for New Zealand children and families with local and multicultural norms. Research is also needed to examine loss of cultural identity for children who are in care, and interventions for preventing and ameliorating loss of connection.

Although this research has demonstrated the benefits of TF-CBT for treating PTSD in children who have experienced multiple maltreatment; overall, there continues to be a lack of research examining treatment of PTSD in maltreated children, particularly those with highly complex histories and caregiving contexts which future research could address. There is also currently little research examining the application of TF-CBT with children and youth in foster care and residential homes, particularly in a New Zealand context. This is clearly a difficult population to engage, and caregiver involvement is not readily obtained. Research could focus on strategies for reducing the barriers for caregivers to engage in therapy. This may include educating and engaging caregivers in therapy or evaluating the caregivers' experience of therapy; for example, their understanding of the role they play and whether they are sufficiently supported in terms of bringing the child to sessions.

Further studies relating to children's caregiving context could focus on the nature of the psychoeducation caregivers receive and the support they receive to manage the needs of multiply abused children. For instance, do caregivers understand trauma as the cause of behavioural, emotional, and conduct problems? Do they have the skills and

support to nurture these children and their behaviours? If not, what is lacking and what changes could be made to the current approach?

Another potential future research direction is to explore the influence of multiple placements on children's outcomes, and how to reduce the number of placements experienced. Alternatives to removing children, or a greater effort to support families to continue to parent or reunite, should also be explored. This would need to include a focus on working with parents to develop necessary parenting and life skills and alternatives to violence, rather than a focus on the child as an independent entity. Often abusive parents have been victims of abuse themselves, and may require support to address their own trauma. For example, they are likely to benefit from learning self-regulation skills such as those taught in the sensory intervention.

Finally, this research demonstrates the difficulty that children exposed to multiple maltreatment have in forming relationships and engaging in therapy, and there may be a need to develop and trial a supplementary intervention focusing on therapy engagement. This intervention should identify treatment barriers and work to address these across multiple levels.

Conclusion

Despite the limitations discussed, the results demonstrated TF-CBT and the SI to be promising, feasible interventions for treating PTSD in children exposed to trauma and multiple maltreatment, although the SI may not be effective as a standalone intervention. These results also suggest the potential benefits of combining TF-CBT and sensory approaches to help children develop self-regulation and coping skills, and process their traumatic experiences in a safe therapeutic environment.

Incidence of child maltreatment is a significant issue in New Zealand and maltreated children can experience an array of negative outcomes over their lifetime. It is, therefore, crucially important to develop effective treatments for the symptoms of

maltreatment trauma. Additionally, conducting research in clinical settings is of high importance, as this research provides insights into the challenges faced by clinicians, the limitations of interventions in practice, and barriers to treatment. As reported by Kazdin (2008), “there is a well-recognized split within clinical psychology between research and practice” (p. 146), and the field of psychology can benefit from the experience and expertise of those engaged in clinical work with the most vulnerable and complex populations. Even small-scale research projects can help identify what does and does not work; and investment in evaluation and clinical research should therefore be prioritised to enhance evidence-based practice.

This research has provided a snapshot of the current status of child protection in New Zealand relevant to maltreated children referred for specialist trauma therapy. The research has demonstrated the complexity of the lives of children who have experienced maltreatment, as well as the complexities associated with treating these children and their families. Despite limitations, this research has demonstrated the potential utility of a combined sensory and trauma-focussed CBT intervention for treating children with PTSD, and has provided a foundation for future clinical research and evidence-based practice. Finally, participants in this study benefitted from reductions in trauma-related symptoms, and gained a set of coping skills to aid them in any future distressing situations.

References

- Adler Nevo, G., & Manassis, K. (2011). An adaptation of prolonged exposure therapy for pediatric single incident trauma: A case series. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 20(2), 127-133.
- Adolescent Health Research Group. (2013). Youth' 12 Prevalence Tables. In *The health and wellbeing of New Zealand secondary school students in 2012*. Auckland, New Zealand: The University of Auckland.
- Ahmad, A., Larsson, B., & Sundelin-Wahlsten, V. (2007). EMDR treatment for children with PTSD: results of a randomized controlled trial. *Nordic Journal of Psychiatry*, 61(5), 349-354. doi:10.1080/08039480701643464
- Ahrens, J., & Rexford, L. (2002). Cognitive processing therapy for incarcerated adolescents with PTSD. *Journal of Aggression, Maltreatment & Trauma*, 6(1), 201-216. doi:10.1300/J146v06n01_10
- Ali, A., Weiss, T. R., Dutton, A., McKee, D., Jones, K. D., Kashikar-Zuck, S., . . . Shapiro, E. D. (2017). Mindfulness-based stress reduction for adolescents with functional somatic syndromes: A pilot cohort study. *The Journal of Pediatrics*, 183, 184-190. doi:10.1016/j.jpeds.2016.12.053
- Alisic, E., Jongmans, M. J., van Wesel, F., & Kleber, R. J. (2011). Building child trauma theory from longitudinal studies: A meta-analysis. *Clinical Psychology Review*, 31(5), 736-747. doi:10.1016/j.cpr.2011.03.001
- Alisic, E., Zalta, A. K., van Wesel, F., Larsen, S. E., Hafstad, G. S., Hassanpour, K., & Smid, G. E. (2014). Rates of post-traumatic stress disorder in trauma-exposed children and adolescents: meta-analysis. *The British Journal of Psychiatry*, 204(5), 335. doi:10.1192/bjp.bp.113.131227
- Allen, B., Johnson, J. C., Whitaker, D., Self-Brown, S., Kolko, D., & Berliner, L. (2011). Utilization and implementation of trauma-focused cognitive-behavioral therapy for the treatment of maltreated children. *Child Maltreatment*, 17(1), 80-85. doi:10.1177/1077559511418220
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. Retrieved from Washington DC, WA:
- American Psychological Association. (2017). *Clinical practice guideline for the treatment of PTSD*. Retrieved from <http://www.apa.org/ptsd-guideline/ptsd.pdf>
- Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B., . . . Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience*, 256(3), 174-186. doi:10.1007/s00406-005-0624-4
- Arvidson, J., Kinniburgh, K. J., Howard, K., Spinazzola, J., Strothers, H., Evans, M., . . . Blaustein, M. (2011). Treatment of complex trauma in young children: Developmental and cultural considerations in application of the ARC intervention model. *Journal of Child & Adolescent Trauma*, 4(1), 34-51. doi:10.1080/19361521.2011.545046
- Atchison, B. J. (2007). Sensory modulation disorders among children with a history of trauma: A frame of reference for speech-language pathologists. *Language, Speech and Hearing Services in Schools*, 38, 109-116. doi:10.1044/0161-1461(2007/011)
- Atwool, N. (2006). Attachment and resilience: Implications for children in care. *Child Care in Practice*, 12(4), 315-330. doi:10.1080/13575270600863226
- Aupperle, R. L., Melrose, A. J., Stein, M. B., & Paulus, M. P. (2012). Executive function and PTSD: Disengaging from trauma. *Neuropharmacology*, 62(2), 686-694. doi:10.1016/j.neuropharm.2011.02.008

- Aydin, B., Akbas, S., Turla, A., & Dunder, C. (2016). Depression and post-traumatic stress disorder in child victims of sexual abuse: Perceived social support as a protection factor. *Nordic Journal of Psychiatry*, 70(6), 418-423. doi:10.3109/08039488.2016.1143028
- Ayres, A. J. (1963). Eleanor Clark Slagle lecture. The development of perceptual motor abilities: A theoretical basis for treatment of dysfunction. *American Journal of Occupational Therapy*, 17, 221-225.
- Ayres, A. J. (2005). *Sensory integration and the child* (25th Anniversary ed.). Los Angeles, CA: Western Psychological Services.
- Ayres, A. J., & Robbins, J. (1979). *Sensory integration and the child*. Los Angeles, CA: Western Psychological Services.
- Backman, C. L., Harris, S. R., Chisholm, J. A., & Monette, A. D. (1997). Single-subject research in rehabilitation: A review of studies using AB, withdrawal, multiple baseline, and alternating treatments designs. *Archives of Physical Medicine and Rehabilitation*, 78(10), 1145-1153. doi:10.2165/00007256-200434150-00003
- Bae, Y. (2012). Test review: Children's Depression Inventory 2 (CDI 2). *Journal of Psychoeducational Assessment*, 30(3), 304-308. doi:10.1177/0734282911426407
- Beck, A. T., & Dozois, D. J. A. (2011). Cognitive Therapy: current status and future directions. *Annual Review of Medicine*, 62(1), 397-409. doi:10.1146/annurev-med-052209-100032
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Bederian-Gardner, D., Hobbs, S. D., Ogle, C. M., Goodman, G. S., Córdón, I. M., Bakanosky, S., . . . Chong, J. Y. (2018). Instability in the lives of foster and nonfoster youth: Mental health impediments and attachment insecurities. *Children and Youth Services Review*, 84, 159-167. doi:10.1016/j.childyouth.2017.10.019
- Beers, S. R., & De Bellis, M. D. (2002). Neuropsychological function in children with maltreatment-related posttraumatic stress disorder. *The American Journal of Psychiatry*, 159(3), 483-486. doi:10.1176/appi.ajp.159.3.483
- Benight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behaviour research and therapy*, 42(10), 1129-1148. doi:10.1016/j.brat.2003.08.008
- Bennett, S. T., Flett, R. A., & Babbage, D. R. (2007). *The adaptation of cognitive behavioural therapy for adult Maori clients with depression: A pilot study*. Paper presented at the National Maori and Pacific Psychologies Symposium, Hamilton, New Zealand.
- Bennett, S. T., Flett, R. A., & Babbage, D. R. (2014). Culturally adapted cognitive behaviour therapy for Māori with major depression. *The Cognitive Behaviour Therapist*, 7(e20), 1-16. doi:10.1017/S1754470X14000233
- Blanc, J., Bui, E., Mouchenik, Y., Derivois, D., & Birmes, P. (2015). Prevalence of post-traumatic stress disorder and depression in two groups of children one year after the January 2010 earthquake in Haiti. *Journal of Affective Disorders*, 172, 121-126. doi:10.1016/j.jad.2014.09.055
- Blaustein, M., & Kinniburgh, K. J. (2010). *Treating traumatic stress in children and adolescents: How to foster resilience through attachment, self-regulation, and competency*. New York, NY: Guilford Press.
- Bowen, D. J., Kreuter, M., Spring, B., Cofta-Woerpel, L., Linnan, L., Weiner, D., . . . Fernandez, M. (2009). How we design feasibility studies. *American Journal of Preventative Medicine*, 36(5), 452-457. doi:10.1016/j.amepre.2009.02.002

- Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and posttraumatic stress disorder. *Journal of Clinical Psychiatry*, 61, 22-32.
- Briere, J. (2002). Treating adult survivors of severe childhood abuse and neglect: Further development of an integrative model. In J. E. B. Myers, L. Berliner, J. Briere, C. T. Hendrix, T. Reid, & C. Jenny (Eds.), *The APSAC handbook on child maltreatment*. Newbury Park, CA: Sage Publications.
- Briere, J., & Scott, C. (2013). *Principles of trauma therapy: a guide to symptoms, evaluation, and treatment*. Thousand Oaks, CA: SAGE Publications.
- Briere, J., & Scott, C. (2015). Complex trauma in adolescents and adults: Effects and treatment. *Psychiatric Clinics of North America*, 38(3), 515-527. doi:10.1016/j.psc.2015.05.004
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Brooks, B., Sherman, E., & Strauss, E. (2010). NEPSY-II: A developmental neuropsychological assessment, second edition. *Child Neuropsychology*, 16(1), 80-101. doi:10.1080/09297040903146966
- Brown, C., & Dunn, W. (2002). *Adolescent/adult sensory profile manual*. San Antonio, TX: Psychological Corporation.
- Brown, D. W., Anda, R. F., Felitti, V. J., Edwards, V. J., Malarcher, A. M., Croft, J. B., & Giles, W. H. (2010). Adverse childhood experiences are associated with the risk of lung cancer: A prospective cohort study. *BMC Public Health*, 10, 20. doi:10.1186/1471-2458-10-20
- Brown, R. C., Witt, A., Fegert, J. M., Keller, F., Rassenhofer, M., & Plener, P. L. (2017). Psychosocial interventions for children and adolescents after man-made and natural disasters: A meta-analysis and systematic review. *Psychological Medicine*, 47(11), 1893-1905. doi:10.1017/S0033291717000496
- Byiers, B. J., Reichle, J., & Symons, F. J. (2012). Single-subject experimental design for evidence-based practice. *American Journal of Speech-Language Pathology*, 21(4), 397-414. doi:10.1044/1058-0360(2012/11-0036)
- Cary, C. E., & McMillen, J. C. (2012). The data behind the dissemination: A systematic review of trauma-focused cognitive behavioral therapy for use with children and youth. *Children and Youth Services Review*, 34(4), 748-757. doi:10.1016/j.childyouth.2012.01.003
- Cecil, C. A. M., Viding, E., Fearon, P., Glaser, D., & McCrory, E. J. (2017). Disentangling the mental health impact of childhood abuse and neglect. *Child Abuse & Neglect*, 63, 106-119. doi:10.1016/j.chiabu.2016.11.024
- Cenat, J. M., & Derivois, D. (2015). Long-term outcomes among child and adolescent survivors of the 2010 Haitian earthquake. *Depression and Anxiety*, 32(1), 57-63. doi:10.1002/da.22275
- Centers for Disease Control and Prevention (CDC). (2016, April 1). About behavioral risk factor surveillance system ACE data. *Injury Prevention and Control*. Retrieved from https://www.cdc.gov/violenceprevention/acestudy/ace_brfs.html
- Chaffin, M., & Friedrich, B. (2004). Evidence-based treatments in child abuse and neglect. *Children and Youth Services Review*, 26(11), 1097-1113. doi:10.1016/j.childyouth.2004.08.008
- Champagne, T. (2011a). Attachment, trauma, and occupational therapy practice. *OT Practice*, 16(5), C1-C8.
- Champagne, T. (2011b). The influence of posttraumatic stress disorder, depression, and sensory processing patterns on occupational engagement: A case study. *Work*, 38(1), 67-75. doi:10.3233/wor-2011-1105

- Champagne, T. (2011c). *Sensory modulation & environment: Essential elements of occupation* (3rd ed.). Sydney, Australia: Pearson Australia Group.
- Champagne, T., & Sayer, E. (2003). The effects of the use of the sensory room in psychiatry. Retrieved from http://www.ot-innovations.com/wp/wp-content/uploads/2014/09/qi_study_sensory_room.pdf
- Chemtob, C. M., Nakashima, J., & Carlson, J. G. (2002). Brief treatment for elementary school children with disaster-related posttraumatic stress disorder: A field study. *Journal of Clinical Psychology*, 58(1), 99-112. doi:10.1002/jclp.1131
- Chen, R., Gillespie, A., Zhao, Y., Xi, Y., Ren, Y., & McLean, L. (2018). The efficacy of eye movement desensitization and reprocessing in children and adults who have experienced complex childhood trauma: A systematic review of randomized controlled trials. *Frontiers in Psychology*, 9, 534. doi:10.3389/fpsyg.2018.00534
- Child, Youth and Family. (2016). Key statistics and information for media. Retrieved from <http://www.cyf.govt.nz/about-us/key-statistics/>
- Children's Action Plan. (2015). About the Vulnerable Children Act 2014. Retrieved from <http://childrensactionplan.govt.nz/assets/CAP-Uploads/legislation/Vulnerable-Children-Act-2014-Factsheet-Feb-2015.pdf>
- Christ, T. J. (2007). Experimental control and threats to internal validity of concurrent and nonconcurrent multiple baseline designs. *Psychology in the Schools*, 44(5), 451-459. Retrieved from <http://dx.doi.org/10.1002/pits.20237>. doi:10.1002/pits.20237
- Clark, T. C., Robinson, E., Crengle, S., Grant, S., Galbreath, R. A., & Sykora, J. (2009). Youth'07: The health and wellbeing of secondary school students in New Zealand. Findings on young people and violence. Retrieved from <https://www.fmhs.auckland.ac.nz/assets/fmhs/faculty/ahrg/docs/2007-violence-report-2010a.pdf>
- Cohen, J. A., Berliner, L., & Mannarino, A. P. (2010). Trauma focused CBT for children with co-occurring trauma and behavior problems. *Child Abuse & Neglect*, 34(4), 215-224. doi:10.1016/j.chiabu.2009.12.003
- Cohen, J. A., Deblinger, E., Mannarino, A. P., & de Arellano, M. A. (2001). The importance of culture in treating abused and neglected children: An empirical review. *Child Maltreatment*, 6(2), 148-157. doi:10.1177/1077559501006002007
- Cohen, J. A., & Mannarino, A. P. (2008). Trauma-focused cognitive behavioural therapy for children and parents. *Child and Adolescent Mental Health*, 13(4), 158-162. doi:10.1111/j.1475-3588.2008.00502.x
- Cohen, J. A., Mannarino, A. P., Berliner, L., & Deblinger, E. (2000). Trauma-focused cognitive behavioral therapy for children and adolescents: An empirical update. *Journal of Interpersonal Violence*, 15(11), 1202-1223. doi:10.1177/088626000015011007
- Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. New York, NY: The Guilford Press.
- Cohen, J. A., Mannarino, A. P., Kliethermes, M., & Murray, L. A. (2012). Trauma-focused CBT for youth with complex trauma. *Child Abuse & Neglect*, 36(6), 528-541. doi:10.1016/j.chiabu.2012.03.007
- Cohen, J. A., Mannarino, A. P., & Knudsen, K. (2005). Treating sexually abused children: 1 year follow-up of a randomized controlled trial. *Child Abuse & Neglect*, 29(2), 135-145. doi:10.1016/j.chiabu.2004.12.005
- Cohen, J. A., Mannarino, A. P., & Murray, L. K. (2011). Trauma-focused CBT for youth who experience ongoing traumas. *Child Abuse & Neglect*, 35(8), 637-646. doi:10.1016/j.chiabu.2011.05.002

- Cohen, J. A., Perel, J. M., De Bellis, M. D., Friedman, M. J., & Putnam, F. W. (2002). Treating traumatized children: clinical implications of the psychobiology of posttraumatic stress disorder. *Trauma, Violence, & Abuse*, 3(2), 91-108. doi:10.1177/15248380020032001
- Cohen, J. A., & Scheeringa, M. S. (2009). Post-traumatic stress disorder diagnosis in children: Challenges and promises. *Dialogues in Clinical Neuroscience*, 11(1), 91-99.
- Cohen, L. L., Feinstein, A., Masuda, A., & Vowles, K. E. (2014). Single-case research design in pediatric psychology: considerations regarding data analysis. *Journal of Pediatric Psychology*, 39(2), 124-137. doi:10.1093/jpepsy/jst065
- Coholic, D., Lougheed, S., & Cadell, S. (2009). Exploring the helpfulness of arts-based methods with children living in foster care. *Traumatology*, 15(3), 64-71. doi:10.1177/1534765609341590
- Connolly, M. (2007). Practice frameworks: Conceptual maps to guide interventions in child welfare. *British Journal of Social Work*, 37(5), 825-837. doi:10.1093/bjsw/bcl049
- Connolly, M., & Doolan, M. (2007). *Lives cut short: Child death by maltreatment*. Retrieved from <http://www.occ.org.nz/assets/Uploads/Reports/Child-abuse-and-neglect/Lives-cut-short.pdf>
- Counts, J. M., Buffington, E. S., Chang-Rios, K., Rasmussen, H. N., & Preacher, K. J. (2010). The development and validation of the protective factors survey: A self-report measure of protective factors against child maltreatment. *Child Abuse & Neglect*, 34(10), 762-772. doi:10.1016/j.chiabu.2010.03.003
- Creswell, J. W. (2013). *The selection of a research approach*. Los Angeles, CA: SAGE Publications.
- Crittenden, P. M. (1992). Quality of attachment in the preschool years. *Development and Psychopathology*, 4(02), 209-241.
- Cusack, K., Jonas, D. E., Forneris, C. A., Wines, C., Sonis, J., Middleton, J. C., . . . Gaynes, B. N. (2016). Psychological treatments for adults with posttraumatic stress disorder: A systematic review and meta-analysis. *Clinical Psychology Review*, 43, 128-141. doi:10.1016/j.cpr.2015.10.003
- Da Silva, K. (2011). *The sensory treatment approach in dealing with trauma in children: Does it work?* (Bachelor of Arts in Social Work), Providence College, Retrieved from http://digitalcommons.providence.edu/socialwrk_students/76
- Daignault, I. V., & Hébert, M. (2009). Profiles of school adaptation: Social, behavioral and academic functioning in sexually abused girls. *Child Abuse & Neglect*, 33(2), 102-115. doi:10.1016/j.chiabu.2008.06.001
- Dalgleish, T., Goodall, B., Chadwick, I., Werner-Seidler, A., McKinnon, A., Morant, N., . . . Meiser-Stedman, R. (2015). Trauma-focused cognitive behaviour therapy versus treatment as usual for post traumatic stress disorder (PTSD) in young children aged 3 to 8 years: Study protocol for a randomised controlled trial. *Trials*, 16, 116. doi:10.1186/s13063-015-0632-2
- Davies, E., & Seymour, F. W. (1999). Learning from child complainants of sexual abuse and their primary carers: Implications for policy and practice. *Social Policy Journal of New Zealand*, 122-122.
- Dawson, K., & Bryant, R. A. (2014). Developing a theoretical model of children's responses to disaster and conflict in the context of Islam. In R. Pat-Horenczyk, D. Brom, & J. M. Vogel (Eds.), *Helping children cope with trauma : Individual, family and community perspectives*. New York, NY: Routledge.
- Day, A., Willis, T., Vanderwill, L., Resko, S., Patterson, D., Henneman, K., & Cohick, S. (2018). Key factors and characteristics of successful resource parents who

- care for older youth: A systematic review of research. *Children and Youth Services Review*, 84, 152-158. doi:10.1016/j.chidyouth.2017.11.026
- de Arellano, M. A., Lyman, D. R., Jobe-Shields, L., George, P., Dougherty, R. H., Daniels, A. S., . . . Delphin-Rittmon, M. E. (2014). Trauma-focused cognitive-behavioral therapy for children and adolescents: Assessing the evidence. *Psychiatric Services*, 65(5), 591-602. doi:10.1176/appi.ps.201300255
- De Bellis, M. D., Hooper, S. R., Spratt, E. G., & Woolley, D. P. (2009). Neuropsychological findings in childhood neglect and their relationships to pediatric PTSD. *Journal of the International Neuropsychological Society*, 15(6), 868-878. doi:10.1017/S1355617709990464
- De Bellis, M. D., Hooper, S. R., Woolley, D. P., & Shenk, C. E. (2010). Demographic, maltreatment, and neurobiological correlates of PTSD symptoms in children and adolescents. *Journal of Pediatric Psychology*, 35(5), 570-577. doi:10.1093/jpepsy/jsp116
- De Bellis, M. D., Keshavan, M. S., Shifflett, H., Iyengar, S., Beers, S. R., Hall, J., & Moritz, G. (2002). Brain structures in pediatric maltreatment-related posttraumatic stress disorder: A sociodemographically matched study. *Biological Psychiatry*, 52(11), 1066-1078. doi:10.1016/S0006-3223(02)01459-2
- De Bellis, M. D., Woolley, D. P., & Hooper, S. R. (2013). Neuropsychological findings in pediatric maltreatment. *Child Maltreatment*, 18(3), 171-183. doi:10.1177/1077559513497420
- De Bellis, M. D., & Zisk, A. (2014). The biological effects of childhood trauma. *Child and Adolescent Psychiatric Clinics of North America*, 23(2), 185-222. doi:10.1016/j.chc.2014.01.002
- de Roos, C., Greenwald, R., den Hollander-Gijsman, M., Noorthoorn, E., van Buuren, S., & de Jongh, A. (2011). A randomised comparison of cognitive behavioural therapy (CBT) and eye movement desensitisation and reprocessing (EMDR) in disaster-exposed children. *European Journal of Psychotraumatology*, 2. doi:10.3402/ejpt.v2i0.5694
- Deblinger, E., Mannarino, A. P., Cohen, J. A., Runyon, M. K., & Steer, R. A. (2011). Trauma-focused cognitive behavioral therapy for children: impact of the trauma narrative and treatment length. *Depression and Anxiety*, 28(1), 67-75. doi:10.1002/da.20744
- Deblinger, E., Mannarino, A. P., Cohen, J. A., & Steer, R. A. (2006). A follow-up study of a multisite, randomized, controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45, 1474-1484. doi:10.1097/01.chi.0000240839.56114.bb
- Deblinger, E., Pollio, E., Runyon, M. K., & Steer, R. A. (2017). Improvements in personal resiliency among youth who have completed trauma-focused cognitive behavioral therapy: A preliminary examination. *Child Abuse & Neglect*, 65, 132-139. doi:10.1016/j.chiabu.2016.12.014
- Deblinger, E., Steer, R. A., & Lippmann, J. (1999). Two-year follow-up study of cognitive behavioral therapy for sexually abused children suffering post-traumatic stress symptoms. *Child Abuse & Neglect*, 23(12), 1371-1378. doi:10.1016/S0145-2134(99)00091-5
- Derivois, D., Cenat, J. M., Joseph, N. E., Karray, A., & Chahraoui, K. (2017). Prevalence and determinants of post-traumatic stress disorder, anxiety and depression symptoms in street children survivors of the 2010 earthquake in Haiti, four years after. *Child Abuse & Neglect*, 67, 174-181. doi:10.1016/j.chiabu.2017.02.034

- Diaz, A. B., & Motta, R. (2008). The effects of an aerobic exercise program on posttraumatic stress disorder symptom severity in adolescents. *International Journal of Emergency Mental Health*, 10(1), 49-59.
- Diehle, J., Opmeer, B. C., Boer, F., Mannarino, A. P., & Lindauer, R. J. (2015). Trauma-focused cognitive behavioral therapy or eye movement desensitization and reprocessing: What works in children with posttraumatic stress symptoms? A randomized controlled trial. *European Child & Adolescent Psychiatry*, 24(2), 227-236. doi:10.1007/s00787-014-0572-5
- DiSunno, R., Linton, K., & Bowes, E. (2011). World trade center tragedy: Concomitant healing in traumatic grief through art therapy with children. *Traumatology*, 17(3), 47-52. doi:10.1177/1534765611421964
- Dittmann, I., & Jensen, T. K. (2014). Giving a voice to traumatized youth-experiences with trauma-focused cognitive behavioral therapy. *Child Abuse & Neglect*, 38(7), 1221-1230. doi:10.1016/j.chiabu.2013.11.008
- Dobson, D., & Dobson, K. S. (2009). *Evidence-based practice of cognitive-behavioral therapy*. New York, NY: Guilford Press.
- Doidge, J. C., Higgins, D. J., Delfabbro, P., & Segal, L. (2017). Risk factors for child maltreatment in an Australian population-based birth cohort. *Child Abuse & Neglect*, 64, 47-60. doi:10.1016/j.chiabu.2016.12.002
- Dong, M., Giles, W. H., Felitti, V. J., Dube, S. R., Williams, J. E., Chapman, D. P., & Anda, R. F. (2004). Insights into causal pathways for ischemic heart disease: Adverse childhood experiences study. *Circulation*, 110(13), 1761-1766. doi:10.1161/01.cir.0000143074.54995.7f
- Donnelly, C. L., & Amaya-Jackson, L. (2002). Post-traumatic stress disorder in children and adolescents: Epidemiology, diagnosis and treatment options. *Paediatric Drugs*, 4(3), 159-170. doi:10.2165/00128072-200204030-00003
- Dorsey, S., Pullmann, M. D., Berliner, L., Koschmann, E., McKay, M., & Deblinger, E. (2014). Engaging foster parents in treatment: A randomized trial of supplementing trauma-focused cognitive behavioral therapy with evidence-based engagement strategies. *Child Abuse & Neglect*, 38(9), 1508-1520. doi:10.1016/j.chiabu.2014.03.020
- Dubowitz, H., Newton, R. R., Litrownik, A. J., Lewis, T., Briggs, E. C., Thompson, R., . . . Feerick, M. M. (2005). Examination of a conceptual model of child neglect. *Child Maltreatment*, 10(2), 173-189. doi:10.1177/1077559505275014
- Dudley, M., Wilson, D., & Barker-Collo, S. (2014). Cultural invisibility: Māori people with traumatic brain injury and their experiences of neuropsychological assessments. *New Zealand Journal of Psychology*, 43(3), 14-21.
- Dunn, W. (1997). The impact of sensory processing abilities on the daily lives of young children and their families: A conceptual model. *Infants and Young Children*, 9(4), 23-35.
- Dunn, W. (1999). *The sensory profile manual*. San Antonio, TX: The Psychological Corporation.
- Dunn, W. (2014). *Sensory profile 2 user's manual - strength-based approach to assessment and planning*. Bloomington, MN: Pearson Clinical.
- Durie, M. (1999). Mental health and Maori development. *Australian & New Zealand Journal of Psychiatry*, 33(1), 5-12. doi:10.1046/j.1440-1614.1999.00526.x
- Edmiston, E. E., Wang, F., Mazure, C. M., Guiney, J., Sinha, R., Mayes, L. C., & Blumberg, H. P. (2011). Corticostriatal-limbic gray matter morphology in adolescents with self-reported exposure to childhood maltreatment. *Archives of Pediatrics & Adolescent Medicine*, 165(12), 1069-1077. doi:10.1001/archpediatrics.2011.565

- Edwards, C., & Karnilowicz, W. (2013). An ecological perspective: Therapist practices with children who experienced abuse and trauma. *Australian Psychologist*, 48(5), 321-328. doi:10.1111/j.1742-9544.2012.00073.x
- Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy*, 38, 319-345. doi:10.1016/S0005-7967(99)00123-0
- Eslinger, J. G., Sprang, G., & Otis, M. D. (2014). Child and caregiver dropout in child psychotherapy for trauma. *Journal of Loss and Trauma*, 19(2), 121-136. Retrieved from <https://doi.org/10.1080/15325024.2012.742720>. doi:10.1080/15325024.2012.742720
- Euser, S., Alink, L. R. A., Tharner, A., van Ijzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2014). Out of home placement to promote safety? The prevalence of physical abuse in residential and foster care. *Children and Youth Services Review*, 37, 64-70. doi:10.1016/j.childyouth.2013.12.002
- Falconer, E., Bryant, R., Felmingham, K. L., Kemp, A. H., Gordon, E., Peduto, A., . . . Williams, L. M. (2008). The neural networks of inhibitory control in posttraumatic stress disorder. *Journal of Psychiatry & Neuroscience : JPN*, 33(5), 413-422.
- Family Violence Death Review Committee. (2017). *Fifth report data: January 2009 to December 2015*. Retrieved from Wellington, New Zealand:
- FASD Working Group. (2016). *Taking action on fetal alcohol spectrum disorder: 2016-2019: An action plan*. Retrieved from Wellington, New Zealand:
- Feather, J. S. (2007). *Trauma focused cognitive behavioural therapy for abused children with posttraumatic stress disorder: Development and evaluation of a manualised treatment programme*. (Doctor of Philosophy Unpublished Doctoral Thesis), Massey University, Auckland, New Zealand.
- Feather, J. S. (2016, 19/10/2016). [Trauma processing training for staff at Clinical Services].
- Feather, J. S. (2019). Trauma focused cognitive behavioral therapy culturally adapted for multiply abused Māori and Samoan children and families. *Unpublished manuscript*.
- Feather, J. S., & Ronan, K. R. (2006). Trauma focused cognitive behavioural therapy for abused children with posttraumatic stress disorder: A pilot study. *New Zealand Journal of Psychology*, 35(3), 132-145.
- Feather, J. S., & Ronan, K. R. (2009). Trauma focused CBT with maltreated children: A clinic-based evaluation of a new treatment manual. *Australian Psychologist*, 44(3), 174-194. doi:10.1080/00050060903147083
- Feather, J. S., & Ronan, K. R. (2009a). Assessment and interventions for child trauma and abuse. In J. Taylor & M. Themessl-Huber (Eds.), *Safeguarding children in primary health care*. London, UK: Jessica Kingsley Publishers.
- Feather, J. S., & Ronan, K. R. (2010). *Cognitive behavioural therapy for child trauma and abuse*. London, UK: Jessica Kingsley Publishers.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., . . . Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventative Medicine*, 14(4), 245-258. doi:10.1016/S0749-3797(98)00017-8
- Fergusson, D. M., Boden, J. M., & Horwood, J. (2008). Exposure to childhood sexual and physical abuse and adjustment in early adulthood. *Child Abuse & Neglect*, 32(6), 607-619. doi:10.1016/j.chiabu.2006.12.018
- Fergusson, D. M., McLeod, G. F. H., & Horwood, J. (2013). Childhood sexual abuse and adult developmental outcomes: Findings from a 30-year longitudinal study

- in New Zealand. *Child Abuse & Neglect*, 37(9), 664-674.
doi:10.1016/j.chiabu.2013.03.013
- Fernandez, E., & Atwood, N. (2013). Child protection and out of home care: Policy, practice, and research connections Australia and New Zealand. *Psychosocial Intervention*, 22(3), 175-184. doi:10.5093/in2013a21
- Finkelhor, D., Vanderminden, J., Turner, H., Hamby, S., & Shattuck, A. (2014). Child maltreatment rates assessed in a national household survey of caregivers and youth. *Child Abuse & Neglect*, 38(9), 1421-1435.
doi:10.1016/j.chiabu.2014.05.005
- Finn, H., Warner, E., Price, M., & Spinazzola, J. (2017). The boy who was hit in the face: Somatic regulation and processing of preverbal complex trauma. *Journal of Child & Adolescent Trauma*, 11. doi:10.1007/s40653-017-0165-9
- Fitzmaurice, L. (2017). Children's voices in system reform - A case study on children and young people's participation within the modernisation of Child, Youth and Family. *Aotearoa New Zealand Social Work*, 29(1), 41-52.
doi:10.11157/anzswj-vol29iss1id190
- Foa, E. B. (2016, 09/04/16). [CPSS Scoring Instructions].
- Foa, E. B., Chrestman, K. R., & Gilboa-Schechtman, E. (2008). *Prolonged exposure therapy for adolescents with PTSD: Emotional processing of traumatic experiences, therapist guide*. New York, NY: Oxford University Press.
- Foa, E. B., Johnson, K. M., Feeny, N. C., & Treadwell, K. R. (2001). The child PTSD symptom scale: A preliminary examination of its psychometric properties. *Journal of Clinical Child Psychology*, 30(3), 376-384.
doi:10.1207/S15374424JCCP3003_9
- Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (2009). *Effective treatments for PTSD: practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed.). New York, NY: The Guildford Press.
- Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, 99(1), 20-35. doi:10.1037/0033-2909.99.1.20
- Foa, E. B., Steketee, G., & Rothbaum, B. O. (1989). Behavioral/cognitive conceptualizations of post-traumatic stress disorder. *Behavior Therapy*, 20(2), 155-176. doi:10.1016/S0005-7894(89)80067-X
- Ford, J. D., & Blaustein, M. E. (2013). Systemic self-regulation: A framework for trauma-informed services in residential juvenile justice programs. *Journal of Family Violence*, 28(7), 665-677.
- Fortune, S., Watson, P., Robinson, E., Fleming, T., Merry, S., & Denny, S. (2010). *Youth'07: The health and wellbeing of secondary school students in New Zealand: Suicide behaviours and mental health in 2001 and 2007*. Retrieved from Auckland, New Zealand:
<https://www.fmhs.auckland.ac.nz/assets/fmhs/faculty/ahrg/docs/2007-suicide-behaviour-report.pdf>
- Fraser, K., MacKenzie, D., & Versnel, J. (2017). Complex trauma in children and youth: A scoping review of sensory-based interventions. *Occupational Therapy in Mental Health*, 33(3), 199-216. doi:10.1080/0164212X.2016.1265475
- Friedberg, R. D., & McClure, J. M. (2002). *Clinical practice of cognitive therapy with children and adolescents: The nuts and bolts*. London, UK: Guilford Publications.
- Friedman, M. J. (2014, 25/03/2014). PTSD history and overview. Retrieved from <http://www.ptsd.va.gov/professional/PTSD-overview/ptsd-overview.asp>
- Garcia, J. A., & Weisz, J. R. (2002). When youth mental health care stops: Therapeutic relationship problems and other reasons for ending youth outpatient treatment.

- Journal of Consulting and Clinical Psychology*, 70(2), 439-443.
doi:10.1037/0022-006X.70.2.439
- Gilboa-Schechtman, E., Foa, E. B., Shafran, N., Aderka, I. M., Powers, M. B., Rachamim, L., . . . Apter, A. (2010). Prolonged exposure versus dynamic therapy for adolescent PTSD: A pilot randomized controlled trial. *J Am Acad Child Adolesc Psychiatry*, 49(10), 1034-1042. doi:10.1016/j.jaac.2010.07.014
- Gillies, D., Maiocchi, L., Bhandari, A. P., Taylor, F., Gray, C., & O'Brien, L. (2016). Psychological therapies for children and adolescents exposed to trauma. *The Cochrane Database Of Systematic Reviews*, 10.
- Gillihan, S. J., Aderka, I. M., Conklin, P. H., Capaldi, S., & Foa, E. B. (2013). The child PTSD symptom scale: Psychometric properties in female adolescent sexual assault survivors. *Psychological Assessment*, 25(1), 23-31.
doi:10.1037/a0029553
- Girling-Butcher, R. D., & Ronan, K. R. (2009). Brief cognitive-behavioural therapy for children with anxiety disorders: Initial evaluation of a program designed for clinic settings. *Behaviour Change*, 26(1), 27-53. doi:10.1375/behc.26.1.27
- Goldbeck, L., Muche, R., Sachser, C., Tutus, D., & Rosner, R. (2016). Effectiveness of trauma-focused cognitive behavioral therapy for children and adolescents: A randomized controlled trial in eight German mental health clinics. *Psychother Psychosom*, 85(3), 159-170. doi:10.1159/000442824
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.
- Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(11), 1337-1345.
- Goodwin, R. D., Fergusson, D. M., & Horwood, J. (2005). Childhood abuse and familial violence and the risk of panic attacks and panic disorder in young adulthood. *Psychological Medicine*, 35(6), 881-890.
doi:10.1017/s0033291704003265
- Graham, A., Powell, M., Taylor, N., Anderson, D., & Fitzgerald, R. (2013). *Ethical research involving children*. Florence, Italy: UNICEF Office of Research - Innocenti
- Green, E. J., & Myrick, A. C. (2014). Treating complex trauma in adolescents: A phase-based, integrative approach for play therapists. *International Journal of Play Therapy*, 23(3), 131-145. doi:10.1037/a0036679
- Grills, A. E., & Ollendick, T. H. (2003). Multiple informant agreement and the anxiety disorders interview schedule for parents and children. *J Am Acad Child Adolesc Psychiatry*, 42(1), 30-40. doi:10.1097/00004583-200301000-00008
- Gunnar, M. R., & Quevedo, K. M. (2008). Early care experiences and HPA axis regulation in children: A mechanism for later trauma vulnerability. *Progress in Brain Research*, 167, 137-149. doi:10.1016/s0079-6123(07)67010-1
- Hamblin, R. J., Salloum, A., Andel, R., Nadeau, J. M., McBride, N. M., Lewin, A. B., & Storch, E. A. (2016). Predictors of parent-child agreement on child anxiety diagnoses on the ADIS-IV-C/P. *Psychiatry Research*, 245, 303-310.
doi:10.1016/j.psychres.2016.07.041
- Hambrick, E. P., Oppenheim-Weller, S., N'zi, A. M., & Taussig, H. N. (2016). Mental health interventions for children in foster care: A systematic review. *Children and Youth Services Review*, 70(Supplement C), 65-77. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0190740916302717>.
doi:10.1016/j.chilyouth.2016.09.002
- Hanson, J. L., Nacewicz, B. M., Sutterer, M. J., Cayo, A. A., Schaefer, S. M., Rudolph, K. D., . . . Davidson, R. J. (2015). Behavioral problems after early life stress:

- contributions of the hippocampus and amygdala. *Biological Psychiatry*, 77(4), 314-323. doi:10.1016/j.biopsych.2014.04.020
- Heim, C., & Nemeroff, C. B. (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: Preclinical and clinical studies. *Biological Psychiatry*, 49(12), 1023-1039.
- Heim, C., Newport, D. J., Mletzko, T., Miller, A. H., & Nemeroff, C. B. (2008). The link between childhood trauma and depression: Insights from HPA axis studies in humans. *Psychoneuroendocrinology*, 33(6), 693-710.
- Heleniak, C., Jenness, J. L., Stoep, A. V., McCauley, E., & McLaughlin, K. A. (2016). Childhood maltreatment exposure and disruptions in emotion regulation: A transdiagnostic pathway to adolescent internalizing and externalizing psychopathology. *Cognitive Therapy and Research*, 40(3), 394-415. doi:10.1007/s10608-015-9735-z
- Hellemans, K. G. C., Sliwowska, J., Verma, P., & Weinberg, J. (2010). Prenatal alcohol exposure: Fetal programming and later life vulnerability to stress, depression and anxiety disorders. *Neuroscience and Biobehavioral Reviews*, 34(6), 791-807. doi:10.1016/j.neubiorev.2009.06.004
- Herrenkohl, R. C., & Herrenkohl, T. I. (2009). Assessing a child's experience of multiple maltreatment types: Some unfinished business. *Journal of Family Violence*, 24(7), 485-496. doi:10.1007/s10896-009-9247-2
- Hesse, E., & Main, M. (2006). Frightened, threatening, and dissociative parental behavior in low-risk samples: Description, discussion, and interpretations. *Development and Psychopathology*, 18(2), 309-343. doi:10.1017/s0954579406060172
- Higgins, J. P., Altman, D. G., Gotzsche, P. C., Juni, P., Moher, D., Oxman, A. D., . . . Sterne, J. A. (2011). The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. *British Medical Journal*, 343. doi:10.1136/bmj.d5928
- Hinton, D. E., Pich, V., Hofmann, S. G., & Otto, M. W. (2013). Acceptance and mindfulness techniques as applied to refugee and ethnic minority populations with PTSD: Examples from "Culturally Adapted CBT". *Cognitive and Behavioral Practice*, 20(1), 33-46. doi:10.1016/j.cbpra.2011.09.001
- Hollands, T., Sutton, D., Wright-St Clair, V., & Hall, R. (2015). Maori mental health consumers' sensory experience of Kapa Haka and its utility to occupational therapy practice. *New Zealand Journal of Occupational Therapy*, 62(1), 3.
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, 71(2), 165-179. doi:10.1177/001440290507100203
- Huzzif, C. A. (2004). *An investigative study of a cognitive-behavioural and a behavioural treatment for childhood anxiety disorders*. (Doctor of Philosophy), Massey University, Palmerston North, New Zealand. Retrieved from <http://hdl.handle.net/10179/2365>
- Huzzif, C. A., & Ronan, K. R. (1999). Prediction of children's coping following a natural disaster - The Mount Ruapehu eruptions: A prospective study. *The Australasian Journal of Disaster and Trauma Studies*, 1.
- Imel, Z. E., Laska, K., Jakupcak, M., & Simpson, T. L. (2013). Meta-analysis of dropout in treatments for posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 81(3), 394-404. doi:10.1037/a0031474
- Jaberghaderi, N., Greenwald, R., Rubin, A., Zand, S. O., & Dolatabadi, S. (2004). A comparison of CBT and EMDR for sexually-abused Iranian girls. *Clinical Psychology & Psychotherapy*, 11(5), 358-368. doi:10.1002/cpp.395

- Jaycox, L. H., Cohen, J. A., Mannarino, A. P., Walker, D. W., Langley, A. K., Gegenheimer, K. L., . . . Schonlau, M. (2010). Children's mental health care following Hurricane Katrina: A field trial of trauma-focused psychotherapies. *Journal of Traumatic Stress, 23*(2), 223-231. doi:10.1002/jts.20518
- Jee, S., Couderc, J.-P., Swanson, D., Gallegos, A., Hilliard, C., Blumkin, A., . . . Heinert, S. (2015). A pilot randomized trial teaching mindfulness-based stress reduction to traumatized youth in foster care. *Complementary Therapies in Clinical Practice, 21*. doi:10.1016/j.ctcp.2015.06.007
- Jennings, W. G., Richards, T. N., Tomsich, E., & Gover, A. R. (2015). Investigating the role of child sexual abuse in intimate partner violence victimization and perpetration in young adulthood from a propensity score matching approach. *Journal of Child Sexual Abuse, 24*(6), 659-681. doi:10.1080/10538712.2015.1057665
- Kagan, R., & Spinazzola, J. (2013). Real life heroes in residential treatment: Implementation of an integrated model of trauma and resiliency-focused treatment for children and adolescents with complex PTSD. *Journal of Family Violence, 28*(7), 705-715. doi:10.1007/s10896-013-9537-6
- Kar, N. (2011). Cognitive behavioral therapy for the treatment of post-traumatic stress disorder: A review. *Neuropsychiatric Disease and Treatment, 7*, 167-181. doi:10.2147/NDT.S10389
- Kaysen, D., Lindgren, K., Zangana, G. A. S., Murray, L., Bass, J., & Bolton, P. (2013). Adaptation of cognitive processing therapy for treatment of torture victims: Experience in Kurdistan, Iraq. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(2), 184-192. doi:10.1037/a0026053
- Kazdin, A. E. (1982). *Single-case research designs: Methods for clinical and applied settings*. New York, NY: Oxford University Press.
- Kazdin, A. E. (2000). *Psychotherapy for children and adolescents: Directions for research and practice*. New York, NY: Oxford University Press.
- Kazdin, A. E. (2003). *Research design in clinical psychology* (4th ed.). Boston, MA: Allyn and Bacon.
- Kazdin, A. E. (2008). Evidence-based treatment and practice: New opportunities to bridge clinical research and practice, enhance the knowledge base, and improve patient care. *The American Psychologist, 63*(3), 146-159. doi:10.1037/0003-066x.63.3.146
- Keddell, E. (2007). Cultural identity and the Children, Young Persons and Their Families Act 1989: Ideology, policy and practice. *Social Policy Journal of New Zealand*(32), 49 - 71.
- Keddell, E. (2016). Weighing it up: Family maintenance discourses in NGO child protection decision-making in Aotearoa/New Zealand. *Child & Family Social Work, 21*(4), 512-520. doi:10.1111/cfs.12168
- Keddell, E. (2017a). *The Child Youth and Family review: A commentary on prevention*. Retrieved from <https://thepolicyobservatory.aut.ac.nz/>
- Keddell, E. (2017b). The vulnerable child in neoliberal contexts: The construction of children in the Aotearoa New Zealand child protection reforms. *Childhood, 25*(1), 93-108. Retrieved from <https://doi.org/10.1177/0907568217727591>. doi:10.1177/0907568217727591
- Kelly, A., & Garland, E. L. (2016). Trauma-informed mindfulness-based stress reduction for female survivors of interpersonal violence: Results from a Stage I RCT. *Journal of Clinical Psychology, 72*(4), 311-328. doi:10.1002/jclp.22273
- Kendall, P. C. (1994). Treating anxiety disorders in children: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 62*(1), 100-110.

- Kendall, P. C., & Marrs-Garcia, A. (1999). *Psychometric analyses of a therapy-sensitive measure: The Coping Questionnaire (CQ)*. Unpublished Report. Temple University.
- Kersten, P., Vandal, A., Mcpherson, K., Elder, H., Nayar, S., & Dudley, M. (2015). A validation and norming study of the strengths and difficulties questionnaire in the New Zealand context. Retrieved from <http://www.health.govt.nz/publication/validation-and-norming-study-strengths-and-difficulties-questionnaire-new-zealand-context>
- Kimball, J. (1993). Sensory integration frame of reference. In P. Kramner & J. Hinojosa (Eds.), *Frames of reference in pediatric occupational therapy*. Philadelphia, PA: Willams & Wilkins.
- Kimbrough, E., Magyari, T., Langenberg, P., Chesney, M., & Berman, B. (2010). Mindfulness intervention for child abuse survivors. *Journal of Clinical Psychology*, 66(1), 17-33. doi:10.1002/jclp.20624
- Kinniburgh, K. J., Blaustein, M., Spinazzola, J., & van der Kolk, B. A. (2005). Attachment, self-regulation and competency. *Psychiatric Annals*, 35(5), 424-430. doi:10.3928/00485713-20050501-08
- Kliethermes, M., Schacht, M., & Drewry, K. (2014). Complex trauma. *Child and Adolescent Psychiatric Clinics of North America*, 23(2), 339-361. doi:10.1016/j.chc.2013.12.009
- Konanur, S., Muller, R. T., Cinamon, J. S., Thornback, K., & Zorzella, K. P. M. (2015). Effectiveness of trauma-focused cognitive behavioral therapy in a community-based program. *Child Abuse & Neglect*, 50(Supplement C), 159-170. doi:10.1016/j.chiabu.2015.07.013
- Koomar, J. (2009). Trauma- and attachment-informed sensory integration assessment and intervention. *Mental Health Special Interest Section Quarterly*, 32(4), 1-4.
- Korkman, M., Kirk, U., & Kemp, S. (2007a). *NEPSY-second edition (NEPSY-II)*. San Antonio, TX: Harcourt Assessment
- Korkman, M., Kirk, U., & Kemp, S. (2007b). *NEPSY II clinical and interpretive manual*. Bloomington, MN: Pearson Clinical.
- Korotana, L. M., Dobson, K. S., Pusch, D., & Josephson, T. (2016). A review of primary care interventions to improve health outcomes in adult survivors of adverse childhood experiences. *Clinical Psychology Review*, 46, 59-90. doi:10.1016/j.cpr.2016.04.007
- Kovacs, M. (1992). *Children's Depression Inventory (CDI)*. Retrieved from Toronto, Canada:
- Kovacs, M. (2003). *Children's Depression Inventory: Technical manual update*. North Tonawanda, NY: Multi-Health Systems.
- Kovacs, M. (2010). *Children's Depression Inventory 2 (CDI 2)*. Retrieved from North Tonawanda, NY:
- Kuhlman, K. R., Geiss, E. G., Vargas, I., & Lopez-Duran, N. L. (2015). Differential associations between childhood trauma subtypes and adolescent HPA-axis functioning. *Psychoneuroendocrinology*, 54, 103-114. doi:10.1016/j.psyneuen.2015.01.020
- LaGasse, L. L., Wouldes, T., Newman, E., Smith, L. M., Shah, R. Z., Derauf, C., . . . Lester, B. M. (2011). Prenatal methamphetamine exposure and neonatal neurobehavioral outcome in the USA and New Zealand. *Neurotoxicology and Teratology*, 33(1), 166-175. doi:10.1016/j.ntt.2010.06.009
- Lam, A., Lyons, J. S., Griffin, G., & Kisiel, C. (2015). Multiple traumatic experiences and the expression of traumatic stress symptoms for children and adolescents. *Residential Treatment for Children & Youth*, 32(2), 167-181. doi:10.1080/0886571X.2015.1046731

- Landy, M. S. H., Wagner, A. C., Brown-Bowers, A., & Monson, C. (2015). Examining the evidence for complex posttraumatic stress disorder as a clinical diagnosis. *Journal of Aggression, Maltreatment & Trauma*, 24(3), 215-236. doi:10.1080/10926771.2015.1002649
- Lang, A. (2016). Mindfulness in PTSD treatment. *Current Opinion in Psychology*, 14, 40-43. doi:10.1016/j.copsyc.2016.10.005
- Lang, J. M., Ford, J. D., & Fitzgerald, M. M. (2010). An algorithm for determining use of trauma-focused cognitive-behavioral therapy. *Psychotherapy: Theory, Research, Practice, Training*, 47(4), 554-569. doi:10.1037/a0021184
- Lanktree, C. B., & Briere, J. (2017). *Treating complex trauma in children and their families: An integrative approach*. Thousand Oaks, CA: SAGE Publications.
- Lansford, J. E., Dodge, K. A., Pettit, G. S., Bates, J. E., Crozier, J., & Kaplow, J. (2002). A 12-year prospective study of the long-term effects of early child physical maltreatment on psychological, behavioral, and academic problems in adolescence. *Archives of Pediatrics & Adolescent Medicine*, 156(8), 824-830. doi:10.1001/archpedi.156.8.824
- Lansford, J. E., Malone, P. S., Stevens, K. I., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2006). Developmental trajectories of externalizing and internalizing behaviors: Factors underlying resilience in physically abused children. *Development and Psychopathology*, 18(1), 35-55. doi:10.1017/S0954579406060032
- Lawrence, J., & Smith, A. (2009). A place where it is not okay to hit children: The role of professionals. *Social Policy Journal of New Zealand*, 34, 113-123. Retrieved from <https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/journals-and-magazines/social-policy-journal/spj34/34-not-okay-to-hit-children.html>.
- Leask, A. (2018, 2nd January). Exclusive: 'I'm not a monster' - Oriwa Kemp breaks her silence over Nia Glassie, life and her future. *The New Zealand Herald*. Retrieved from http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11960291
- LeBel, J., Champagne, T., Stromberg, N., & Coyle, R. (2010). Integrating sensory and trauma-informed interventions: A Massachusetts State initiative, Part 1. *Mental Health Special Interest Section Quarterly*, 33(1), 1-4.
- Leenarts, L. E. W., Diehle, J., Doreleijers, T. A. H., Jansma, E. P., & Lindauer, R. J. L. (2013). Evidence-based treatments for children with trauma-related psychopathology as a result of childhood maltreatment: a systematic review. *European Child & Adolescent Psychiatry*, 22(5), 269-283. doi:10.1007/s00787-012-0367-5
- Leichsenring, F., & Klein, S. (2014). Evidence for psychodynamic psychotherapy in specific mental disorders: A systematic review. *Psychoanalytic Psychotherapy*, 28(1), 4-32. doi:10.1080/02668734.2013.865428
- Lenz, A. S., & Hollenbaugh, K. M. (2015). Meta-analysis of trauma-focused cognitive behavioral therapy for treating PTSD and co-occurring depression among children and adolescents. *Counseling Outcome Research and Evaluation*, 6(1), 18-32. Retrieved from <https://doi.org/10.1177/2150137815573790>. doi:10.1177/2150137815573790
- Libby, D. J., Pilver, C. E., & Desai, R. (2012). Complementary and alternative medicine in VA specialized PTSD treatment programs. *Psychiatric Services*, 63(11), 1134-1136. doi:10.1176/appi.ps.201100456
- Lieberman, A. F., Van Horn, P., & Ippen, C. G. (2005). Toward evidence-based treatment: child-parent psychotherapy with preschoolers exposed to marital violence. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44(12), 1241-1248. doi:10.1097/01.chi.0000181047.59702.58

- Linning, L. M., & Kearney, C. A. (2004). Post-traumatic stress disorder in maltreated youth: A study of diagnostic comorbidity and child factors. *Journal of Interpersonal Violence, 19*(10), 1087-1101. doi:10.1177/0886260504269097
- Little, S. G., Akin-Little, A., & Gutierrez, G. (2009). Children and traumatic events: Therapeutic techniques for psychologists working in the schools. *Psychology in the Schools, 46*(3), 199-205. doi:10.1002/pits.20364
- Lobo, M. A., Kagan, S. H., & Corrigan, J. D. (2017). Research design options for intervention studies. *Pediatric Physical Therapy, 29*(Suppl 3), s57-s63. doi:10.1097/pep.0000000000000380
- Lupien, S. J., McEwen, B. S., Gunnar, M. R., & Heim, C. (2009). Effects of stress throughout the lifespan on the brain, behaviour and cognition. *Nature Reviews Neuroscience, 10*(6), 434-445. doi:10.1038/nrn2639
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562. doi:10.1111/1467-8624.00164
- Macfarlane, A. H., Blampied, N., & Macfarlane, S. (2011). Blending the clinical and the cultural: A framework for conducting formal psychological assessment in bicultural settings. *New Zealand Journal of Psychology, 40*(2), 5-15.
- MacLachlan, J., & Stromberg, N. (2018). Massachusetts Department of Mental Health safety tool. In J. LeBel & N. Stromberg (Eds.), *Resource guide: Creating positive cultures of care* (4th ed., pp. 171-200). Retrieved from <http://www.mass.gov/eohhs/docs/dmh/rsri/restraint-resources.pdf>
- Maguire, S., & Naughton, A. (2016). Neglect: widespread, damaging and difficult to identify. *Paediatrics and Child Health, 26*(11), 485-487. doi:10.1016/j.paed.2016.06.010
- Maguire, S., Williams, B., Naughton, A., Cowley, L. E., Tempest, V., Mann, M. K., . . . Kemp, A. M. (2015). A systematic review of the emotional, behavioural and cognitive features exhibited by school-aged children experiencing neglect or emotional abuse. *Child: Care, Health & Development, 41*(5), 641-653. doi:10.1111/cch.12227
- Malarbi, S., Abu-Rayya, H. M., Muscara, F., & Stargatt, R. (2017). Neuropsychological functioning of childhood trauma and post-traumatic stress disorder: A meta-analysis. *Neuroscience & Biobehavioral Reviews, 72*(Supplement C), 68-86. doi:10.1016/j.neubiorev.2016.11.004
- Manolov, R., Gast, D. L., Perdices, M., & Evans, J. J. (2014). Single-case experimental designs: Reflections on conduct and analysis. *Neuropsychological Rehabilitation, 24*(3-4), 634-660. doi:10.1080/09602011.2014.903199
- Manuela, S., & Sibley, C. G. (2013). The Pacific Identity and Wellbeing Scale (PIWBS): A culturally-appropriate self-report measure for Pacific Peoples in New Zealand. *Social Indicators Research, 112*(1), 83-103. doi:10.1007/s11205-012-0041-9
- March, J. (1998). *Manual for the Multidimensional Anxiety Scale for Children (MASC)*. Toronto, Canada: Multi-Health Systems.
- March, J. (2004). *MASC 2 Multidimensional Anxiety Scale for Children*. Retrieved from Toronto, Canada:
- Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51*, 445-479. doi:10.1146/annurev.psych.51.1.445
- Marie, D., Fergusson, D. M., & Boden, J. M. (2009). Ethnic identity and exposure to maltreatment in childhood: Evidence from a New Zealand birth cohort. *Social Policy Journal of New Zealand*(36), 154-171. Retrieved from <http://www.msd.govt.nz/about-msd-and-our-work/publications->

- resources/journals-and-magazines/social-policy-journal/spj36/36-ethnic-identity-and-exposure-to-maltreatment-in-childhood.htmls.
- Mariu, K. R., Merry, S. N., Robinson, E. M., & Watson, P. D. (2011). Seeking professional help for mental health problems, among New Zealand secondary school students. *Clinical Child Psychology and Psychiatry*, 17(2), 284-297. doi:10.1177/1359104511404176
- Mathews, C. A., Kaur, N., & Stein, M. B. (2008). Childhood trauma and obsessive-compulsive symptoms. *Depression and Anxiety*, 25(9), 742-751. doi:10.1002/da.20316
- May-Benson, T. A., & Teasdale, A. (2017). *The SAFE PLACE program: A program review – interim project summary*. Retrieved from <http://www.otawatertown.com/wp-content/uploads/2017/04/Safe-Place-Program-Review-Summary.pdf>
- McCroskie, B. (2016). Defying human nature: An analysis of New Zealand's 2007 anti-smacking law. Retrieved from <http://bobmccoskrie.com/wp-content/uploads/2016/01/Defying-Human-Nature-FULL-REPORT.pdf>
- McKay, M. M., & Bannon, W. M., Jr. (2004). Engaging families in child mental health services. *Child and Adolescent Psychiatric Clinics of North America*, 13(4), 905-921, vii. doi:10.1016/j.chc.2004.04.001
- McLaughlin, K. A., Koenen, K. C., Hill, E. D., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2013). Trauma exposure and posttraumatic stress disorder in a national sample of adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 52(8), 815-830.e814. doi:10.1016/j.jaac.2013.05.011
- McLeod, G. F., Fergusson, D. M., & Horwood, J. (2014). Childhood physical punishment or maltreatment and partnership outcomes at age 30. *The American Journal of Orthopsychiatry*, 84(3), 307-315. doi:10.1037/h0099807
- McMullen, J., O'Callaghan, P., Shannon, C., Black, A., & Eakin, J. (2013). Group trauma-focused cognitive-behavioural therapy with former child soldiers and other war-affected boys in the DR Congo: A randomised controlled trial. *J Child Psychol Psychiatry*, 54(11), 1231-1241. doi:10.1111/jcpp.12094
- Mehta, M. A., Golembo, N. I., Nosarti, C., Colvert, E., Mota, A., Williams, S. C., . . . Sonuga-Barke, E. J. (2009). Amygdala, hippocampal and corpus callosum size following severe early institutional deprivation: The English and Romanian adoptees study pilot. *Journal of Child Psychology and Psychiatry*, 50(8), 943-951. doi:10.1111/j.1469-7610.2009.02084.x
- Metge, J., & Ruru, J. (2007). Māori aspirations and family law policy. In M. Henaghan & B. Atkin (Eds.), *Family Law Policy in New Zealand* (3rd ed., pp. 47-80). Wellington, New Zealand: LexisNexis.
- Miller, L. J., Nielsen, D. M., Schoen, S. A., & Brett-Green, B. A. (2009). Perspectives on Sensory Processing Disorder: A call for translational research. *Frontiers in Integrative Neuroscience*, 3, 22. doi:10.3389/neuro.07.022.2009
- Miller, L. J., Reisman, J., McIntosh, D. N., & Simon, J. (2001). An ecological model of sensory modulation. In S. Smith-Roley, E. Imperatore-Blanche, & R. C. Schaaf (Eds.), *The nature of sensory integration with diverse populations* (pp. 57-88). San Antonio, TX: The Psychological Corporation.
- Ministry for Vulnerable Children, Oranga Tamariki (MVCOT). (2017, 14/03/17). Va'aifetu. Retrieved from <https://practice.mvcot.govt.nz/knowledge-base-practice-frameworks/working-with-pacific-peoples/index.html#nul>
- Ministry of Health. (2008). Pacific peoples and mental health: A paper for the Pacific health and disability action plan review. Retrieved from

- <https://www.mentalhealth.org.nz/assets/ResourceFinder/pacific-peoples-and-menta-health-may08.pdf>
- Ministry of Social Development. (2010). *Recognising and responding to child neglect in New Zealand*. Retrieved from Wellington, New Zealand:
- Ministry of Social Development. (2015). Summary of public consultation on New Zealand's draft fifth periodic report under the United Nations Convention on the Rights of the Child 2015. Retrieved from <https://www.msd.govt.nz/documents/about-msd-and-our-work/publications-resources/monitoring/uncroc/2015.04.15-summary-of-public-consultation-annex-two-.pdf>
- Ministry of Social Development. (n.d.). Investing in children programme. Retrieved from <http://www.msd.govt.nz/about-msd-and-our-work/work-programmes/investing-in-children/index.html>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Med*, 6(7), e1000097. doi:10.1371/journal.pmed.1000097
- Moore, K. (2005). *The sensory connection programme: Activities from mental health treatment. Manual and handbook*. Framingham, MA: Therapro.
- Morgan, D. L., & Morgan, R. K. (2003). Single-participant research design: Bringing science to managed care. In A. E. Kazdin (Ed.), *Methodological issues and strategies in clinical research* (3rd ed.). Washington, DC, WA: American Psychological Association.
- Morgan, D. L., & Morgan, R. K. (2009). *Single-case research methods for the behavioral and health sciences*. Los Angeles, CA: SAGE.
- Murphy, C., Paton, N., Gulliver, P., & Fanslow, J. (2013). Understanding connections and relationships: Child maltreatment, intimate partner violence and parenting. Retrieved from <https://nzfvc.org.nz/sites/nzfvc.org.nz/files/issues-paper-3-2013.pdf>
- Murupaenga, P., Feather, J. S., & Berking, T. (2004). *CBT with children of indigenous and migrant families: Interweaving of cultural context and psychological/therapeutic models with Maori and Pacific Island children and families traumatised by abuse*. Paper presented at the 15th International Congress on Child Abuse and Neglect (ISPCAN), Brisbane, Australia.
- National Collaborating Centre for Mental Health (UK). (2005). *Post-traumatic stress disorder: The management of PTSD in adults and children in primary and secondary care*. Leicester, UK: The British Psychological Society.
- Navalta, C. P., Polcari, A., Webster, D. M., Boghossian, A., & Teicher, M. H. (2006). Effects of childhood sexual abuse on neuropsychological and cognitive function in college women. *The Journal of Neuropsychiatry and Clinical Neurosciences*, 18(1), 45-53. doi:10.1176/appi.neuropsych.18.1.45
- Neenan, M., & Dryden, W. (2015). *Cognitive behaviour therapy: 100 key points and techniques* (2nd ed.). Hove, UK: Routledge
- Neuner, F., Catani, C., Ruf, M., Schauer, E., Schauer, M., & Elbert, T. (2008). Narrative exposure therapy for the treatment of traumatized children and adolescents (KidNET): From neurocognitive theory to field intervention. *Child and Adolescent Psychiatric Clinics of North America*, 17(3), 641-664. doi:10.1016/j.chc.2008.03.001
- New Zealand Family Violence Clearinghouse (NZFVC). (2016). *Data summary: Child sexual abuse, July 2016*. Retrieved from <https://nzfvc.org.nz/sites/nzfvc.org.nz/files/DS4-Child-Sexual-Abuse-2016.pdf>

- New Zealand Government. (2012). The White Paper for vulnerable children. Retrieved from <http://www.msd.govt.nz/documents/about-msd-and-our-work/work-programmes/policy-development/white-paper-vulnerable-children/white-paper-for-vulnerable-children-volume-1.pdf>
- New Zealand Police. (n.d.). Puawaitahi – child protection multi-agency centre. Retrieved from <http://www.police.govt.nz/about-us/structure/teams-units/puawaitahi>
- New Zealand Psychologists Board. (2002). Code of ethics for psychologists working in Aotearoa/New Zealand Retrieved from http://www.psychologistsboard.org.nz/cms_show_download.php?id=44
- New Zealand Psychologists Board. (2013). Guidelines on the use of psychometric tests. Retrieved from http://www.psychologistsboard.org.nz/cms_show_download.php?id=354
- Nickerson, A., Bryant, R. A., Silove, D., & Steel, Z. (2011). A critical review of psychological treatments of posttraumatic stress disorder in refugees. *Clinical Psychology Review, 31*(3), 399-417. doi:10.1016/j.cpr.2010.10.004
- Nygaard, E., Hussain, A., Siqveland, J., & Heir, T. (2016). General self-efficacy and posttraumatic stress after a natural disaster: A longitudinal study. *BMC Psychology, 4*(1), 15. Retrieved from <https://doi.org/10.1186/s40359-016-0119-2>. doi:10.1186/s40359-016-0119-2
- O'Callaghan, P., McMullen, J., Shannon, C., Rafferty, H., & Black, A. (2013). A randomized controlled trial of trauma-focused cognitive behavioral therapy for sexually exploited, war-affected Congolese girls. *Journal of the American Academy of Child & Adolescent Psychiatry, 52*(4), 359-369. doi:10.1016/j.jaac.2013.01.013
- O'Donnell, M., Nassar, N., Leonard, H., Mathews, R., Patterson, Y., & Stanley, F. (2010). Monitoring child abuse and neglect at a population level: Patterns of hospital admissions for maltreatment and assault. *Child Abuse & Neglect, 34*(11), 823-832. doi:10.1016/j.chiabu.2010.04.003
- Office of the Children's Commissioner. (2016a). Population, ages and ethnicities of children. Retrieved from <http://www.occ.org.nz/assets/Uploads/StatsOnKids/demographics2016.pdf>
- Office of the Children's Commissioner. (2016b). *State of care 2016*. Retrieved from <http://www.occ.org.nz/assets/Publications/OCC-State-of-Care-2016FINAL.pdf>
- Ogawa, Y. (2004). Childhood trauma and play therapy intervention for traumatized children. *Journal of Professional Counseling, Practice, Theory, & Research, 32*(1), 19.
- Ogden, P., Minton, K., & Pain, C. (2006). *Trauma and the body: A sensorimotor approach to psychotherapy*. New York, NY: W. W. Norton & Co.
- Olema, D. K., Catani, C., Ertl, V., Saile, R., & Neuner, F. (2014). The hidden effects of child maltreatment in a war region: Correlates of psychopathology in two generations living in Northern Uganda. *Journal of Traumatic Stress, 27*(1), 35-41. doi:10.1002/jts.21892
- Onyut, L. P., Neuner, F., Schauer, E., Ertl, V., Odenwald, M., Schauer, M., & Elbert, T. (2005). Narrative exposure therapy as a treatment for child war survivors with posttraumatic stress disorder: Two case reports and a pilot study in an African refugee settlement. *BMC Psychiatry, 5*, 7. doi:10.1186/1471-244x-5-7
- Oranga Tamariki. (2018). Royal Commission of Inquiry. Retrieved from <https://orangatamariki.govt.nz/about-us/royal-commission-of-inquiry/>
- Oranga Tamariki Evidence Centre. (2017). *Understanding harm experienced by children and young people in care during 2015/16*. Retrieved from Wellington, New Zealand:

- Oshodi, Y., Macharia, M., Lachman, A., & Seedat, S. (2016). Immediate and long-term mental health outcomes in adolescent female rape survivors. *Journal of Interpersonal Violence*. doi:10.1177/0886260516682522
- OT Innovations. (2015). Sensory rooms in mental health. Retrieved from <http://www.ot-innovations.com/clinical-practice/sensory-modulation/sensory-rooms-in-mental-health-3/>
- Paone, T., & Maldonado, J. M. (2008). *Child centered play therapy with traumatized children: Review and clinical applications*. Westlong, NJ: Monmouth University.
- Pavuluri, M. N., Graczyk, P. A., Henry, D. B., Carbray, J. A., Heidenreich, J., & Miklowitz, D. J. (2004). Child- and family-focused cognitive-behavioral therapy for pediatric bipolar disorder: Development and preliminary results. *J Am Acad Child Adolesc Psychiatry*, 43(5), 528-537. doi:10.1097/00004583-200405000-00006
- Pearce, J. W., & Pezzot-Pearce, T. D. (2007). *Psychotherapy of abused and neglected children*. New York, NY: Guilford Press.
- Pearlman, L. A., & Courtois, C. A. (2005). Clinical applications of the attachment framework: Relational treatment of complex trauma. *Journal of Traumatic Stress*, 18(5), 449-459. doi:10.1002/jts.20052
- Pearson Clinical. (2007). NEPSY-second edition product details. Retrieved from <http://www.pearsonclinical.com/psychology/products/100000584/nepsy-second-edition-nepsy-ii.html#tab-details>
- Perone, M., & Hursh, D. E. (2013). *Single-case experimental designs*. Washington, DC: American Psychological Association.
- Perry, B. (1996). Neurodevelopmental adaptations to violence: How children survive the intragenerational vortex of violence. In B. Perry (Ed.), *Violence and childhood trauma: Understanding and responding to the effects of violence on young children* (pp. 67-80). Cleveland, OH: Gund Foundation Publishers.
- Perry, B. (2000). The neuroarcheology of childhood maltreatment: The neurodevelopmental costs of adverse childhood events. In B. Geffner (Ed.), *The cost of child maltreatment: Who pays? We all do*. San Diego, CA: Haworth Press.
- Perry, B. (2001). The neurodevelopmental impact of violence in childhood. . In D. Schetky & E. P. Benedek (Eds.), *Textbook of child and adolescent forensic psychiatry* (pp. 221-238). Washington, D.C. : American Psychiatric Press.
- Perry, B., Pollard, R. A., Blaicley, T. L., Baker, W. L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: How "states" become "traits". *Infant Mental Health Journal*, 16(4), 271-291.
- Petrenko, C. L. M., Friend, A., Garrido, E. F., Taussig, H. N., & Culhane, S. E. (2012). Does subtype matter? Assessing the effects of maltreatment on functioning in preadolescent youth in out-of-home care. *Child Abuse & Neglect*, 36(9), 633-644. doi:10.1016/j.chiabu.2012.07.001
- Phoenix Australia Centre for Posttraumatic Mental Health (ACPMH). (2013). *Australian guidelines for the treatment of acute stress disorder and posttraumatic stress disorder*. Retrieved from Melbourne, Australia: <http://phoenixaustralia.org/wp-content/uploads/2015/03/Phoenix-ASD-PTSD-Guidelines.pdf>
- Purvis, K. B., McKenzie, L. B., Cross, D. R., & Razuri, E. B. (2013). A spontaneous emergence of attachment behavior in at-risk children and a correlation with sensory deficits. *Journal of Child and Adolescent Psychiatric Nursing*, 26(3), 165-172. doi:10.1111/jcap.12041

- Putnam, K. T., Harris, W. W., & Putnam, F. W. (2013). Synergistic childhood adversities and complex adult psychopathology. *Journal of Traumatic Stress*, 26(4), 435-442. doi:10.1002/jts.21833
- Racco, A., & Vis, J.-A. (2015). Evidence based trauma treatment for children and youth. *Child & Adolescent Social Work Journal*, 32(2), 121-129. doi:10.1007/s10560-014-0347-3
- Rachamim, L., Mirochnik, I., Helpman, L., Nacasch, N., & Yadin, E. (2015). Prolonged exposure therapy for toddlers with traumas following medical procedures. *Cognitive and Behavioral Practice*, 22(2), 240-252. doi:10.1016/j.cbpra.2014.01.006
- Raider, M. C., Steele, W., Delillo-Storey, M., Jacobs, J., & Kuban, C. (2008). Structured Sensory Therapy (SITCAP-ART) for traumatized adjudicated adolescents in residential treatment. *Residential Treatment for Children & Youth*, 25(2), 167-185. doi:10.1080/08865710802310178
- Randle, M., Ernst, D., Leisch, F., & Dolnicar, S. (2017). What makes foster carers think about quitting? Recommendations for improved retention of foster carers. *Child and Family Social Work*, 22(3), 1175-1186. doi:10.1111/cfs.12334
- Rebstock, P., Bush, M., Douglas, P., Dunlop, D., Leahy, H., & Poulten, R. (2015a). Expert panel final report: Investing in New Zealand's children and their families. Retrieved from <https://www.msd.govt.nz/documents/about-msd-and-our-work/work-programmes/investing-in-children/investing-in-children-report.pdf>
- Rebstock, P., Bush, M., Douglas, P., Dunlop, D., Leahy, H., & Poulten, R. (2015b). Modernising Child, Youth and Family expert panel: Interim report. Retrieved from <https://www.msd.govt.nz/documents/about-msd-and-our-work/work-programmes/cyf-modernisation/interim-report-expert-panel.pdf>
- Reid, J., Taylor-Moore, K., & Varona, G. (2014). Towards a social-structural model for understanding current disparities in Maori health and well-being. *Journal of Loss and Trauma*, 19(6), 514-536. doi:10.1080/15325024.2013.809295
- Renou, S., Hergueta, T., Flament, M., Mouren-Simeoni, M. C., & Lecrubier, Y. (2004). Diagnostic structured interviews in child and adolescent's psychiatry. *Encephale*, 30(2), 122-134.
- Richards, T. N., Tillyer, M. S., & Wright, E. M. (2017). Intimate partner violence and the overlap of perpetration and victimization: Considering the influence of physical, sexual, and emotional abuse in childhood. *Child Abuse & Neglect*, 67, 240-248. doi:10.1016/j.chiabu.2017.02.037
- Rochford, T. (2004). Whare Tapa Wha: A Māori model of a unified theory of health. *Journal of Primary Prevention*, 25(1), 41-57. doi:10.1023/B:JOPP.0000039938.39574.9e
- Rojas, V. M., & Pappagallo, M. (2004). Risk factors for PTSD in children and adolescents. In R. R. Silva (Ed.), *Posttraumatic stress disorders in children and adolescents: Handbook* (pp. 38-59). New York, NY: Norton.
- Ronan, K. R. (1997). The effects of a 'benign' disaster: symptoms of post-traumatic stress in children following a series of volcanic eruptions. *Australasian Journal of Disaster and Trauma Studies*, 1.
- Ronan, K. R., Crellin, K., Johnston, D. M., Finnis, K., Paton, D., & Becker, J. (2008). Promoting child and family resilience to disasters: Effects, interventions, and prevention effectiveness. *Children, Youth and Environments*, 18(1), 332-353.
- Ronan, K. R., & Deane, F. P. (1998). Anxiety disorders. In P. Graham (Ed.), *Cognitive-behaviour therapy for children and families* (pp. 74-94). Cambridge, UK: Cambridge University Press.
- Ruf, M., Schauer, M., Neuner, F., Catani, C., Schauer, E., & Elbert, T. (2010). Narrative exposure therapy for 7- to 16-year-olds: A randomized controlled trial with

- traumatized refugee children. *Journal of Traumatic Stress*, 23(4), 437-445. doi:10.1002/jts.20548
- Ryan, K., Lane, S. J., & Powers, D. (2017). A multidisciplinary model for treating complex trauma in early childhood. *International Journal of Play Therapy*, 26(2), 111-123. doi:10.1037/pla0000044
- Ryan, V., & Needham, C. (2001). Non-directive play therapy with children experiencing psychic trauma. *Clinical Child Psychology and Psychiatry*, 6(3), 437-453.
- Salloum, A., Wang, W., Robst, J., Murphy, T. K., Scheeringa, M. S., Cohen, J. A., & Storch, E. A. (2016). Stepped care versus standard trauma-focused cognitive behavioral therapy for young children. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 57(5), 614-622. doi:10.1111/jcpp.12471
- Salmon, K., & Bryant, R. A. (2002). Posttraumatic stress disorder in children. The influence of developmental factors. *Clinical Psychology Review*, 22(2), 163-188. doi:10.1016/S0272-7358(01)00086-1
- Samuelson, K. W. (2011). Post-traumatic stress disorder and declarative memory functioning: a review. *Dialogues in clinical neuroscience*, 13(3), 346-351.
- Saunders, B. E., & Adams, Z. W. (2014). Epidemiology of traumatic experiences in childhood. *Child and Adolescent Psychiatric Clinics of North America*, 23(2), 167-184. doi:10.1016/j.chc.2013.12.003
- Saunders, B. E., Berliner, L., & Hanson, R. (2003). *Child physical and sexual abuse: guidelines for treatment. Final report*. Retrieved from Charleston, SC: <https://mainweb-v.musc.edu/vawprevention/general/saunders.pdf>
- Saunders, D. (2005). The importance of sensory processing. Retrieved from http://sociallyspeakingllc.com/my-mission-for-socially/free-pdfs/the_importance_of_sensory.pdf
- Scanlan, J. N., & Novak, T. (2015). Sensory approaches in mental health: A scoping review. *Australian Occupational Therapy Journal*, 62(5), 277-285. doi:10.1111/1440-1630.12224
- Schaaf, R. C., & Miller, L. J. (2005). Occupational therapy using a sensory integrative approach for children with developmental disabilities. *Mental Retardation and Developmental Disabilities Research Reviews*, 11(2), 143-148. doi:10.1002/mrdd.20067
- Scheeringa, M. S., Weems, C. F., Cohen, J. A., Amaya-Jackson, L., & Guthrie, D. (2011). Trauma-focused cognitive-behavioral therapy for posttraumatic stress disorder in three through six year-old children: A randomized clinical trial. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 52(8), 853-860. doi:10.1111/j.1469-7610.2010.02354.x
- Scheeringa, M. S., & Zeanah, C. H. (2008). Reconsideration of harm's way: Onsets and comorbidity patterns of disorders in preschool children and their caregivers following Hurricane Katrina. *Journal of Clinical Child and Adolescent Psychology*, 37(3), 508-518. doi:10.1080/15374410802148178
- Schottelkorb, A. A., Dumas, D. M., & Garcia, R. (2012). Treatment for childhood refugee trauma: A randomized, controlled trial. *International Journal of Play Therapy*, 21(12), 57-73. doi:10.1037/a0027430
- Schulz, P. M., Resick, P. A., Huber, L. C., & Griffin, M. G. (2006). The effectiveness of cognitive processing therapy for PTSD with refugees in a community setting. *Cognitive and Behavioral Practice*, 13(4), 322-331. doi:10.1016/j.cbpra.2006.04.011
- Scott, K. M., Smith, D. R., & Ellis, P. M. (2010). Prospectively ascertained child maltreatment and its association with DSM-IV mental disorders in young adults.

- Archives of General Psychiatry*, 67(7), 712-719.
doi:10.1001/archgenpsychiatry.2010.71
- Seymour, F. W., Cooper, E., & Stanton, S. (2016). Child abuse and neglect. In W. Waitoki, J. S. Feather, N. R. Robertson, & J. J. Rucklidge (Eds.), *Professional practice of psychology in Aotearoa New Zealand* (3rd ed., pp. 209-228). Wellington, New Zealand: New Zealand Psychological Society.
- Shapiro, D. L., & Levendosky, A. A. (1999). Adolescent survivors of childhood sexual abuse: The mediating role of attachment style and coping in psychological and interpersonal functioning. *Child Abuse & Neglect*, 23(11), 1175-1191.
doi:10.1016/S0145-2134(99)00085-X
- Shea, A., Walsh, C., MacMillan, H., & Steiner, M. (2005). Child maltreatment and HPA axis dysregulation: Relationship to major depressive disorder and post traumatic stress disorder in females. *Psychoneuroendocrinology*, 30(2), 162-178.
doi:10.1016/j.psyneuen.2004.07.001
- Shlonsky, A., & Wagner, D. (2005). The next step: Integrating actuarial risk assessment and clinical judgment into an evidence-based practice framework in CPS case management. *Children and Youth Services Review*, 27(4), 409-427. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0190740904002403>.
doi:10.1016/j.childyouth.2004.11.007
- Siegel, D. J. (2015). *The developing mind: How relationships and the brain interact to shape who we are* (2nd, rev. ed.). New York, NY: The Guilford Press.
- Sigel, B. A., Kramer, T. L., Conners-Burrow, N. A., Church, J. K., Worley, K. B., & Mitrani, N. A. (2013). Statewide dissemination of trauma-focused cognitive-behavioral therapy (TF-CBT). *Children and Youth Services Review*, 35(6), 1023-1029. doi:10.1016/j.childyouth.2013.03.012
- Signal, T., Taylor, N., Botros, H., Prentice, K., & Lazarus, K. (2013). Whispering to horses: Childhood sexual abuse, depression and the efficacy of equine facilitated therapy. *Sexual Abuse in Australia & New Zealand*, 5(1), 24-32.
- Silva, R. R., & Kessler, L. (2004). Resiliency and vulnerability factors in childhood PTSD. In R. R. Silva (Ed.), *Posttraumatic stress disorders in children and adolescents: handbook* (pp. 18-37). New York, NY: Norton.
- Silverman, W. K., & Albano, A. M. (1996). *The Anxiety Disorders Interview Schedule for Children for DSM-IV: Clinical manual (child and parent versions)*. San Antonio, TX: Psychological Corporation.
- Silverman, W. K., Saavedra, L. M., & Pina, A. A. (2001). Test-retest reliability of anxiety symptoms and diagnoses with the Anxiety Disorders Interview Schedule for DSM-IV: Child and parent versions. *J Am Acad Child Adolesc Psychiatry*, 40(8), 937-944. doi:10.1097/00004583-200108000-00016
- Simpson, J., Duncanson, M., Oben, G., Wicken, A., & Gallagher, S. (2016). *Child poverty monitor technical report 2016*. Retrieved from Dunedin, New Zealand: <http://www.nzchildren.co.nz/#Assault>
- Smith, J. D. (2012). Single-case experimental designs: A systematic review of published research and current standards. *Psychological Methods*, 17(4), 510-550.
doi:10.1037/a0029312
- Smith, N. B., Doran, J. M., Sippel, L. M., & Harpaz-Rotem, I. (2017). Fear extinction and memory reconsolidation as critical components in behavioral treatment for posttraumatic stress disorder and potential augmentation of these processes. *Neuroscience Letters*, 649, 170-175. doi:10.1016/j.neulet.2017.01.006
- Smith, P., Perrin, S., Yule, W., & Clark, D. M. (2010). *Post traumatic stress disorder: Cognitive therapy with children and young people*. East Sussex, UK: Routledge.
- Smyth, J. M., Hockemeyer, J. R., & Tulloch, H. (2008). Expressive writing and post-traumatic stress disorder: effects on trauma symptoms, mood states, and cortisol

- reactivity. *British Journal of Health Psychology*, 13(Pt 1), 85-93.
doi:10.1348/135910707x250866
- Spitzer, C., Wegert, S., Wollenhaupt, J., Wingenfeld, K., Barnow, S., & Grabe, H. J. (2013). Gender-specific association between childhood trauma and rheumatoid arthritis: A case-control study. *Journal of Psychosomatic Research*, 74(4), 296-300. doi:10.1016/j.jpsychores.2012.10.007
- Steele, W., & Kuban, C. (2013). *Working with grieving and traumatized children and adolescents: Discovering what matters most through evidence-based, sensory interventions*. Hoboken, NJ: Wiley.
- Steele, W., & Kuban, C. (2014). Healing trauma, building resilience: SITCAP in action. *Reclaiming Children & Youth*, 22(4), 18.
- Steele, W., & Malchiodi, C. (2012). *Trauma-informed practices with children and adolescents*. New York, NY: Routledge.
- Steele, W., & Raider, M. (2001). *Structured sensory intervention for traumatized children, adolescents, and parents: strategies to alleviate trauma*. New York, NY: Edwin Mellen Press.
- Steele, W., Raider, M., & Kuban, C. (2008). Connections, continuity, dignity, opportunities model: Follow-up of children who completed the I Feel Better Now! trauma treatment program. *Trauma and Loss: Research and Interventions*, 8(2), 16-24.
- Steine, I. M., Winje, D., Krystal, J. H., Bjorvatn, B., Milde, A. M., Grønli, J., . . . Pallesen, S. (2017). Cumulative childhood maltreatment and its dose-response relation with adult symptomatology: Findings in a sample of adult survivors of sexual abuse. *Child Abuse & Neglect*, 65, 99-111.
doi:10.1016/j.chiabu.2017.01.008
- Sternin, L., & Weiss, A. (2014). Home visiting: Benefits and challenges of working with traumatized young children in the home using the child-parent psychotherapy model. In R. Pat-Horenczyk, D. Brom, & J. M. Vogel (Eds.), *Helping children cope with trauma : Individual, family and community perspectives* (pp. 133-145). New York, NY: Routledge.
- Stevanovic, D., Jafari, P., Knez, R., Franic, T., Atilola, O., Davidovic, N., . . . Lakic, A. (2017). Can we really use available scales for child and adolescent psychopathology across cultures? A systematic review of cross-cultural measurement invariance data. *Transcult Psychiatry*, 54(1), 125-152.
doi:10.1177/1363461516689215
- Stevens, M. (1999). Assessing outcomes in child welfare. In C. Lupton & P. Nixon (Eds.), *Empowering practice: A critical appraisal of the family group conference approach*. Bristol, UK: Polity Press.
- Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R. A., & van Ijzendoorn, M. H. (2015). The prevalence of child maltreatment across the globe: Review of a series of meta-analyses. *Child Abuse Review*, 24(1), 37-50. doi:10.1002/car.2353
- Stone, L., Otten, R., Engels, R., Vermulst, A., & Janssens, J. (2010). Psychometric properties of the parent and teacher versions of the Strengths and Difficulties Questionnaire for 4- to 12-Year-olds: A review. *Clinical Child and Family Psychology Review*, 13(3), 254-274. doi:10.1007/s10567-010-0071-2
- Strand, V. C., Pasquale, L. E., & Sarmiento, T. L. (2004). *Child and adolescent trauma measures: A review*. Retrieved from Fordham University Graduate School of Social Service:
- Suliman, S., Mkabile, S. G., Fincham, D. S., Ahmed, R., Stein, D. J., & Seedat, S. (2009). Cumulative effect of multiple trauma on symptoms of posttraumatic stress disorder, anxiety, and depression in adolescents. *Comprehensive Psychiatry*, 50(2), 121-127. doi:10.1016/j.comppsy.2008.06.006

- Sun, S., & Wang, S. (2015). The Children's Depression Inventory in worldwide child development research: A reliability generalization study. *Journal of Child and Family Studies*, 24(8), 2352. doi:10.1007/s10826-014-0038-x
- Sutton, D., & Nicholson, E. (2011). *Sensory modulation in acute mental health wards: A qualitative study of staff and service user perspectives*. Retrieved from Auckland, New Zealand: https://www.tepou.co.nz/uploads/files/resource-assets/sensory_modulation_in_acute_mental_health_wards.pdf
- Sutton, D., Wilson, M., Van Kessel, K., & Vanderpyl, J. (2013). Optimizing arousal to manage aggression: A pilot study of sensory modulation. *International Journal of Mental Health Nursing*, 22(6), 500-511.
- Tarren-Sweeney, M. (2013). Setting the bar higher: What information do we need to establish the effectiveness of mental health interventions for children with complex attachment- and trauma-related difficulties? *Clinical Child Psychology and Psychiatry*, 18(1), 3-6. doi:10.1177/1359104512467406
- Tate, R. L., & Perdices, M. (2019). *Single-case experimental designs for clinical research and neurorehabilitation settings: Planning, conduct, analysis and reporting*. New York, NY.: Routledge.
- Tate, R. L., Perdices, M., Rosenkoetter, U., McDonald, S., Togher, L., Shadish, W., . . . Kazdin, A. (2016). The Single-Case Reporting Guideline In BEhavioural Interventions (SCRIBE) 2016: Explanation and elaboration. *Archives of Scientific Psychology*, 4(1), 10. doi:s10.1037/arc0000027
- Tate, R. L., Perdices, M., Rosenkoetter, U., Shadish, W., Vohra, S., Barlow, D. H., . . . Wilson, B. (2016). The Single-Case Reporting guideline In BEhavioural interventions (SCRIBE) 2016 statement. *Journal of School Psychology*, 56, 133-142. doi:10.1016/j.jsp.2016.04.001
- Taylor, M. (2014). *Trauma therapy and clinical practice: Neuroscience, gestalt and the body*. Berkshire, UK: Open University Press.
- Te Pou o te Whakaaro Nui. (2011). Sensory modulation: Using sensory modulation to support service users at times of distress. Retrieved from <http://www.tepou.co.nz/library/tepou/sensory-modulation---using-sensory-modulation-to-support-service-users-at-times-of-distress>
- Te Pou o te Whakaaro Nui. (2011a). Sensory modulation in mental health clinical settings - A review of the literature. Retrieved from <http://www.tepou.co.nz/library/tepou/sensory-modulation-in-mental-health-clinical-settings---a-review-of-the-literature>
- Teicher, M. H. (2002). Scars that won't heal: The neurobiology of child abuse. *Scientific American*, 286(3), 68-75. doi:10.1038/scientificamerican0302-68
- Teicher, M. H., & Samson, J. A. (2016). Annual research review: Enduring neurobiological effects of childhood abuse and neglect. *Journal of Child Psychology and Psychiatry*, 57(3), 241-266. Retrieved from <http://dx.doi.org/10.1111/jcpp.12507>. doi:10.1111/jcpp.12507
- Terr, L. C. (1991). Childhood traumas: An outline and overview. *The American Journal of Psychiatry*, 148(1), 10-20.
- Thabet, A. M., Abed, Y., & Vostanis, P. (2004). Comorbidity of PTSD and depression among refugee children during war conflict. *Journal of Child Psychology and Psychiatry*, 45(3), 533-542. doi:10.1111/j.1469-7610.2004.00243.x
- Thabet, A. M., Thabet, S. S., & Vostanis, P. (2016). The relationship between war trauma, PTSD, depression, and anxiety among children in the Gaza Strip. *Health Science Journal*, 10(5), 1-8. doi:10.4172/1791-809X.1000100503
- The National Child Traumatic Stress Network (NCTSN). (2012). TF-CBT: Trauma-focused cognitive behavioral therapy. Retrieved from http://nctsn.org/sites/default/files/assets/pdfs/tfcbt_general.pdf

- Thickpenny-Davis, K. L., Ogden, J., & Fernando, K. (2005). The Starship Post-Traumatic Amnesia Scale: Does it predict outcome after mild to moderate Traumatic Brain Injury in children aged 3 to 7 years? *Cambridge Core*, 6(2), 101-108. doi:10.1375/brim.2005.6.2.101
- Thomason, M. E., & Marusak, H. A. (2017). Toward understanding the impact of trauma on the early developing human brain. *Neuroscience*, 342, 55-67. doi:10.1016/j.neuroscience.2016.02.022
- Thompson, T., Jr., & Massat, C. (2005). Experiences of violence, post-traumatic stress, academic achievement and behavior problems of urban African-American children. *Child and Adolescent Social Work Journal*, 22(5-6), 367-393. doi:10.1007/s10560-005-0018-5
- Thornback, K., & Muller, R. (2015). Relationships among emotion regulation and symptoms during trauma-focused CBT for school-aged children. *Child Abuse and Neglect*, 50, 182-192. doi:10.1016/j.chiabu.2015.09.011
- Timbremont, B., Braet, C., & Dreessen, L. (2004). Assessing depression in youth: Relation between the Children's Depression Inventory and a structured interview. *Journal of Clinical Child & Adolescent Psychology*, 33(1), 149-157. doi:10.1207/S15374424JCCP3301_14
- Tottenham, N., & Sheridan, M. A. (2009). A review of adversity, the amygdala and the hippocampus: A consideration of developmental timing. *Frontiers in Human Neuroscience*, 3, 68. doi:10.3389/neuro.09.068.2009
- Turley, M. R., & Obrzut, J. E. (2012). Neuropsychological effects of posttraumatic stress disorder in children and adolescents. *Canadian Journal of School Psychology*, 27(2), 166-182.
- UNICEF. (2003). *A league table of child maltreatment deaths in rich nations*. Retrieved from Florence, Italy: <https://www.unicef-irc.org/publications/pdf/repcard5e.pdf>
- Declaration of the Rights of the Child (1959), (1959).
- Unrau, Y. A., Seita, J. R., & Putney, K. S. (2008). Former foster youth remember multiple placement moves: A journey of loss and hope. *Children and Youth Services Review*, 30(11), 1256-1266. doi:10.1016/j.childyouth.2008.03.010
- Unterhitzenberger, J., Eberle-Sejari, R., Rassenhofer, M., Sukale, T., Rosner, R., & Goldbeck, L. (2015). Trauma-focused cognitive behavioral therapy with unaccompanied refugee minors: A case series. *BMC Psychiatry*, 15, 260. doi:10.1186/s12888-015-0645-0
- Unterhitzenberger, J., & Rosner, R. (2016). Case report: manualized trauma-focused cognitive behavioral therapy with an unaccompanied refugee minor girl. *European Journal of Psychotraumatology*, 7. doi:10.3402/ejpt.v7.29246
- Urbaniak, G. C., & Plous, S. (2015). Research randomizer (Version 4.0). Retrieved from <https://www.randomizer.org/>
- US Department of Veterans Affairs. (2015). Child measures of trauma and PTSD. *PTSD: National Centre for PTSD*. Retrieved from <http://www.ptsd.va.gov/PTSD/professional/assessment/child/index.asp>
- US Department of Veterans Affairs. (2017). Treatment of PTSD. *PTSD: National Centre for PTSD*. Retrieved from <https://www.ptsd.va.gov/public/treatment/therapy-med/treatment-ptsd.asp>
- van der Kolk, B. A., McFarlane, A. C., & Weisaeth, L. (1996). *Traumatic stress: The effects of overwhelming experience on mind, body, and society*. New York, NY: Guilford Press.
- van der Put, C. E., Lanctôt, N., de Ruiter, C., & van Vugt, E. (2015). Child maltreatment among boy and girl probationers: Does type of maltreatment make a difference in offending behavior and psychosocial problems? *Child Abuse & Neglect*, 46, 142-151. doi:10.1016/j.chiabu.2015.05.012

- van Westrhenen, N., & Fritz, E. (2014). Creative arts therapy as treatment for child trauma: An overview. *The Arts in Psychotherapy, 41*(5), 527-534.
doi:10.1016/j.aip.2014.10.004
- Vostanis, P. (2006). Strengths and difficulties questionnaire: Research and clinical applications. *Current Opinion in Psychiatry, 19*, 367-372.
doi:10.1097/01.yco.0000228755.72366.05
- Walker, J. L., Carey, P. D., Mohr, N., Stein, D. J., & Seedat, S. (2004). Gender differences in the prevalence of childhood sexual abuse and in the development of pediatric PTSD. *Archives of Women's Mental Health, 7*(2), 111-121.
doi:10.1007/s00737-003-0039-z
- Walters, A., & Seymour, F. W. (2017). Stories of survival and resilience: An enquiry into what helps tamariki and rangatahi through whānau violence. *New Zealand Journal of Psychology, 46*(3), 80-87.
- Wamser-Nanney, R., & Steinzor, C. E. (2017). Factors related to attrition from trauma-focused cognitive behavioral therapy. *Child Abuse & Neglect, 66*, 73-83.
doi:10.1016/j.chiabu.2016.11.031
- Warner, E., Koomar, J., Lary, B., & Cook, A. (2013). Can the body change the score? Application of sensory modulation principles in the treatment of traumatized adolescents in residential settings. *Journal of Family Violence, 28*(7), 729-738.
doi:10.1007/s10896-013-9535-8
- Warner, E., Spinazzola, J., Westcott, A., Gunn, C., & Hodgdon, H. (2014). The body can change the score: Empirical support for somatic regulation in the treatment of traumatized adolescents. *Journal of Child & Adolescent Trauma, 7*(4), 237-246. doi:10.1007/s40653-014-0030-z
- Warnick, E. M., Bracken, M. B., & Kasl, S. (2008). Screening efficiency of the Child Behavior Checklist and Strengths and Difficulties Questionnaire: A systematic review. *Child and Adolescent Mental Health, 13*(3), 140-147.
doi:10.1111/j.1475-3588.2007.00461.x
- Weems, C. F. (2017). Severe stress and the development of the amygdala in youth: A theory and its statistical implications. *Developmental Review, 46*(Supplement C), 44-53. doi:10.1016/j.dr.2017.08.001
- Weiner, D. A., Schneider, A., & Lyons, J. S. (2009). Evidence-based treatments for trauma among culturally diverse foster care youth: Treatment retention and outcomes. *Children and Youth Services Review, 31*(11), 1199-1205.
doi:10.1016/j.childyouth.2009.08.013
- Wethington, H. R., Hahn, R. A., Fuqua-Whitley, D. S., Sipe, T. A., Crosby, A. E., Johnson, R. L., . . . Chattopadhyay, S. K. (2008). The effectiveness of interventions to reduce psychological harm from traumatic events among children and adolescents: A systematic review. *American Journal of Preventative Medicine, 35*(3), 287-313. doi:10.1016/j.amepre.2008.06.024
- White, C. R., English, D., Thompson, R., & Roberts, Y. H. (2016). Youth self-report of emotional maltreatment: Concordance with official reports and relation to outcomes. *Children and Youth Services Review, 62*, 111-121.
doi:10.1016/j.childyouth.2016.02.004
- Whittle, S., Dennison, M., Vijayakumar, N., Simmons, J. G., Yücel, M., Lubman, D. I., . . . Allen, N. B. (2013). New research: Childhood maltreatment and psychopathology affect brain development during adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry, 52*.
doi:10.1016/j.jaac.2013.06.007
- Wilbarger, J. L. (1984). Planning an adequate sensory diet-application of sensory processing theory during the first year of life. *Zero to Three, 5*(1), 7-12.

- Wilbarger, J. L., & Stackhouse, T. M. (1998). Sensory modulation: A review of the literature. Retrieved from <http://www.ot-innovations.com/clinical-practice/sensory-modulation/sensory-modulation-a-review-of-the-literature/>
- Wilbarger, J. L., & Wilbarger, P. (1997). *Sensory defensiveness and related social/emotional and neurological problems*. Van Nuys, CA: Wilbarger.
- Willner, P., & Lindsay, W. R. (2016). Cognitive behavioral therapy. In N. N. Singh (Ed.), *Handbook of evidence-based practices in intellectual and developmental disabilities* (pp. 283-310). Cham, Switzerland: Springer International Publishing.
- Wilson, J. P. (2007). The lens of culture: Theoretical and conceptual perspectives in the assessment of psychological trauma and PTSD. In J. P. Wilson & C. S.-k. Tang (Eds.), *Cross-cultural assessment of psychological trauma and PTSD* (pp. 3-30). Boston, MA: Springer US.
- Witt, A., Münzer, A., Ganser, H. G., Fegert, J. M., Goldbeck, L., & Plener, P. L. (2016). Experience by children and adolescents of more than one type of maltreatment: Association of different classes of maltreatment profiles with clinical outcome variables. *Child Abuse & Neglect*, 57, 1-11. doi:10.1016/j.chiabu.2016.05.001
- Wood, B., Hassall, I., Hook, G., & Ludbrook, R. (2008). *Unreasonable force: New Zealand's journey towards banning the physical punishment of children*. Wellington, New Zealand: Save the Children New Zealand.
- Wood, J. J., Drahota, A., Sze, K., Har, K., Chiu, A., & Langer, D. A. (2009). Cognitive behavioral therapy for anxiety in children with autism spectrum disorders: A randomized, controlled trial. *Journal of Child Psychology and Psychiatry*, 50(3), 224-234. doi:10.1111/j.1469-7610.2008.01948.x
- Woolf, L. (2002). *Playing for real: Play therapy with children traumatised by maltreatment: a pilot study*. (Master of Science), Massey University, Auckland, New Zealand. Retrieved from <https://mro.massey.ac.nz/handle/10179/10088>
- World Health Organization (WHO). (2016). Child maltreatment fact sheet. Retrieved from <http://www.who.int/mediacentre/factsheets/fs150/en/>
- Wynd, D. (2013). *Child Abuse: An analysis of Child, Youth and Family data*. Retrieved from www.cpag.org.nz
- Yasinski, C., Hayes, A. M., Ready, C. B., Cummings, J. A., Berman, I. S., McCauley, T., . . . Deblinger, E. (2016). In-session caregiver behavior predicts symptom change in youth receiving trauma-focused cognitive behavioral therapy (TF-CBT). *Journal of Consulting and Clinical Psychology*, 84(12), 1066-1077. doi:10.1037/ccp0000147
- Youth in Mind. (2012, 01/01/2012). Uses of the SDQ. Retrieved from <http://www.sdqinfo.org/d0.html>
- Yule, W., Smith, P., & Perrin, S. (2004). Post-traumatic stress disorders. In P. J. Graham (Ed.), *Cognitive behaviour therapy for children and families* (2nd ed., pp. 342-358). Cambridge, UK: Cambridge University Press.
- Zhang, W., Liu, H., Jiang, X., Wu, D., & Tian, Y. (2014). A longitudinal study of posttraumatic stress disorder symptoms and its relationship with coping skill and locus of control in adolescents after an earthquake in China. *PLoS ONE*, 9(2), e88263. doi:10.1371/journal.pone.0088263
- Zorzella, K. P. M., Muller, R. T., & Cribbie, R. A. (2015). The relationships between therapeutic alliance and internalizing and externalizing symptoms in trauma-focused cognitive behavioral therapy. *Child Abuse & Neglect*, 50(Supplement C), 171-181. doi:10.1016/j.chiabu.2015.08.002

Appendix A: DSM-5 PTSD Criteria

All of the following criteria are required for the diagnosis of PTSD according to the DSM-5:

- A. **Exposure to actual or threatened death, serious injury, or sexual violence** in the following ways: *directly experiencing the event, witnessing (in person) the event(s), learning that the traumatic event(s) occurred to someone close, experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (one required)*
- B. **Presence of one or more intrusion symptoms associated with the traumatic event**, including *recurring and involuntary distressing memories, recurrent dreams related to the traumatic event, dissociative reactions, intense or prolonged psychological distress at exposure to, or marked physiological reactions to cues that symbolise or resemble an aspect of the traumatic event (one required)*
- C. **Persistent avoidance of stimuli associated with the traumatic event** in the following ways: *avoidance of distressing memories, thoughts or feelings, or of external reminders (one required)*
- D. **Negative alterations in cognitions and mood associated with the traumatic event** including: *inability to remember an aspect of the event, persistent and negative beliefs or expectations about oneself, others or the world, persistent distorted cognitions, persistent negative emotional state, diminished interest or participation in significant activities, feelings of detachment or estrangement, persistent inability to experience positive emotions (two required)*
- E. **Alterations in arousal and reactivity associated with the traumatic event including: irritability, reckless or self-destructive behaviour, angry outbursts, hypervigilance, exaggerated startle response, problems with concentration and sleep (two required)**

The disturbance as evidenced in these criteria must occur for more than one month, must cause clinically significant distress or impairment in social, occupational or other areas of functioning and must not be attributable to the physiological effects of a substance or another medical condition (American Psychiatric Association, 2013).

Appendix B: TF-CBT Intervention Detail

A number of trauma specific CBT models are available, all which generally share components summarised by the PRACTICE acronym: *psychoeducation*; *relaxation* and stress management skills; *affective* expression and modulation skills; *cognitive coping* skills; *trauma* processing; *in vivo desensitisation* to trauma reminders; *conjoint* child and parent sessions; and *enhancing safety* (J. A. Cohen & Mannarino, 2008; Foa et al., 2009). An important pillar of TF-CBT approaches is recognition that trauma impacts multiple facets of children's lives and for interventions to be effective, liaising with schools, caregivers, medical providers, child welfare and other systems of care may be necessary (Foa et al., 2009).

The manualised TF-CBT intervention developed in New Zealand (Feather & Ronan, 2010) was evaluated as part of the current research. According to Feather and Ronan (2010), TF-CBT has a triple focus: 1) developing the therapeutic relationship, instilling hope and encouraging participation, 2) alleviating symptoms and enhancing coping strategies, and 3) healing underlying causes of presenting problems. Therapy is delivered in four phases, described below. Sessions begin by evaluating the child's perception and understanding of the previous session (Feather & Ronan, 2010). Manualised interventions are sometimes criticised for an inflexibility to meet unique clinical needs or client characteristics. Although TF-CBT is a manualised intervention, it is designed to be flexible, and clinicians can move back and forth through the phases as needed (Feather, personal communication, 19th October 2016).

Phase 1: Psychosocial Strengthening (3 sessions)

This phase sets the context for therapy, and focusses on building rapport and orienting children and caregivers (Feather & Ronan, 2010). In the first session, goals for therapy are set and the therapist instils hope. The focus is on building a therapeutic relationship in a safe, consistent, predictable, hopeful, and helpful environment.

In the second and third sessions, the child's social and caregiving context and support networks are identified, and a timeline of the child's history is developed. Throughout Phase 1, psychoeducation about the effects of trauma is provided to both children and caregivers. Psychoeducation instils hope for the family, who may be distressed, worried, or overwhelmed about what the trauma may mean for their child in the long-term (J. A. Cohen & Mannarino, 2008).

Throughout therapy, common reactions to trauma are explored using the "TRAP" acronym, a way to explain the core PTSD symptoms to children.

Trauma – bad things that have happened

Remembering – (what happened), even if you don't want to

Avoiding – things that remind you of what happened

Physical reactions – like heart beating fast, shaking, lashing out

In the first phase of therapy, children are also introduced to a coping model known as the STAR plan, which demonstrates a way for the child to learn to cope with feelings and overcome challenges. The STAR plan is a common symbol throughout therapy.

Scary feelings?

Thinking bad things?

Activities that can help

Rating and rewards

Phase 2: Coping Skills (5 sessions)

The coping skills phase of this intervention was based on the Coping Cat programme for children with anxiety (Ronan & Deane, 1998). The purpose of this phase is to help children develop the ability to effectively address their symptoms and to see their trauma as a manageable event (Feather & Ronan, 2010). Children learn about feelings, body reactions, and thoughts related to their traumatic experience, and are introduced to relaxation and self-calming techniques. Sessions are linked to the STAR plan introduced in Phase 1, and the therapist and child collaborate to create a tailored STAR plan that the child can apply to situations in their life. Children may be asked to generate thoughts related to particular events, and determine if these are accurate or helpful, as well as completing activities that help them to recognise that different feelings are related to different facial expressions, body feelings and postures. The therapist models coping skills and problem solving, and role plays and practices situations with the child. Children are introduced to the idea that they can use self-evaluation and reward to cope with perceived failure and to acknowledge successful coping.

Phase 3: Trauma Processing (5 sessions)

This phase involves the use of gradual exposure to create a trauma narrative and allow emotional processing of traumatic memories. Longer sessions (up to two hours) are recommended for the gradual exposure sessions (Feather & Ronan, 2010).

Exposure is graduated from the least to the most traumatic memories, and the four step STAR plan is used to manage trauma symptoms. Gradual exposure techniques

allow the child to overcome or reduce the anxiety and avoidance often experienced in response to trauma reminders (J. A. Cohen et al., 2000; Deblinger, Steer, & Lippmann, 1999). While the child discusses what happened, he/she is also encouraged to concentrate on the thoughts, feelings, and sensations experienced at the time (Yule et al., 2004). This allows the clinician to target any disruptions in memory processing and maladaptive or distorted cognitions that generally lead to avoidance of feared stimuli (Nickerson et al., 2011). Creating a trauma narrative also helps TF-CBT participants contextualise their traumatic experiences within their lives (Dittmann & Jensen, 2014). The therapist can use a puzzle analogy to explain the usefulness of the trauma narrative. For instance, that trauma memories are like the scattered pieces of a jigsaw puzzle, but once each piece has been looked at and fitted together, the puzzle is complete and can be put away, like any other past memory (Feather & Ronan, 2010).

Various modalities can be used to help the child develop a trauma narrative, including sand, clay, art, and puppets. The therapist uses the activity to cue the child to remember details of what they were seeing, hearing, smelling, feeling and thinking at the time, and children learn that the more they confront the memories that once upset them, the less the memories are associated with anxiety. During this activity, children also learn that they are able to use coping skills to help calm themselves, if necessary.

Creating narratives can be helpful in a number of ways, such as allowing caregivers to more fully acknowledge the impact of the experiences on their children; allowing young people to engage in perspective-taking, cognitive processing and contextualisation; and increasing the ability of youth to distinguish between real danger and trauma reminders by including descriptions of both types of situations in their narratives (J. A. Cohen et al., 2011). Additionally, a focus on trauma enhances the child's understanding of the event and results in improved outcomes (Deblinger et al., 2011).

Phase 4: Special Issues and Completion of Therapy (3 sessions)

During the final phase of TF-CBT, the focus is on addressing any special issues that have been identified, preventing relapse, and celebrating the child's progress. Special issues may include anger, guilt, shame, grief and loss, personal safety, and social skills. Relapse prevention involves reminding the child that he/she can continue to use the STAR plan to be his/her 'own therapist' and the therapist and child rehearse ways of coping with stressors. If the child is willing, the therapist will help to share their trauma narrative with their caregivers.

Appendix C: Sensory Modulation Approaches

Sensory modulation is a term that can refer either to a neurological process involving the management of physiological arousal to enable us to make sense of our world, or to an intervention approach which provides individuals with strategies to deliberately manage their own arousal. The neurological process of sensory modulation refers to the regulation and organisation of sensory input within the central nervous system which results in a behavioural response that matches the specific demands of the environment. That is, sensory modulation is the capacity of an individual to regulate responses to stimuli in a graded and adaptive manner to produce an optimal state of emotional and physical wellbeing (Miller, Reisman, McIntosh, & Simon, 2001; Sutton & Nicholson, 2011).

Sensory modulation begins with the detection of a stimulus whereby the individual will notice and gather information regarding the presence or absence of an event to make a decision about how to respond (Atchison, 2007; Ayres & Robbins, 1979). The brain subsequently processes and interprets information received from environmental stimuli in order to determine which stimuli are relevant and require a behavioural response, and which are irrelevant background stimuli (Miller, Nielsen, Schoen, & Brett-Green, 2009). This is, therefore, a cyclical process of detecting sensory input, processing that input, and responding appropriately. Sensory input can arise from within the individual's sensory mechanisms or can be external to the body (Atchison, 2007). For example, sensory input can come from the organs that communicate with the external world and are linked to the visual, gustatory, olfactory, auditory, and tactile senses. External sensory input provides information about the safety of the environment through these senses (Sutton et al., 2013). Internally, somatic senses like vestibular and proprioceptive communicate a sense of internal safety and are referred to as the "powerhouses of calming" (Moore, 2005; Sutton et al., 2013). In most people, the process of integrating and modulating sensory information occurs automatically, so it is often taken for granted (Ayres, 2005). However, for some people, the modulation of sensory information is disrupted, and they may demonstrate atypical behavioural responses (over- or under-respond) to what seem ordinary environmental stimuli (Ayres, 1963).

The optimal arousal zone

Psychiatrist Dan Siegal and psychotherapist Pat Ogden have proposed that in order to react adaptively to traumatic experiences, individuals must process experiences in an

‘optimal arousal zone’; a middle range of arousal within which performance and adaptation are optimal (Kimball, 1993; Ogden et al., 2006; Wilbarger & Wilbarger, 1997). Optimal arousal zone is also described as the ‘window of tolerance’ (Siegel, 2015). When individuals are within the window of tolerance, they can integrate information from both external and internal environments, allowing them to process varying intensities of emotional and physiological arousal without disrupting functioning (Ogden et al., 2006). According to Wilbarger and Wilbarger (1997), a child must be within the window of tolerance to process traumatic experiences.

According to the theory, individuals each have their own window of tolerance “width” that influences their overall ability to process information. Those with a wide window can cope with greater extremes of arousal (see Figure 1; adapted from Ogden et al., 2006, p. 27). Many traumatised individuals have a narrow window of tolerance and are, therefore, more susceptible to dysregulation as a result of normal fluctuations in arousal (Ogden et al., 2006; Taylor, 2014) (see Figure 2; adapted from Ogden et al., 2006, p. 27). Repeated traumatic experiences are said to further narrow the window of tolerance and individuals become unable to easily or quickly return to the optimal arousal zone, instead remaining in prolonged states of hyper or hypoarousal (Ogden et al., 2006). For instance, if a person mistakes a benign stimulus for a threat (such as a door slamming) although they may freeze or their heartrate may increase, once they process the stimuli and realise there is no threat, their panic will likely subside. However, for a person who has been exposed to trauma, they may remain in this state of dysregulated arousal for much longer. Some children may even react so extremely to some stimuli that they suddenly swing from hyperarousal to hypoarousal or physiological shut down (Kimball, 1993; Wilbarger & Stackhouse, 1998).

As arousal regulation underlies behavioural and affect regulation (Warner et al., 2013), dysregulated arousal is likely to have flow-on effects to these areas. Dysregulated arousal may drive a traumatised individual’s emotional and cognitive processing, causing the escalation of emotions, spinning thoughts and misinterpretation of present environmental cues as those of past trauma (Ogden et al., 2006), limiting the child’s ability to process and store other information.

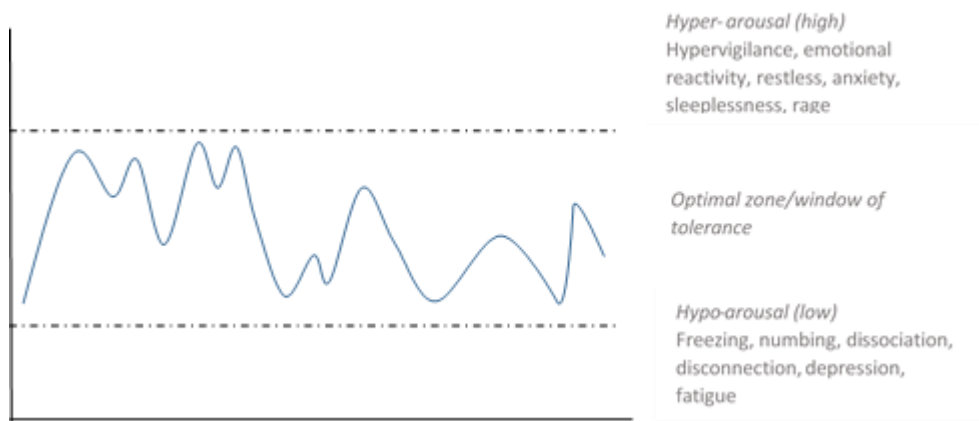


Figure 1. Window of tolerance: fluctuations in arousal remain within the optimal zone

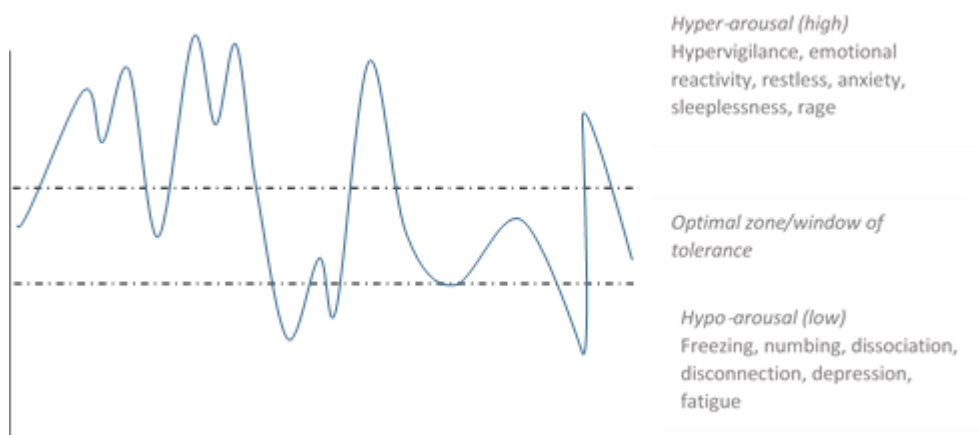


Figure 2. Window of tolerance: narrowed window after trauma and dysregulated arousal

When individuals are hyperaroused, they are experiencing too much arousal to be able to process information effectively and are often tormented by intrusive images, affects and body sensations. While in an increased arousal state, short term memory suffers, verbal memory decreases, and physiological arousal triggers trauma-related memories that precipitate generalised arousal (Steele & Raider, 2001). Additionally, a hyperaroused individual's ability to make adaptive responses to threat is suboptimal and their behaviour is often reactive and impulsive rather than reflective and adaptive. This response pattern is most commonly observed in males who exhibit the typical externalising symptoms of aggression, impulsivity and verbal abuse (Perry et al., 1995).

Alternatively, when individuals are experiencing hypoarousal, they present with a lack of emotion and sensation. Hypoarousal results in numbing, a sense of deadness, or emptiness and passivity. Children are often observed as "day dreaming" or staring into space, and will often say they went "to a different place" or had the sense that they were watching a movie starring themselves (Perry et al., 1995). Individuals in a state of hypoarousal are generally more difficult to work with, and the individual

needs help orientating to the present moment (Taylor, 2014). In hypoarousal, the central nervous system of traumatised children may be in 'shut down' so the ability to modulate incoming stimuli and balance excitatory and inhibitory sensory inputs is compromised (Atchison, 2007). These arousal patterns may be adaptive in certain traumatic experiences, but become maladaptive when they persist in nonthreatening contexts (Ogden et al., 2006). For instance, shut down mode is a protective mechanism against severe sensory overload, but results in the emergence of maladaptive behavioural patterns (Atchison, 2007; Kimball, 1993).

The influence of dysregulated arousal on a child's day to day life is, therefore, pervasive. The child is unlikely to always respond to environmental stressors with an effective, cortical-driven response, but rather with a primitive, reflexive and aggressive reaction (Atchison, 2007). Hand gestures, facial expressions, and posture become more important to survival, and it is difficult for the child to maintain attention to verbal information, such as in a classroom environment. Teachers often observe that children who have experienced trauma or maltreatment are bright, but unable to learn easily, and others may assume that a child is being defiant or misbehaving, when in fact these responses are driven by dysregulated arousal and diverted attention due to a difficulty filtering out irrelevant stimuli (Perry et al., 1995). Smells, sounds, and even specific colours that were visible during the trauma may cause sensory recollections and conditioned emotional and behavioural responses (Briere, 2002). Given this information, it is not difficult to imagine how a child who is both susceptible to dysregulation and easily triggered by sensory input may find it difficult to concentrate and learn effectively. Trauma specialists suggest this means that traumatised children may be misdiagnosed with Attention Deficit Hyperactivity Disorder (ADHD) or learning disabilities (Steele & Raider, 2001) and the trauma may remain unaddressed.

Regulating arousal

In order to effectively self-regulate physiological arousal, there are a number of required skills involved which traumatised children often lack (Ford & Blaustein, 2013). For instance, self-regulation begins with the selective and sustained deployment of attention and requires individuals to be aware of their environment and own physical and emotional body states, draw on memory to adapt effectively to the present situation and maintain or regain emotional states that provide a sense of well-being and ultimately lead to further self-regulation (Ford & Blaustein, 2013). Awareness of sensory-perceptual input from the external environment and sensorimotor information from within the body is a critical component of self-regulation, as it allows the individual to

accurately perceive relevant environmental information (Ford & Blaustein, 2013) and make corresponding behavioural responses. Children who have undergone traumatic experiences may not have a healthy awareness of the environment and their own emotions and body states, and as discussed, may become hyper- or hypo-aroused as a result of overwhelming sensory and perceptual stimuli (see Ford & Blaustein, 2013).

Regulation of arousal can, therefore, be influenced by the ongoing interaction between a person and his/her environment (Sutton et al., 2013). Self-regulation occurs on a behavioural response continuum from passive self-regulation responses to active self-regulation responses (Dunn, 1997, 2014). An active self-regulation response is when the individual actively engages in behaviours to control his/her sensory experiences, actively seeking or avoiding stimulation to meet one's needs. For instance, a child using active self-regulation strategies may hum while doing homework to add sensory input, or may move to a quiet room to minimise auditory input. A passive self-regulation response is when individuals do not try to control or modulate sensory stimulation. They may miss environmental cues or stimuli, or may feel overwhelmed by their environment (Dunn, 2014). Children who have not experienced a supportive upbringing, and who have not had their sensory needs met at distressing times, and/or those who have been exposed to trauma, may lack the skills to self-regulate (Arvidson et al., 2011).

Children generally develop strategies for coping with physiological distress during childhood or infancy. For instance, young children rely primarily on their caregiver to soothe them when they are distressed or overwhelmed. The caregiver provides this soothing using a number of sensory experiences such as touch, movement, and sound. They may calm the distressed infant by swaddling, rocking, or singing to them (Arvidson et al., 2011). These experiences become internalised over time by the child, and they begin to develop more sophisticated strategies for self-soothing and independently modulating their own physiological arousal (Arvidson et al., 2011). However, a child who did not grow up with a safe, supportive caregiving environment will lack these soothing experiences, and may develop alternative, unhealthy ways to cope with distress due to a lack of effective internal coping strategies (Arvidson et al., 2011). These children may present with symptoms suggesting hypo- or hyper-arousal, such as dissociation, sleeping problems, aggression or hyperactivity, likely as a result of their inability to regulate their arousal and return to an optimal zone. An intervention that guides the development of self-soothing and arousal regulation skills is therefore likely to be useful for the treatment of trauma in children.

The Sensory Modulation Intervention

The sensory modulation intervention approach employs a variety of tools and strategies to help individuals learn to regulate the type and intensity of sensory input they experience. The intervention was developed within the fields of occupational therapy and developmental psychology (Te Pou o te Whakaaro Nui, 2011a), based on earlier ideas of sensory integration (Champagne, 2011c; Schaaf & Miller, 2005). An occupational therapist in the 1960s, Jane Ayres, was the first to identify sensory processing disorders and to document the impact of neurological and psychiatric disorders on children's ability to play, learn and develop healthy attachments (Ayres, 1963). In her theory of sensory integration Ayres argued that adequate processing of sensory information is necessary for normal adaptive behaviour to occur (Schaaf & Miller, 2005). Although Ayres focussed her theory on children with learning disabilities, she did note that the constructs may also apply to other conditions (Miller et al., 2009). She labelled her theory sensory integration theory, and the term sensory integration is thus reference to the related theory, assessment and treatment methods for children who have atypical responses to sensory stimulation, as well as being used to refer to patterns of sensory processing (Miller et al., 2009). Fifty years later, Ayres' writings are still relied upon in the field of occupational therapy. Her theory of sensory integration provided the foundation from which later theorists and clinicians have built; the current concept of sensory modulation has been informed by clinical practice using a sensory integrative frame of reference (Wilbarger & Stackhouse, 1998).

The sensory modulation approach shares core aspects of the intervention with sensory integration therapy. For instance, sensory integration as conceptualised by Ayres (1963) involves the use of goal-oriented activities within a multisensory environment to support the child to display appropriate responses and behaviour in response to sensory input (Miller et al., 2009). Activities are designed to be fun and assist the child in maintaining a regulated state with sustained attention and controlled emotions and behaviours (Miller et al., 2009). It is hypothesised that repetition of normal responses to sensory stimuli creates new neural pathways and that active participation and enriched environments are needed to guide neural changes made possible through neural plasticity (Miller et al., 2009). Over time, and with repetition, the child's brain begins to process sensory stimuli more normally, and he/she begins to interact effectively within sensory environments (Miller et al., 2009). Likewise, modern sensory modulation is a multisensory approach using guided activities to help children and adults learn about their preferences and triggers, with a focus on the ability to self-

soothe to improve emotional and behavioural responses. Sensory modulation usually takes place within a purpose designed sensory room, described in more detail further in this appendix.

Sensory modulation interventions for trauma recognise the importance of processing traumatic memories, but also focus on the broader aspects of functioning and regulation which are often affected. There is not one set intervention or process and sensory modulation approaches describe a general intervention approach to arousal regulation guided by sensory modulation and sensory integration theory. Over time, the use of sensory approaches in mental health has shifted from the specifics of SI to a more general use of sensory approaches to support self-management of distress and emotions (Scanlan & Novak, 2015). Sensory approaches provide opportunities to help recognise and regulate sensory experiences, identify sensory preferences and begin to heal the mind through physical sensations of the body (LeBel et al., 2010). The process of sensory modulation therapy and techniques taught are designed to be self-regulating, and can be replicated in the client's home (Sutton & Nicholson, 2011).

Although there is not one single manualised programme for sensory modulation with children, approaches generally share three key components: sensory assessment, development of a sensory diet (or sensory plan), and use of a sensory room. Sensory modulation interventions seek to provide clients with self-regulation strategies based on their own personal preferences and triggers, and following exploration of sensory stimuli. The key aspects of sensory interventions are described below.

Sensory assessment

Sensory modulation interventions typically begin with an assessment of the individual's sensory needs and preferences, as each individual varies in their patterns of sensory processing. The following section describes the four identified patterns of sensory responding, and how assessment can aid understanding of the child's responses and needs, and assist in intervention planning. The focus here is on sensory assessment for children, given that the current research is focussed on treatment of children exposed to trauma.

A child may be a sensory seeker, sensory avoider, sensory sensitive, or low registration, or may fall on a continuum for each of these responses (Champagne, 2011c; Dunn, 1999). A child's pattern of sensory processing can provide insight into some of their behaviours and strategies to help the child maintain an optimal level of arousal. For example, a child who is sensory seeking needs extra sensory input to remain focussed, so may be impulsive. Sensory seekers use active strategies to create

additional stimuli and may look for environments that provide greater sensory stimuli (C. Brown & Dunn, 2002), and these children may benefit from scheduled activities that help modulate arousal (D. Saunders, 2005).

A child who is sensory avoiding is easily hyperaroused, but uses active strategies to take action to prevent hyperarousal. The sensory avoiding child may appear to be quiet and withdrawn and may have difficulty focussing as they are monitoring everything around them (D. Saunders, 2005). Sensory sensitive children are also easily hyperaroused, but use passive strategies for regulating arousal. Sometimes a sensory sensitive child's reactions may appear to be out of context to the situation, and the child is easily distracted (D. Saunders, 2005). Sensory sensitive children require calm and soothing input. In contrast, children with a low registration of sensory input need more intense and varied stimuli to achieve a "just right" state, and it takes a lot of input to keep the child at an optimal arousal level (D. Saunders, 2005). A child may use different strategies to regulate his/her arousal, depending on the context and particular sensitivities to certain stimuli. Understanding these patterns and sensitivities allows the development of an intervention to help modulate sensory input (that is, a sensory modulation intervention).

Before beginning sensory modulation therapy, children are assessed by a therapist, who identifies symptoms, triggers, warning signs and techniques that may help ameliorate these. Assessment includes self-exploration of sensory related strengths and barriers and enables the clinician to understand the needs of each individual and offer sensory approaches relative to their individual therapeutic goals and interests (Champagne, 2011c).

Frequently, The Sensory Profile 2 is used for assessment, as it is a standardised tool scored based on caregiver observations of their child's reactions to sensory input and is relatively easy to interpret. For instance, the Sensory Profile 2 manual provides a chapter on intervention planning to help address the "what next" question, as well as a chapter of case studies to address different scenarios. The Sensory Profile 2 is scored across seven sensory systems: general, auditory, visual, touch, movement, body position and oral. Clients are scored within the four quadrants categories described above: low registration, sensation seeking, sensory sensitivity and sensation avoiding. Psychometric data for the Sensory Profile 2 is presented in Chapter 8. In addition to the Sensory Profile 2, there are various other sensory checklists and screening tools available online, or a more informal assessment can be conducted where the child's exploration and interaction with sensory input is observed.

The sensory diet

A major part of sensory modulation therapy is creation of a ‘sensory diet’. The concept of a sensory diet was first employed by Wilbarger (1984) to refer to the repertoire of meaningful sensorimotor activities and/or stimuli used for the purposes of crisis intervention and prevention (Champagne, 2011c). An individual’s sensory experience is multimodal and will include information gathered from the seven sensory systems; proprioceptive (sense of body position and movement), olfactory (smell), gustatory (taste), tactile (touch), vestibular (sense of balance and movement), visual (sight), and auditory (hearing). The input from each of these sensory systems can have various physiological and behavioural effects, and prescribing activities that take this into account can help individuals learn more adaptive responses to trauma (Champagne, 2011c). Together, the therapist and client examine the client’s daily routines and identify troublesome times, possible triggers, or sensitivities to particular senses. This problem-solving process is a key part of the sensory modulation approach.

A sensory diet consists of a combination of calming and alerting activities across a number of modalities, based on the individual needs of the client. Calming stimuli are typically familiar, slow-paced, rhythmic, predictable and simplistic. Calming input is useful to help relax, or when an individual is in a state of high or hyper-arousal. Calming stimuli can include soothing scents, sweet lollies, gentle rocking, looking at serene paintings and feeling soft fabrics (Champagne, 2011c; Moore, 2005). Alerting stimuli increase attention and energise the body, and are typically novel, fast-paced, have an uneven beat, are unpredictable and complex and include strong, crisp scents, strong flavours, jumping and spinning, looking at complex visual images and feeling squishy or prickly objects (Champagne, 2011c; Moore, 2005). Everyone has unique sensory preferences and patterns which need to be taken into account when designing a sensory diet. The intensity of the stimuli also needs to be considered (Champagne, 2011c).

The sensory room

Sensory modulation therapy can help clients safely work through high states of arousal or distress using dedicated sensory rooms (Te Pou o te Whakaaro Nui, 2011, 2011a). Sensory rooms have been shown to have positive effects on adults and adolescents in mental health settings (Champagne & Sayer, 2003).

A sensory room is generally a therapeutic space designed specifically to enhance and promote self-organisation and positive change and can facilitate the

therapeutic alliance (Champagne, 2011c; OT Innovations, 2015). The development and implementation of sensory rooms typically evolve over time in response to the needs and preferences of the general clientele. Each sensory room, therefore, differs dependent on the needs of the clients and the setting. (OT Innovations, 2015). For instance, a sensory room in an adult inpatient psychiatric service may look different to a sensory room in a child outpatient unit. Use of the sensory room is always under supervision, and the clinician will help the client identify how items in the room can suit their individual needs. However, there is also a focus on developing an environment that is easily replicable, so clients can replicate aspects of the sensory room in their own home (OT Innovations, 2015; Warner et al., 2013). The sensory room provides a climate for client-centred practice and is useful to help the individual recognise triggers and explore meaningful strategies to help them adapt to the demands of the environment within a safe setting, which is an essential part of intervention planning (Champagne & Sayer, 2003).

Sensory rooms are fitted with equipment that staff use to assist with self-soothing, such as soft or pleasant feeling materials, pleasant aromas and weighted blankets (Scanlan & Novak, 2015; Te Pou o te Whakaaro Nui, 2011, 2011a). For adolescent and paediatric populations, sensory rooms often include water and sand tables, bubble lamps, tumble mats and calming options as well as age-appropriate play equipment (Champagne, 2011c). Becoming mindfully aware of sensations and feelings that are associated with the trauma and learning how they are organised in the body may lead to increased activation of higher brain areas and increase the individual's ability to maintain optimum arousal and orient adaptively to both external and internal environments (Ogden et al., 2006).

Appendix D: Staff Feedback Questionnaire

Research feedback

- 1 What concerns/issues did you have about the research project?
- 2 Were/are there any useful aspects of the research from your point of view?

Intervention feedback

Sensory intervention (only answer if you have used sensory modulation)

- 1 How engaged were your clients in the sensory intervention (rate 1-7, not at all engaged (1) to very engaged (7) and explain)? If low engagement, why do you think this was?
- 2 What do you see the pros of sensory therapy?
- 3 What do you see as the cons of sensory therapy?
- 4 What do you think are the most effective or important components?
- 5 Any other comments?

TF-CBT intervention (answer if you have used TF-CBT)

- 1 How engaged were your clients in TF-CBT (rate 1-7, not at all engaged (1) to very engaged (7) and explain). If low engagement, why do you think this was?
- 2 What do you see as the pros of TF-CBT?
- 3 What do you see as the cons of TF-CBT?
- 4 What do you think are the most effective or important components?

Combined intervention

- 1 Would you use the combined TF-CBT/SM intervention? Why/why not?
- 2 Do you perceive any challenges with delivering the combined intervention?
- 3 Are there any sessions you would add or remove?

Any further comments/suggestions?

Appendix E: Summary of NEPSY-II Subtests

| Domain | Subtest | Description |
|--|---|---|
| Attention and Executive Functioning | Animal sorting | Formulation of basic concepts, transfer concepts into action (categorical sorting), set shifting. |
| | Auditory Attention and Response Set | Selective auditory attention and vigilance. Ability to shift and maintain a new and complex set involving inhibition of previously learned responses and correct responding to matching or contrasting stimuli. |
| | Inhibition* | Inhibition of automatic responses in favour of novel responses and switching between response types. Timed. |
| Language | Comprehension of Instructions* | Ability to receive, process, and execute oral instructions of increasing syntactic complexity. |
| | Speeded Naming | Rapid semantic access to and production of names of colours, shapes, sizes, letters, or numbers. |
| | Word Generation | Verbal productivity – ability to generate words within specific semantic and initial letter categories. |
| Memory and Learning | Memory for Faces/Memory for Faces Delayed | Encoding of facial features, facial discrimination and recognition, and long-term memory for faces. |
| | Narrative Memory* | Memory for organised verbal material under free and cued recall, and recognition conditions. |
| | Word List Interference | Verbal working memory, repetition and word recall following interference. |
| Social Perception | Affect Recognition | Ability to recognise affect from photos of children's faces in different tasks. |

| Domain | Subtest | Description |
|--------------------------------|-------------------|--|
| | Theory of Mind* | Ability to understand mental functions (belief, intention, deception, emotion, imagination, pretending), that others have their own thoughts, ideas and feelings, how emotion relates to social context, and to recognise appropriate affect given social context. |
| Visuospatial Processing | Design Copying | Motor and visual-perceptual skills associated with ability to copy 2D geometric figures |
| | Geometric Puzzles | Mental rotation, visuospatial analysis, and attention to detail. |

*Also administered at follow-up assessment

Appendix F: Information and Consent Forms

RESEARCH STUDY ON THERAPY FOR CHILDREN WHO COME TO SPECIALIST SERVICES FOR HELP



INFORMATION SHEET FOR CHILDREN

My name is Olivia Taylor and I am a student at Auckland University of Technology. I am doing a research project with Specialist Services that you might like to take part in.

At specialist services, we are always interested in finding out the best ways of helping children. One way is to ask children and young people who are coming here if they would like to take part in a research project.

What is the research project about?

This research is about a special therapy programme that helps children with their feelings and worries. Other children have found this therapy programme has helped them. We want to know how helpful this therapy programme is for children who come to Specialist Services, and if we can make it any better. We are really interested in how children's brains work after a traumatic event, and we will do some activities to see how your brain processes information.

Why am I being invited to participate in this research?

The therapy programme will help children aged 8-16 years who have experienced symptoms of trauma. You will learn different ways of coping with emotions and feelings and about how feelings affect your brain and body. We think this will help you feel better about yourself and mean that you will be better at paying attention and learning new information.

What will happen in the research?

Olivia will be doing the research part. She will first ask you and your caregiver some questions and get you to do some activities to see how helpful the therapy is for you. These activities will tell us how you are feeling, and how your brain is processing information. This means that we can see if the therapy is helping you to feel better. Olivia will see you before you start your therapy, during your therapy and after you have finished it.

We will ask you if it's OK for us to tape some of the therapy sessions. These tapes will be used to make sure the therapist is doing a good job. At any time, you can say you don't want things to be taped, even if you agreed at first.

You will have your own therapist who you will come to see for an hour a week for about 16 weeks. During this time you will do a workbook and lots of different activities. You may get to make a kit to take home that has activities to help you feel better.

Will anyone know I am participating in the research?

The only people who will know you are participating in the research are Olivia, her co-workers and her supervisors. The results of the research will be shared with other people

who are interested, but all the names of the children taking part will be changed. No one will know your individual responses.

Rules set by the government say that we have to keep your information (including tapes of your sessions) for a long time. This information will be stored in a safe, private place for ten years and then destroyed. Some information about your therapy will be stored at Specialist Services, but this information will only be able to be accessed by your therapist or other staff members who may want to help you in the future.

If you decide you don't want to be a part of the research anymore, we will not use any of the information we had collected for the research so far.

How do I agree to take part in this research?

If you decide to participate in the research you need to sign a form called an Assent Form that shows you want to take part in the research. If your caregiver is happy for you to participate they will need to sign a form called an Assent Form.

These forms need to be returned to me or to staff at Specialist Services within one week. You may ask me or staff at Specialist Services any questions you may have about the study before you sign the Assent Form.

What happens if you don't want to take part in the research project?

Taking part in this research is your choice. You can choose to stop taking part in the research at any time. If you don't want to take part, you do not have to give a reason, and you will still receive therapy at Specialist Services with your own therapist.

Can I find out the results of the research?

We will send you a summary of the results once the research project has finished so you can find out how helpful the therapy programme has been for you and other children.

Olivia and the therapist will keep everything you tell them private. If they are worried about something you tell them, they will talk to you first, before talking to your caregiver or social worker.



If you would like to take part in the research project or you would like to ask any questions, you can talk to Olivia or tell your caregiver who can talk to her at Specialist Services.

Thank you for taking the time to read and think about this project.

ASSENT FORM FOR CHILDREN



Project title: Evaluation and update of Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT) based on the neuropsychological impact of trauma.

Project supervisor: Jackie Feather

Researcher: Olivia Taylor

- ☐ I have read and understood the information sheet telling me what will happen in this study and why is important.
- ☐ I have been able to ask questions.
- ☐ My questions have been answered, and I know that I can ask more questions at any time.
- ☐ I understand that notes will be taken during assessment and therapy and that the sessions will be audio-taped
- ☐ I know that it is okay for me to stop taking part in the research project at any time and I can say I don't want to answer any questions, and can still come for my therapy sessions.
- ☐ If I stop being a part of the study, I understand that all information about me, including the recordings or any part of them that include me, will be destroyed.
- ☐ I know that what I tell the researchers in confidential (meaning it is private).
- ☐ I also understand that there might be some things that might need to be talked about with my parent or caregiver or social worker, but the researchers will talk about this with me before saying anything to anyone else.

Please tick one:

I **want** to take part in this research project ☐

I **don't want to** take part in this research project ☐

I agree to the therapy sessions being audio taped (*circle one*) YES NO

If I said yes, I know that I can ask to have the tape turned off at any time.

YOUR SIGNATURE _____

YOUR NAME _____

TODAY'S DATE _____

Participant Information Sheet



INFORMATION SHEET FOR PARENTS/GUARDIANS/CAREGIVERS/SOCIAL WORKERS

15 January 2015

Project Title:

Evaluation and update of Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT) based on the neuropsychological impact of trauma.

My name is Olivia Taylor and I am a doctoral candidate at Auckland University of Technology (AUT). I am carrying out the above research in part fulfilment of a Doctorate in Psychology. I am supervised by Dr Jackie Feather, a Clinical Psychologist and Senior Lecturer in Psychology at AUT. I would like to invite you and your child to participate in my research. Participation is completely voluntary, and you and your child will be free to withdraw from the study at any time and still continue to receive therapy.

What is the purpose of this research?

Many of the children who come to Child, Youth and Family Specialist Services need special help to help them cope with stress and anxiety as a result of things that have happened to them. This study is about updating the therapy programme that is currently used for these children. This therapy programme is called Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT). We know that TF-CBT is very effective for children who have been exposed to trauma, but we want to see if we can improve it even more.

We want to evaluate how effective TF-CBT is for children who are experiencing anxiety as the result of trauma (i.e., 'post-traumatic stress') and whether adding in some new components will help reduce anxiety in these children and improve the way their brain functions and processes information (neuropsychological functioning).

How was I identified and why am I being invited to participate in this research?

You and your child were identified as your child meets the criteria for Post-Traumatic Stress Syndrome (PTSD) and is aged between 8 and 15 years old. We are inviting you to participate in the research as we think we can improve the therapy given to children in this age range with PTSD and improve how they cope with stress and anxiety.

What will happen in this research?

If you agree to take part in this study, your child will attend one therapy session (approx. 1 hour) a week for about 16 weeks, including about 10 minutes of assessments to determine how your child is feeling each week. Your child will also be involved in about 3 1-1.5 hour assessment sessions before therapy begins, after completion of therapy and 3 months later.

The therapy session will mostly be TF-CBT, but some children will also receive components of sensory modulation therapy. TF-CBT is all about changing unhelpful thoughts and behaviours to make it easier to cope with strong emotions or traumatic events. Children create a narrative (like a story) that describes the traumatic event using creative tools like clay, sand, and pictures. This helps them to process the traumatic event in a safe environment. TF-CBT is the most commonly used

therapy for children who have been exposed to trauma and who have PTSD. It is very effective for treating the symptoms of PTSD.

The children who receive components of sensory modulation will take part in sensory activities that can help them reach a good level of arousal; for instance to help calm them down when they are feeling hyperactive and on-edge, and to help them feel grounded. They will learn strategies to help them modulate their own arousal, and will get to make a sensory kit to take home.

Assessment and therapy will be audio-taped if your prior consent is given. This is required for research purposes; to allow the researcher and her supervisors to check that the therapy guidelines are being followed.

Your child will receive assessment and therapy at Specialist Services appropriate to his or her needs, whether or not you choose to be involved in this research study.

Initial and follow-up assessments will mostly be delivered by SSU staff, and a different staff member will deliver the therapy.

The results of the research will be published in the form of a PhD thesis and associated academic articles and presentations, in which all participants and their caregivers will be de-identified. That is, other than the research and therapy team, no one will know you or your child took part in this study.

What are the discomforts and risks?

Your child may experience some discomfort during certain phases of the therapy where they learn to process the traumatic event they have experienced. For instance, they may find it difficult to talk about their emotions or certain events. Your child will never be made to talk about anything before they are ready, and they won't be made to do anything they are uncomfortable with. Children talking through their feelings and emotions is an important part of therapy, and trained and experienced therapists will minimise any discomfort your child may feel.

If your child is injured in this study, which is unlikely, you will be eligible to apply for compensation from ACC just as you would if you were injured in an accident at work or at home.

What are the benefits?

This research project will allow Olivia to complete her PhD in Psychology.

Additionally, results from the research will help therapists to better understand the effects of trauma on children, as well as demonstrate the benefits of sensory modulation therapy, and will result in the creation of an updated therapy programme. This will be beneficial to your child as well as other children who have been exposed to trauma who may come to SSU in the future.

How will my privacy be protected?

All information and records collected for the purposes of the research study will be:

- Completely confidential to the researcher, her co-workers and supervisors.
- Identified only by a code number (i.e. "de-identified"), and seen only by the researcher, her supervisor and the therapist, and only used for the purposes of the research. It will not be possible to identify individuals in any reports of the research results. In all publications and presentations, the results will be de-identified, names will be changed, and the identity of you and your child will not be able to be ascertained.

If you withdraw from the study at any time but wish to continue with therapy, all information collected for the purposes of the assessment and therapy will be excluded from the research.

Health research rules require that we keep the data collected in this study for a minimum of ten years. This data includes the taped recordings of therapy sessions. This information will be stored in a safe, private place for ten years and then destroyed.

Some identifiable “treatment” data will be stored at Specialist Services, as is part of usual practice for children coming to Specialist Services. This data will only be able to be accessed by staff at Specialist Services if it is relevant for the future care of your child.

What are the costs of participating in this research?

It is free to participate in this research. However, it will require more time than just receiving therapy as participation requires the additional assessment sessions.

Your child will participate in therapy once a week for about 16 weeks. These weekly sessions will take 1.5 hours and will include an additional 10 minutes of assessments to determine how your child is feeling each week. Your child will also be involved in about 3 1-1.5 hour assessment sessions before therapy begins, after completion of therapy and 3 months later.

What opportunity do I have to consider this invitation?

You and your child have one week to consider this application. During this time you are free to ask me (Olivia) and staff at CYF any questions you may have about the research project.

How do I agree to participate in this research?

If you and your child wish to participate in the research study, complete the attached Consent Form and ask your child to complete the attached Assent Form. Ensure that your child has read and understands the information sheet before they consent to the study.

Will I receive feedback on the results of this research?

If you would like to receive a summary of the results of this research when it is concluded, please indicate so on the Consent Form.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Jackie Feather, jfeather@aut.ac.nz

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext 6038.

If you decide to participate in the research study, you have the right to:

- Withdraw from the study at any stage and continue to receive therapy.
- Ask any questions about the study and have them answered.
- Refuse to answer questions at any time and continue to receive therapy.
- Decline to have assessment or therapy sessions audio taped at any time, regardless of prior consent
- Have access to a summary of the findings of the study when it is concluded.

Please note that any information collected for the purposes of the assessment and therapy per se will be subject to the usual confidentiality limitations that apply to all Child, Youth and Family clients with regards to any further disclosures or safety issues.

Researcher Contact Details:

Olivia Taylor

olivia.cs.taylor@gmail.com

Project Supervisor Contact

Jackie Feather

jfeather@aut.ac.nz

CONSENT FORM FOR PARENTS/GUARDIANS/CAREGIVERS/SOCIAL WORKERS



Project title: Evaluation and update of Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT) based on the neuropsychological impact of trauma.

Project supervisor: Jackie Feather

Researcher: Olivia Taylor

- ☐ I have read the Information Sheet and have had the details of the research study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.
- ☐ I understand that I have the right to withdraw my child from the research at any time and to decline to answer any particular questions, and my child will continue to receive assessment and therapy.
- ☐ For children to participate in this study, parent/guardian consent is required. In agreeing to participate, I also provide consent for my child's participation.
- ☐ I agree to provide information to the researcher on the understanding that my name or my child's name will not be used without my permission. *The information will only be used for this research and any publications that arise from the research.*
- ☐ I agree to the therapy sessions being audio taped. I understand that I have the right to ask for the audio tape to be turned off at any time during the sessions.

I would like to receive a copy of the results (circle one)

YES

NO

Child's name :

Parent/Guardian's name: Date:

Parent/Guardian's signature:

Parent/Guardian's Contact Details:

.....

SSU Staff Information Sheet

INFORMATION SHEET FOR STAFF INVOLVED IN THE STUDY

14th July 2015



Project Title:

Evaluation and update of Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT) based on the neuropsychological impact of trauma.

My name is Olivia Taylor and I am a doctoral candidate at Auckland University of Technology (AUT). I am carrying out the above research in part fulfilment of a Doctorate in Psychology. I am supervised by Dr Jackie Feather, a Clinical Psychologist and Senior Lecturer in Psychology at AUT. I would like to invite you to participate in my research in the capacity of a therapist at SSU Puawaitahi.

What is the purpose of this research?

This study is about evaluating and updating the therapy programme that is currently used for children at CYF SSU; Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT). We know that TF-CBT is very effective for children who have been exposed to trauma, but we want to see if we can improve it even more.

We want to evaluate how effective TF-CBT is for children who are experiencing anxiety as the result of trauma (i.e., 'post-traumatic stress') and whether adding in some new components will help reduce anxiety in these children and improve neuropsychological functioning. The components we will be adding come from a relatively new approach to trauma; sensory modulation.

How was I identified and why am I being invited to participate in this research?

You were identified as you are currently employed at Puawaitahi and have expressed interest in becoming involved in this study.

What will happen in this research?

Depending on your role, you may be administering neuropsychological assessments (the NEPSY-II), delivering TF-CBT as usual, delivering sensory modulation approaches or delivering an updated intervention involving both sensory modulation and TF-CBT to the children and their families who have agreed to participate in this study. The participants who receive components of sensory modulation will take part in sensory activities that can help them reach a good level of arousal; for instance to help calm them down when they are feeling hyperactive and on-edge, and to help them feel grounded. There has been a sensory room set up at SSU containing a variety of tools and activities to assist with sensory modulation.

If you are to deliver sensory modulation, you will be provided with training from an expert in the field.

Therapy sessions will take part once a week for about 16 weeks, including about 15 minutes of assessments prior to the session. The researcher will deliver these assessments. A comprehensive pre-, post- and follow-up assessment will also be administered. This assessment will take 1-1.5 hours and will include the NEPSY-II as a measure of neuropsychological function. If you agree to take part in this study, you may be asked to administer this assessment to the child participants.

Assessment and therapy will be audio-taped if your prior consent is given. This is required for research purposes; to allow the researcher and her supervisors to check that the therapy guidelines are being followed.

What are the discomforts and risks?

You will be required to deliver therapy as usual within your role as a staff member at SSU, so your role in the research should not lead to any foreseeable risks or discomforts.

What are the benefits?

This research project will allow Olivia to complete her PhD in Psychology. Additionally, results from the research will help you and other therapists to better understand the effects of trauma on children, and will result in the creation of an updated therapy programme. This will be beneficial to SSU and children who may use the services in the future.

Health research rules require that we keep the data collected in this study for a minimum of ten years. This data includes the taped recordings of therapy sessions. This information will be stored in a safe, private place for ten years and then destroyed.

What are the costs of participating in this research?

It is free to participate in this research. However, it will require more time than delivering therapy as usual as participation requires the additional assessment sessions.

Therapy for each child involved in the study will take place once a week for about 16 weeks. These weekly sessions will take 1.5 hours and will include an additional 15 minutes of assessments. Assessment sessions will be 1-1.5 hour assessment session before therapy begins, after completion of therapy and 3 and 6 months later.

How do I agree to participate in this research?

If you wish to participate in the research study, complete the attached Consent Form.

Will I receive feedback on the results of this research?

Yes, the research findings will be disseminated to staff at SSU and you will be free to access any related publications.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Jackie Feather, jfeather@aut.ac.nz

Concerns regarding the conduct of the research should be notified to the Executive Secretary c AUTC, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext 6038.

If you decide to participate in the research study, you have the right to:

- Withdraw from the study at any stage with no implications
- Ask any questions about the study and have them answered.
- Have access to a summary of the findings of the study when it is concluded.

Please note that any information collected for the purposes of the assessment and therapy per se will be subject to the usual confidentiality limitations that apply to all Child, Youth and Family clients with regards to any further disclosures or safety issues.

Researcher Contact Details:

Olivia Taylor

olivia.cs.taylor@gmail.com

Ph: 027 2639 503

Project Supervisor Contact Details:

Jackie Feather

jfeather@aut.ac.nz

Appendix G: Ethics Approvals

28 July 2015

Jackie Feather
Faculty of Health and Environmental Sciences

Dear Jackie

Re Ethics Application: **15/218 Evaluation and update of Trauma-Focused Cognitive Behavioural Therapy (TF_CBT) based on the neuropsychological impact of trauma.**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTC).

Your ethics application has been approved for three years until 27 July 2018.

As part of the ethics approval process, you are required to submit the following to AUTC:

- A brief annual progress report using form EA2, which is available online through <http://www.aut.ac.nz/researchethics>. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 27 July 2018;
- A brief report on the status of the project using form EA3, which is available online through <http://www.aut.ac.nz/researchethics>. This report is to be submitted either when the approval expires on 27 July 2018 or on completion of the project.

It is a condition of approval that AUTC is notified of any adverse events or if the research does not commence. AUTC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

AUTC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to obtain this.

To enable us to provide you with efficient service, please use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please do contact us at ethics@aut.ac.nz.

All the very best with your research,



Kate O'Connor
Executive Secretary
Auckland University of Technology Ethics Committee

Cc: Olivia Taylor olivia.cs.taylor@gmail.com



Health and Disability Ethics Committees
Ministry of Health
Freyberg Building
20 Aitken Street
PO Box 5013
Wellington
6011

0800 4 ETHICS
hdec@moh.govt.nz

26 May 2015

Miss Olivia Taylor
10a Winifred Avenue
Bayview
Auckland 0629

Dear Miss Taylor

| | | |
|-----|---------------------|---|
| Re: | Ethics ref: | 15/NTA/29 |
| | Study title: | Evaluation and update of Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT) based on the neuropsychological impact of trauma. |

I am pleased to advise that this application has been approved by the Northern A Health and Disability Ethics Committee. This decision was made through the HDEC-Full Review pathway.

Conditions of HDEC approval

HDEC approval for this study is subject to the following conditions being met prior to the commencement of the study in New Zealand. It is your responsibility, and that of the study's sponsor, to ensure that these conditions are met. No further review by the Northern A Health and Disability Ethics Committee is required.

Standard conditions:

1. Before the study commences at *any* locality in New Zealand, all relevant regulatory approvals must be obtained.
2. Before the study commences at *any* locality in New Zealand, it must be registered in a WHO-approved clinical trials registry (such as the Australia New Zealand Clinical Trials Registry, www.anzctr.org.au).
3. Before the study commences at a *given* locality in New Zealand, it must be authorised by that locality in Online Forms. Locality authorisation confirms that the locality is suitable for the safe and effective conduct of the study, and that local research governance issues have been addressed.

Non-standard conditions:

Summary of ethical issues (outstanding)

The main ethical issues considered by the Committee and which require addressing by the Researcher are as follows.

- Please change the ACC statement in the Parent Participant Information Sheet (PIS) so that it reads as "...eligible to apply for compensation from ACC..."

- Data must be kept for a minimum of 10 years from the date the youngest participant turns 16. Please ensure this is disclosed in the PIS. Information on when tapes will be destroyed should also be included in the PIS.
- Please correct the PIS for children by using the word "assent" rather than "consent".

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by HDEC before commencing your study. Do not submit non-standard conditions as a post approval form (PAF).

For information on non-standard conditions please see section 128 and 129 of the Standard Operating Procedures at <http://ethics.health.govt.nz/home>.

After HDEC review

Please refer to the *Standard Operating Procedures for Health and Disability Ethics Committees* (available on www.ethics.health.govt.nz) for HDEC requirements relating to amendments and other post-approval processes.


Your **next progress report** is due by **25 May 2016**.

Participant access to ACC

The Northern A Health and Disability Ethics Committee is satisfied that your study is not a clinical trial that is to be conducted principally for the benefit of the manufacturer or distributor of the medicine or item being trialled. Participants injured as a result of treatment received as part of your study may therefore be eligible for publicly-funded compensation through the Accident Compensation Corporation (ACC).

-Please don't hesitate to contact the HDEC secretariat for further information. We wish you all the best for your study.

Yours sincerely,



Dr Brian Fergus
Chairperson
Northern A Health and Disability Ethics Committee

Encl: appendix A: documents submitted
appendix B: statement of compliance and list of members



MINISTRY OF SOCIAL
DEVELOPMENT
TE MANATŌ WHAKAUA TO ORA

21 September 2015

10a Winifred Avenue
Bayview
Auckland, 0629

Dear Olivia,

LETTER OF RESEARCH APPROVAL

"Evaluation and update of Trauma-Focussed Cognitive Behavioural Therapy (TF-CBT) based on the neuropsychological symptoms of trauma"

Thank you for submitting your research application to the Ministry of Social Development (MSD) Research Access Committee (RAC).

I am pleased to inform you that your application for the "Evaluation and update of Trauma-Focussed Cognitive Behavioural Therapy" has been given full RAC approval.

Your application is subject to a number of conditions as well as standard research access requirements detailed on the following pages. Proceeding with the evaluation and update requires full acceptance of and compliance with these conditions and requirements.

Should you have any concerns or questions about these conditions and requirements, or for other research access related matters, please contact the RAC's Research Access Coordinator.

Good luck with your research.

Yours sincerely,

Dr James McIlraith
Research Access Coordinator (Acting)
Senior Analyst | Research and Evaluation | Insights MSD (iMSD)

Appendix H: Systematic Review Quality Appraisal Table

| Citation | Study Design | Participants | | Intervention | | Outcomes | Quality appraisal |
|---|--|--|--|--|---|---|--|
| | | Age/Sex | Type of trauma and presenting symptoms | Intervention details | Session number/frequency | Key outcomes | |
| Champagne (2011a). Attachment, trauma, and occupational therapy practice. | Description of intervention, qualitative case example | n=1 (5 year old female) | Severe abuse, not otherwise defined. PTSD and ADHD diagnoses. Symptoms included hypervigilance, easily startled, nightmares and difficulty sleeping, poor impulse control. | Sensory diet, environmental modifications and Ayres Sensory Integration (ASI) | Number of sessions unknown, conducted over 2 months | Improvements across occupational goal areas, stronger bond with caregiver | Case description only – limited information about number of sessions and no trauma measures or outcomes described. |
| Da Silva (2011). The sensory treatment approach in dealing with trauma in children: Does it work? | Exploratory, qualitative. Thesis examining effectiveness of sensory approach for children with history of trauma | Social workers using the sensory treatment approach from one agency (n=4; 3 female, 1 male). | | Sensory treatment approach, treatment plan unique to the child and varies between clinicians (social workers). Outcomes measured based on goals set at start of therapy and Child Behaviour Checklist (CBCL). Clinicians also use other treatment models alongside the sensory approach, including CBT, play therapy, art therapy, DBT and EMDR. Participants describe the sensory intervention to be effective. | | | Small sample, participants all work at same agency. Clear qualitative analysis. |

| Citation | Study Design | Participants | Intervention | Outcomes | Quality appraisal | |
|---|--|-----------------------|---|--|---------------------------------|--|
| | | Age/Sex | Type of trauma and presenting symptoms | Intervention details | Session number/frequency | Key outcomes |
| Finn et al. (2017). The boy who was hit in the face: Somatic regulation and processing of preverbal complex trauma. | Description of intervention and theoretical background, qualitative case study | n=1 (7 year old male) | Maltreatment including exposure to domestic violence, neglect, physical abuse and repeated removals from caregivers. Rage and tantrums, aggressive behaviour, fearful of pictures of faces and avoided eye contact | SMART – as described by Warner et al. (2014) | Weekly sessions over six months | Physical aggression ceased, improved verbal communication of emotions, increased self-regulation capacity and connection with parents. Case study – possible selection bias (selected after standard intervention unsuccessful). No outcome measures described. |

| Citation | Study Design | Participants | | Intervention | | Outcomes | Quality appraisal |
|---|-----------------------------------|--|--|---|--|--|---|
| | | Age/Sex | Type of trauma and presenting symptoms | Intervention details | Session number/frequency | Key outcomes | |
| May-Benson & Teasdale (2017). The SAFE PLACE program: A program review – Interim project summary. | Single case mixed methods design. | n=1, 4.10/M, plus mother, father, and nanny. | Undefined but sensory processing dysfunction and complex trauma as per inclusion criteria. | SAFE PLACE – A 12 week inter-disciplinary intervention for children with sensory processing disorder and complex trauma and attachment difficulties | Child & parent – 2x weekly 60 minute sessions for 12 weeks Parent – 1x weekly 60 minute session for 12 weeks (but actually completed over 15 weeks due to rescheduling) | Improved behaviour regulation (including reduction in negative behaviours), sensory processing skills and improved parent understanding of child's behaviour | No measure of trauma symptoms but clear methodology. Independent assessor conducted baseline, pre- and post-assessments |

| Citation | Study Design | Participants | Intervention | Outcomes | Quality appraisal | |
|--|---|----------------------------------|--|--|---|---|
| | | Age/Sex | Type of trauma and presenting symptoms | Intervention details | Session number/frequency | Key outcomes |
| Purvis, McKenzie, Cross, & Razuri (2013). A spontaneous emergence of attachment behavior in at-risk children and a Correlation With Sensory Deficits | Quantitative – pre and post measures, parent reports. | n=18, aged 3–14 (F, n=9; M, n=9) | Histories of abuse and/or early deprivation. All participants had been adopted. Sensory deficits, negative attachment behaviours. | An attachment and sensory-rich day camp. Included a morning attachment ritual, ongoing sensory input and OT activities, therapeutic games. | Participants attended a day camp every day for three weeks. Two camps run separately for two age groups (ages 3–9 and ages 10 – 14). | Improvement in sensory deficits and subsequent emergence of positive, pro-attachment behaviours. Improvements in use of verbal language. Trauma specific outcome measures not described, no follow up. |

| Citation | Study Design | Participants | | Intervention | | Outcomes | Quality appraisal |
|---|---|--|--|--|--|---|---|
| | | Age/Sex | Type of trauma and presenting symptoms | Intervention details | Session number/frequency | Key outcomes | |
| Raider, Steele, Delillo-Storey, Jacobs, & Kuban (2008). Structured sensory therapy (SITCAP-ART) for traumatized adjudicated adolescents in residential treatment. | Randomised control trial (RCT) – treatment group and waitlist comparison. | n=23 (13 randomly assigned to treatment group, 10 to waitlist, 5 dropouts), aged 15–18 (F, n=9; M, n=11) | Psychological, physical and sexual maltreatment, domestic violence, neglect, traumatic loss, separation. 75% of participants experienced multiple trauma. Behavioural problems, criminal behaviour, alcohol/substance abuse, attachment problems. | SITCAP-ART (Structured Sensory Intervention for Traumatized Children, Adolescents and Parents – Adjudicated and at Risk Youth) – includes sensory and CBT components. Sensory activities support cognitive processes | 10 – 11 1.25-hour sessions (7 group sessions, one individual debriefing session, one individual processing session, one parent/adolescent session) | Significant reduction in trauma symptoms, mental health symptoms (anxiety/depression symptoms), positive changes in attitude in behaviour reported by staff | Standardised mental health and trauma measures used. Small sample size. Unclear risk of bias. |

| Citation | Study Design | Participants | Intervention | Outcomes | Quality appraisal | |
|--|--|--------------|---|---|--|---|
| | | Age/Sex | Type of trauma and presenting symptoms | Intervention details | Session number/frequency | Key outcomes |
| Ryan, Lane, & Powers (2017). A multidisciplinary model for treating complex trauma in early childhood. | Discussion/description of intervention, case example | n = 1, 4/M | Early chronic neglect and abuse, in utero exposure to heroin and other substances. Participant demonstrating disruptive and aggressive behaviour, poor social skills, impulsivity, distractibility, affect regulation and poor sensory processing | Circle Preschool Program (CPP). Includes the use of activities to build relationships and enhance regulation – e.g. play therapy, sensory-based play activities and strengths-based teaching. | 8 hours of early childhood education 5 days a week for two years, plus weekly play therapy sessions. Parents attended additional psychotherapy sessions/psycho-education groups. | Participant learned to self-regulate in many situations and improved ability to relate safely to other children. No follow up described, no measures described other than observation |

| Citation | Study Design | Participants | | Intervention | | Outcomes | Quality appraisal |
|---|--|--|--|--|--------------------------|---|---|
| | | Age/Sex | Type of trauma and presenting symptoms | Intervention details | Session number/frequency | Key outcomes | |
| Steele, Raider, & Kuban (2009). Connections, continuity, dignity, opportunities model: Follow-up of children who completed the I Feel Better Now trauma intervention program. | Qualitative follow up of a RCT. Focus groups conducted with selected participants following intervention. | Participants with scores in the top one third of evaluation measures post intervention (n=14) and those with scores in the bottom one third (n=13) participated in focus groups, along with a group of social workers who delivered the intervention (n=8) | Participants had histories of multiple traumas, including maltreatment, domestic violence, witness to violence, separation, homelessness, and death of a parent, as well as additional traumatic events during the follow up period. | <i>I Feel Better Now!</i> – based on SITCAP model. Original intervention conducted over 10 weeks. | | Those with poorer treatment outcomes had poorer quality interactions with caregivers. | No focus groups with middle performing participants |

| Citation | Study Design | Participants | | Intervention | | Outcomes | Quality appraisal |
|--|--|---|---|---|--|---|---|
| | | Age/Sex | Type of trauma and presenting symptoms | Intervention details | Session number/frequency | Key outcomes | |
| Warner et al. (2014). The body can change the score: Empirical support for somatic regulation in the treatment of traumatized adolescents. | Quasi-experimental matched control pilot study. SMART intervention compared to TAU | SMART (n=10) TAU (n=21) Age range 13–20 years (90% female). Two adolescent residential treatment centres. | Emotional, physical, sexual abuse and neglect. Average number of trauma exposure types = 6.5. 61% of total sample diagnosed with PTSD. Majority of participants had multiple co-morbid diagnoses. | Sensory Motor Arousal Regulation Therapy (SMART) – targeting somatic regulation as an avenue to behavioural and emotional regulation in traumatised adolescents | Weekly sessions – treatment duration varied and was determined on a clinical basis | Significant reduction in internalising symptoms, particularly on somatic complaints and anxious/depressed subscales. Reduced PTSD symptoms (not significant). | Valid/reliable measures of PTSD and behaviour used. Majority female participants. Participant selection bias but limited response bias. |

Appendix I: Sensory Intervention (SI) Session Overview

SESSION 1Session goals:

- To build rapport, get to know the child, and emphasise that this programme is about the child and the therapist working together to find ways to help the child feel better.
- To introduce the sensory room and encourage the child to start thinking about their sensory preferences and how they may react to certain stimuli/triggers
- Introduce the “just right” zone

Session format:

Develop a relationship and orientate to therapy.

The child can be given the opportunity to briefly explore the sensory room, and told that they will get the opportunity to choose items to use and play with later in the session.

As part of this orientation to the sensory room, the child can sign the *Sensory Room Rules*, as an understanding that they will respect the rules of the room.

Discuss with the child what they know about coming to therapy, and what they might expect. Introduce yourself and your role more fully.

A brief overview of the programme can be given, emphasising that it is a joint effort between therapist and child – *People sometimes have feelings that come back after something scary, sad or upsetting has happened. These feelings might come back after seeing, hearing, or smelling certain things, or when you feel scared or overwhelmed. The purpose of this programme is to help you learn to recognise these feelings (and what might trigger them) and find ways to help you cope with them and feel better. We will be working together over the next few weeks in the sensory room to discover things that can help you manage your feelings, and to find out what you like and don't like (preferences and triggers).*

Introduce the workbook

The child can decorate the workbook with their name and a picture of themselves on the first page. They can also stick the *Sensory Room Rules* in. They will use this workbook throughout therapy to document their learning.

Getting to know each other

Play a game such as the “sentence completion card game” and the child can complete the *About Me* worksheet and stick this into their workbook.

Opportunity to explore the sensory room

Discuss with the child that there will be things they like and things that they don't like, and that it is a process of trying things out to see what might work for them.

You can also introduce the concept of the "just right zone" - *During the day, we go through ups and downs, highs and lows. If we are too low, or too high, it can be difficult to focus, listen, or complete tasks. We want to spend as much time in the "just right zone" as possible, and can use things in the sensory room to help.*

Get the child to choose three of their favourite items, and at least one item that they don't like so much. They can list these on the *My Favourite Items* worksheet. Remind them that it's okay if they want to change their mind about their favourite items later.

This process should help start to give the therapist an idea of what the child's preferences are.

Sensory Tools Survey

This can be completed as an optional activity. You can just ask the questions as part of a discussion when the child is exploring the sensory room and when you are explaining the zones of regulation/just right zone.

Session completion

Ask the child how they feel about coming to the session next week and if they have any questions or comments. Introduce the homework task.

Homework task:

For homework, the child should try to think of times when they feel especially upset (high or low) and if they have any strategies they use to help at these times. Give them the *Reflection* worksheet to take home and complete (if they don't complete it at home they can do it in the next session).

SESSION 2

Session goals:

- To provide some psychoeducation about sensory stimuli and reactions, and normalise reactions
- To introduce that the child will be able to use "tools" or "tricks" to help themselves feel better
- To introduce the seven senses and calming and alerting

Session Format

Begin by reviewing the homework task (*reflection*) and introducing the zones of regulation. Has the child come up with any things that they think they do to get into the just right zone?

Zones of Regulation poster

This can be briefly introduced in this session and expanded on in subsequent sessions. The poster can be designed however the child likes, as long as there are three zones of arousal. Each zone will contain examples of how they feel (cut out pictures, words, drawings etc.) and examples of activities or tools to help them get into the “just right” zone. They don’t need to come up with many examples in the first session, but guide them to think about their daily fluctuations.

During the day, people move throughout zones of arousal, from low (calm) to high (too stimulated), with a “just right” zone in between. Think about how you usually feel at different times of the day. Do you feel alert when you wake up? What kinds of things make you feel “low” and “high”? Can you think of any things that you might do to get you into the “just right” zone? Think about these things over the next few weeks and we will add to it in each session.

You might like to use the characters from Inside Out to explain the zones (anger is high, sadness is low, joy is just right) or characters from Winnie the Pooh (Tigger is high, Eeyore is low and Pooh is just right).

The child can also complete the *Triggers Tool*, and add examples from this to their poster.

Introduction to calming and alerting stimuli

Discuss the general characteristics of calming and alerting stimuli and get the child to identify some calming and alerting stimuli within the sensory room. Remind the child that everyone has different preferences so may find different things calming and alerting, but that these examples are generally the case.

Generally, calming items are things like slow-paced music, nice smells and lighter colours. These things are usually predictable, so you can guess how they might feel, and you don’t get surprised. Some people may also find using a heavy (weighted) blanket or toy to be calming, or may like to be wrapped in a blanket or special wrap.

Alerting things are unpredictable, like loud or fast music, smells like peppermint, bright colours and rough feeling things. You can also use your body to help you stay alert, by jumping, running, or squeezing your hands together.

Let's try out some more calming and alerting tools. Choose two items – one that is calming and one that is alerting. What about these items do you think makes them calming or alerting?

Discussing the seven senses

We use our senses to help us figure out where we are, and how to react to different things in the world around us. For example, your sense of smell might tell you that you are burning your toast or your sense of sight might help you dodge a soccer ball coming at you!

Can you name your seven senses? Most people only know about the main five senses, but there are another two that you use to help your body stay balanced and know what movements to make.

Try to find an example within the sensory room of an item for each of the seven senses. Do you think there is a sense that you use more than others?

Ask the child to list some examples of items from the sensory rooms for each of the senses on the *Exploring the room with my seven senses* worksheet. Another activity can be asking them to rearrange the Velcro stickers and match these to items in the room.

Sensory Profile 2 results

Prior to the session, review the completed Sensory Profile. Are there any senses with particularly elevated scores? Is the child sensory seeking or sensory avoiding? See “Types of Sensory Processing Difficulties” for an explanation of the quadrants.

Discuss the Sensory Profile results with the child. Ask them if they agree or disagree with their caregiver's ratings. Add some of these examples to the zones of regulation poster if the child would like to.

Session completion

End the session by trying out something new in the sensory room. Try to prompt the child to choose an item that will be useful at a particular time, for instance that may help them with one of the triggers they identified on the *Triggers Tool*.

Homework task

Give the child the *How I Feel* worksheet to take home. They can choose a time and feeling, and list what they did to help get themselves back into the “just right” zone.

SESSION 3

Session goals:

- To review sensory triggers, continue to develop an understanding of these and expand positive ways to manage triggers to get into the just right zone
- To further develop an understanding of calming and alerting stimuli and develop a repertoire that can be used at home or school.
- To review the seven senses and preferences within these.
- To further discuss and normalise sensory reactions to trauma.

Session format:

Begin session by reviewing the last session and the child's homework. Discuss the situation they have chosen and their suggestions for strategies they could have used. Add any new ideas to the zones of regulation poster.

Identify body reactions using the *Body Diagram* worksheet and the *Warning Sign Tool*:

Discuss examples of children in various situations to explore bodily reactions. You could tell story about a child in an exciting situation (e.g. a school trip) and how they may be feeling (e.g. heart beating fast, restless). Ask the child how they might feel in a situation like that.

Also tell a story about children in an anxiety-provoking situation (e.g. speaking in assembly). Ask them to identify how the child may be feeling, what kinds of reactions these children might have (e.g. sweating, shaking) and what reactions they themselves may have in a situation like that. Remind the child that people can have different reactions to the same situation and normalise body reactions to trauma.

Explore how the body feels in a safe situation to distinguish between feelings in safe vs. anxious states. The child can complete the *Draw a memory for each emotion* worksheet. Ask them where they think the memories would fit on their zones of regulation poster.

Describe fight/flight – that feelings in a stressful or distressing time are the body's way of preparing us to take action. Depending on the child's developmental level, you can explain that the fight flight response is caused by chemicals released when the part of the brain that senses danger (the amygdala) finds a match between a memory of a previous experience and something happening in the here and now. Sometimes the amygdala reacts when it doesn't need to, but people can learn to recognise the body reaction and help calm themselves.

Give example of using calming/alerting strategies to model coping skills

E.g., being afraid of dogs – when seeing a dog my heart starts racing and my stomach feels funny...now I can recognise these feelings so when I see a dog I take some deep breaths to calm down and walk slowly past the dog (rather than run away). If I am still feeling racy afterwards, I will use some nice scented hand cream as the scent helps me to feel calm. *What do you think you might use to help yourself calm down in this situation?*

Review and expand on the use of calming and alerting stimuli to help cope with upsetting situations. The child can complete the *Safety Tool* and add their own ideas. This covers the seven senses too.

The child can continue to explore the sensory room to complete the Calming and Alerting Tools worksheet. They should give examples of calming and alerting items within the room, but also try to come up with tools that they could use that aren't in the room (particularly vestibular).

Session completion

Briefly review the session and address any questions or concerns. Discuss with the child that in the next sessions, the examples they have come up with will be used to create a set of activities they can use at certain times, and that they will then build a “kit” of tools to take home and use.

SESSION 4

Session goals:

- To develop a sensory plan that contains examples of distressing situations or triggers for the child, and strategies the child can use to get them into the “just right” zone
- To reinforce that the child can control their reactions using techniques that work for them and match their sensory needs and preferences

Session format:

Begin session with a review of what the child has learnt so far.

Explain sensory plan and discuss an example:

A sensory plan is a selection of tools that can be used at specific times to help you feel better/calm/alert. In this session we will come up with some times that you might need help calming down or may need to feel alert – and come up with some tools to use to help. For example, I start to feel grumpy and overwhelmed when I

am in a room with lots of people and noise. I know that when I have to go somewhere where there will be lots of people, I make sure I take a stress ball and some nice smelling hand cream, as using these tools helps me to feel calm.

Focus on triggers or distressing times, and specific tools to help at these times (try to encourage them to use all seven senses).

Let's think about some of the examples of distressing times we have talked about. Can you think of some things that may be calming or alerting to help at these times? Remember to think about each of the seven senses.

If the child struggles to come up with scenarios - could use examples identified in the CQ/CPSS and identify strategies to help with these scenarios. Or identify items from the sensory profile prior to the session that can be used. Use examples of feelings/tools/situations from *zones of regulation* poster and *calming and alerting/Massachusetts* worksheets. For each distressing activity/trigger, can suggest a couple of strategies, as they won't always be practical (e.g., they may find patting their cat calming, but they can't take their cat to school).

If we look at your zones of regulation poster, you have said you feel "low" when....and that sometimes you use.... to help you get back into the "just right zone". We can write this down as a sensory plan activity. Do you think there might be times when you wouldn't be able to use this strategy? What could you use instead?

The child can write sensory plan activities in their workbook, or they could make flashcards or a little booklet. Copies of activities could be made to take home.

Session completion

Review the session and the child's sensory plan. How do they feel about using these strategies outside of the sensory room?

Homework task

The child should practice and review their sensory plan. They should make note of things that don't work and also come up with ideas of things that they can use at home. Ask them to use the *Self-Rating Tool* (give them a few copies). This worksheet can guide the review of their plan for discussion in the next session.

SESSION 5

Session goals:

- To review and finalise the sensory plan
- To design and make a sensory kit that contains tools and strategies the child can use at home
- To complete therapy and say goodbyes (or discuss transition into TF-CBT/further therapy if relevant).

Session format:

Begin by reviewing the homework task. Did the child find that any of their sensory plan activities didn't work so well? Do they have any more ideas? Reinforce that they can continue developing their sensory plan and learning about their preferences themselves, after therapy has finished. Also discuss if there were any times where the child used their sensory plan successfully. Do they feel confident using the strategies they have learnt to help calm themselves?

For the rest of our time together, we are going to focus on designing and making a sensory kit – a kit of items that you can take home and use when you need to.

This kit can include some things from SSU, and some things from home. The things you put in the kit should be things that you have in your sensory plan.

You might discover things that you find calming or helpful after you have finished coming to therapy – and you can keep updating your kit.

When you are designing your kit, remember to use the things you have learnt about your triggers and preferences, things you find calming and alerting, and the seven senses. Try to include at least one item/tool from each sense.

The child can spend the rest of the session designing and decorating the kit. They might find it useful to copy out some of their sensory plan activities to keep in the kit too. The kit can contain some small designated optional items from SSU, as well as items from home, and perhaps a list or cut out cards of other possible activities. The therapist should guide the child to include calming and alerting tools from multiple senses, and facilitate a brief discussion as to why they are choosing to include each item. The therapist can also use this opportunity to suggest any items that may have been overlooked, and try these out with the child.

Session completion

When the child has finished making their sensory kit, therapy can be wrapped up using the *therapy review and goodbye* worksheet. The therapist can use the worksheet to discuss highlights and lowlights. Review the child's workbook together and assist the child to reflect on their experiences.

Remind the child that they have learnt strategies to help themselves, and that they can be "their own therapist" using their sensory kit and sensory plan.

Appendix J: Examples of Sensory Activities From the Seven Senses

Touch

- Fidget tools
- Stress ball
- Clay/play-dough
- Special blankets
- Soft fabrics
- Rough textures
- Warm bath
- Walking barefoot
- Using lotions
- Pipe cleaners
- Squishy bracelets
- Fluffy balls
- Playing with stones
- Sand
- Running hands through grass
- Massage
- Hot or cold shower
- Feathers

Auditory/sound

- Listening to music
- Singing
- Humming
- Whistling
- People talking
- Musical instruments
- Listening to the clock ticking
- Quiet place
- Outside noises
- Music box
- Listening to birds
- Clapping/clicking
- Egg shakers
- Listening to rain
- Maracas

Vision/seeing

- Reading
- Watching TV
- Watching clouds
- Coloured glasses
- Fish tank
- Flashing lights
- Spinning tops
- Lava lamp
- Ocean waves
- Looking at pictures
- Star gazing
- Dim lights
- Sunrise/sunset
- Colouring in
- Watching movies
- Bubbles
- Slinky
- Eye mask
- Bright lights
- Rain/snow falling
- Bird watching

Scent/smelling

- Scented candles
- Room spray
- Flowers
- Baking/cooking
- Handcream
- Herbal tea
- Body wash/soap
- Incense
- Freshly cut grass
- Clean washing
- Coffee
- Scented wheat bags
- Perfumes and colognes

Taste/oral

- Chewing gum
- Straws-blowing/sucking
- Party blowers

- | | | |
|--------------------|-------------------|-----------------|
| ▪ Herbal tea | ▪ Crunchy foods | ▪ Popping candy |
| ▪ Sour foods | ▪ Blowing bubbles | ▪ Cold drink |
| ▪ Chewing on straw | ▪ Spicy foods | ▪ Warm drink |
| ▪ Mints | ▪ Crunching ice | ▪ Lollypop |

Vestibular (balance and movement)

- | | | |
|------------------------------|--------------------------|-----------------------|
| ▪ Riding bike | ▪ Swinging | ▪ Trampoline |
| ▪ Running | ▪ Jumping | ▪ Rocking |
| ▪ Skipping | ▪ Play hop-scotch | ▪ Dancing |
| ▪ Balancing | ▪ Throwing ball | ▪ Playing sport |
| ▪ Shaking out hands and feet | ▪ Bouncing on Swiss ball | ▪ Spinning in circles |
| ▪ Handstands | ▪ Star jumps | ▪ Bouncing balls |

Proprioceptive (heavy work/deep pressure)

- | | | |
|-------------------------|-----------------------------|--------------------|
| ▪ Sitting in bean bad | ▪ Sitting on Swiss ball | ▪ Weighted blanket |
| ▪ Hugging a stuffed toy | ▪ Lifting heavy books | ▪ Weighted animals |
| ▪ Lycra wrap | ▪ Wrapping self in blankets | ▪ Getting a hug |
| ▪ Stretching | ▪ Crawling | ▪ Push-ups |
| ▪ Chewing | ▪ Stomping | ▪ Rock climbing |
| ▪ Vacuuming | ▪ Massage | |

Appendix K: STF-CBT Session Overview

Sensory-Focussed CBT for Child Trauma © Taylor & Feather**Phase 1: Orientation and Engagement****Orientation to therapy**

A combined session to provide parents/caregivers and child with information about the therapy, identify the family/caregiving context and support networks, instil hope and encourage engagement.

The therapist will provide information about the therapy process, including session frequency, the phases of therapy, and expected involvement from caregivers and children. Therapists are also encouraged to share information about the benefits of CBT and sensory based therapies for anxiety, trauma and PTSD, including the importance of caregiver involvement. The purpose is to instil hope and help the child feel comfortable attending therapy.

Session 1: Building rapport

A session to build rapport between therapist and child and encourage the child's participation through exploration of the therapy environment and sensory room. Introduce the rewards chart.

This session focusses on building the relationship between the therapist and the child, and helping the child to feel comfortable in the therapy setting. It should be a fun, light session with activities centred around getting to know each other.

Giving the child the opportunity to explore the sensory room will begin to give the therapist an idea of their preferences for sensory items, and prompts the child to start thinking about the senses.

Session 2a: Relationships

A session to explore the child's relationships and support networks, and to begin to explore how trauma has affected the child, their family, and others.

Session 2b: Relationships

An optional combined parent/caregiver session which aims to strengthen the child/caregiver bond and encourage collaboration.

This session can use an activity such as “recipe for family resilience” to identify strengths and weaknesses within the family and goals that the child and caregiver can work on outside of therapy.

Session 3: Timeline

A session to explore the child's history and introduce the idea of a coping plan.

This session includes a timeline activity, where the child draws a timeline of their life – good and bad things. Children also receive psychoeducation about the effects of trauma using the TRAP model, and the idea of using coping strategies is introduced.

Phase 2: Sensory-focussed Coping

Parent/caregiver check-in

A check-in to provide caregivers with further information about the therapy, an opportunity to discuss the child's progress, and introduce sensory-focussed coping. Also an opportunity to discuss the child's sensory processing patterns.

Session 4: Sensory arousal

A session to introduce zones of arousal – high, low and just right - and to introduce sensory activities to help the child get into the 'just right' zone.

Introduce the coping phase of therapy and the concept of the “just right zone”. The child can design a zones of arousal poster, depicting what each zone looks like for them. Introduce calming and alerting stimuli and explore some examples in the sensory room.

Session 5: Body reactions

A session to help the child recognise body reactions related to trauma and anxiety, and introduce calming and alerting activities.

Identify body reactions to trauma using different examples and model the use of calming/alerting/grounding strategies in response to body reactions. Practice using these strategies with the child and times when they may be useful.

Session 6: Sensory preferences

A session to introduce the seven senses and help the child to identify their own triggers and preferences for calming and alerting to get into the 'just right' zone. A combined session if possible, or check-in with parents/caregivers following this session.

The focus of this session is the child trying out items in the room to suit their individual preferences and is also a good opportunity for the caregiver to learn that some of the child's disruptive responses may actually be trauma reactions or maladaptive responses to sensory triggers, and that these can be managed.

Session 7: Emotional regulation

A session to help the child recognise and manage emotions.

The activities in this session are also designed to provide opportunities for the therapist to gain insight into the child's understanding and ability to recognise and manage feelings, as to know which areas to target in therapy. The child will also develop a Subjective Units of Distress Scale.

Session 8: Role of thoughts

A session to help the child recognise the role of thoughts in influencing body reactions and emotions and to help the child to identify helpful and unhelpful thoughts.

This session involves activities that help the child recognise self-talk and practice using coping self-talk.

Session 9: Sensory plan

A session to consolidate sensory-focussed activities for coping with sensory arousal, emotions and thoughts, to help the child get into the 'just right' zone when triggered or distressed.

In this session the child practices problem solving and identifies coping strategies (including sensory strategies) that can be used in real-life situations described by the child. The use of calming, alerting, and grounding strategies across the seven senses is suggested. Sensory plan activities can be written on flashcards, made into a booklet, or other creative means.

Session 10: Review and rewards

A combined parent/caregiver and child session to review the child's sensory preferences, triggers, sensory activities; and to recognise and reward the child's use of the sensory plan for self-regulating. To briefly introduce the trauma processing phase.

Phase 3: Trauma Processing**Session 11: Introduction to imaginal exposure**

A session to introduce the child to the trauma processing phase and practice telling a story using an imaginal exposure activity.

Sessions 12–14+: Gradual exposure

A series of sessions of imaginal exposure to create a trauma narrative and allow emotional processing of traumatic memories using media chosen by the child, with gradual exposure from least to most traumatic memories. The sensory plan is used to manage trauma symptoms.

Phase 4: Sensory Kit and Closure**Session 15: Sensory kit**

A session to put together a sensory kit containing tools and activities the child can use at home. This is a light and creative session that aims to tie together what has been learnt and begin to conclude therapy. The child is reminded that they can "be their own therapist" using their sensory kit and sensory plan.

Session 16: Celebration

A final combined session with parent/caregivers to review and celebrate the child's progress in therapy, share their sensory kit and plan for its use post therapy. The child and caregiver could construct a story, poem or artwork depicting their experiences and achievements throughout therapy.

N.B. Special issues

Additional sessions should be included where necessary throughout therapy to address any special issues that have been identified by the child and/or caregivers.