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An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

A thesis presented in partial fulfilment of the requirements for the degree of

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Abstract

The health and well-being of children in foster care remain a clinical, as well as public health concern, both internationally and in Aotearoa/New Zealand. Children in care often have histories of significant trauma exposure, in particular to abuse, neglect and domestic violence. The link between adverse childhood experiences and poor adult outcomes in physical, mental, emotional, and social health, is well established in the literature and necessitates further research on responding to and treating children exposed to complex trauma in early life. Trauma-informed foster care has emerged in recent years as an intentional therapeutic approach to responding to the complex needs of children in care. The objective of this present study is to contribute to the field of evidence-based family trauma-informed foster care in the New Zealand context. The focus of this dissertation is on evaluating the use of a neurodevelopmental clinical problem-solving tool, the Neurosequential Model of Therapeutics (NMT), developed by Dr Bruce Perry from The Neurosequential Network, to guide a trauma-informed and therapeutic approach to family foster care standards within the context of a New Zealand social service organisation. A mixed-method research design was used to explore the experiences of foster parents and frontline staff involved in using and implementing this model, as well as conduct an initial outcome evaluation of its impact on children's mental health difficulties and behavioural functioning. The results of the study suggest that the NMT is a useful and relevant tool to guide trauma-informed care in the New Zealand foster care context, and is associated with promising positive outcomes.

Keywords: Adverse childhood experiences, neurodevelopment, trauma-informed foster care, family foster care, New Zealand social service organisation, evaluation design, mixed-method design

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Ultimately, my hope is that every child in Aotearoa will grow up feeling loved and safe, and that they will know their worth. May this work be a small contribution to this vision.

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Glossary of Māori Terms

Hapū	Sub-tribe
Iwi	Tribe
Kai	Food
Kaumātua	Māori elder, guardian of knowledge and traditions
Karakia	Prayer
Kaupapa	Foundational values, principles, philosophies, and agendas of Māori
Māori	Indigenous people of New Zealand
Mātua whāngai	Family who will raise the child in the context of whāngai
Mihimihi	Greeting, introductory speech at the beginning of a gathering
Pākehā	New Zealander who is non-Māori
Rangatahi	Māori young person
Rangatiratanga	Self-determination, authority
Tamaiti	Child
Tamariki	Children
Tangata whenua	People of the land/Māori people
Tikanga	Māori customs and practices
Whakapapa	Genealogy
Whānau	Family
Whanaungatanga	Relationship, kinship, sense of family connection
Whāngai	Customary Māori practice where a child is raised by someone other than its birth parents

Chapter One: Introduction

A growing body of research has emerged over the last three decades indicating that chronic exposure to trauma, in particular in early life, can have significant effects on the mental and physical well-being of an individual, as well as on brain development and functioning (Bellis et al., 2015; Felitti et al., 2008; Hambrick et al., 2019; Jonson-Reid et al., 2012; Perry, 2006; Raby et al., 2019). According to the DSM-5 (American Psychiatric Association, 2013), trauma is considered to be a person's exposure to actual or threatened death, serious injury or sexual violence, either directly or by the witnessing of such events. Briere and Scott (2015) define trauma as an extremely upsetting event that overwhelms an individual's internal resources and produces lasting psychological symptoms. In more recent years, investigation into the extensive and long-lasting adverse impacts of childhood trauma and corresponding societal costs has further brought the impact of trauma to the attention of policymakers, governments, and medical professionals.

As Scott et al. (2010) argued, the deleterious effects of child maltreatment on health outcomes had been known for decades, but a shift towards research that focuses on early interventions following exposure to adversity was needed. In response, many trauma-based therapies and programmes have since been developed in order to support children exposed to trauma to develop increased emotional and social regulation, decrease behavioural issues, and develop healthy attachments. One such response is the Neurosequential Model of Therapeutics (NMT), developed by Dr Bruce Perry from the Neurosequential Network (Perry, 2006). It is a developmentally sensitive, neurobiologically-informed clinical problem-solving model that seeks to organise a child's developmental and relational history, and current functioning, in order to identify key areas requiring intervention. This information is then used to structure the application of therapeutic interventions to best meet the needs of the individual child (Perry, 2006).

Due to the high rates of trauma exposure in children and young people in foster care, trauma-informed and therapeutic approaches to foster care have emerged in more recent years to provide children living in out-of-home care with therapeutic and developmentally enriching care (Frederico et al., 2017). Although the implementation of therapeutic foster care varies considerably among agencies

in terms of administration and therapeutic approach, these programmes generally share a number of core components. In particular, foster parents receive specialised training and are regarded to be part of the child's treatment team, and accordingly, foster parents are expected to implement therapeutic approaches in accordance with the child's individualised service plan. In addition, agency workers are expected to provide a high level of guidance, support and crisis intervention (Teska, 2015). There are currently several standardised evidence-based therapeutic foster care models used in the Aotearoa/New Zealand (NZ) foster care context, with a particular focus on adolescents and juveniles. However, gaps exist regarding ways in which standard family foster care can be approached from a therapeutic and trauma-informed framework, with little research done on implementing these approaches or the NMT in the NZ context.

Study Rationale and Significance

The scope of child maltreatment in NZ is a significant concern with wide-ranging negative impacts (UNICEF, 2019). Recent statistics suggest that in 2022 there were over 4,700 children and young people in care and protection custody, nominally of the Chief Executive of Oranga Tamariki, each with individual and/or family histories of trauma or maltreatment, including various degrees of physical, sexual or emotional abuse, neglect, family violence, or parental addictions (Oranga Tamariki, 2022b). The literature suggests that individuals exposed to early life trauma are at a significantly greater risk for developing behavioural, social, and mental health issues across the lifespan (Bellis et al., 2015; Hambrick et al., 2019; Jonson-Reid et al., 2012; Perry, 2006). Beyond childhood maltreatment's detrimental impact on individual outcomes, the societal implications are significant. A report commissioned by the Glenn Inquiry (Kahui & Snively, 2014) found that, depending on how different gaps in data are addressed, child abuse and domestic violence were estimated to cost the NZ economy $4.1 billion to $7 billion dollars in 2014.

Based on the links between child maltreatment and adult psychopathology, as well as other social issues (Dunn et al., 2017; Felitti et al., 1998), it is imperative that ways are investigated in which children in foster care and their families can be supported using evidence-based models that are trauma-informed and operationally viable. There is a need to move towards creating foster care environments that are therapeutic, to ensure children in care are consistently receiving the specialised

care they require. However, there is a lack of evidence-based guidance to providing family-based therapeutic foster care in the NZ context, outside of a number of specific residential foster care treatment programmes. Early intervention, as well as adopting a more proactive and preventative approach to support the mental health needs of children in foster care, are crucial to mitigate risks of negative long-term outcomes for children in care.

Within that context, the overall aim and objectives of this present study are discussed below.

Research Objectives

The aim of my project was to evaluate the utility and feasibility of using the NMT as a tool to guide family-based trauma-informed foster care in the NZ context, and the outcomes associated with its implementation. The project aimed to gather evidence regarding the experiences of frontline stakeholders of a national social service organisation, Open Home Foundation (OHF), in using and implementing the NMT model, identifying barriers and challenges associated with widespread implementation, as well as preliminary outcomes when resources are put towards its implementation. The study intended to contribute to filling a research gap regarding family-based trauma-informed foster care practices in NZ.

Research questions:

1. Is the NMT a feasible and useful clinical tool in delivering trauma-informed foster care within the NZ context, based on the priorities of OHF?
2. What are the experiences of frontline stakeholders involved in implementing trauma-informed foster care practices guided by the NMT?

Chapter Two: Literature Review

Introduction

The research evidence is clear that the prevalence rates of child maltreatment in New Zealand is high, and childhood trauma commonly has detrimental and long-lasting effects on an individual, the community, and the well-being of society as a whole (Hambrick et al., 2019; Oranga Tamariki, 2022). Based on these well substantiated claims, this present study aimed to add to the literature on how to work effectively with traumatised children in the New Zealand foster care context, using evidence-based approaches. This chapter provides an overview of the literature pertaining to childhood trauma and the foster care context, to provide the rationale for my research study. The present study was located at the intersection of a variety of fields, including child trauma, neurobiology, developmental psychology, intergenerational trauma, and trauma-informed foster care, and situated within the bicultural context of Aotearoa NZ.

This review provides an overview of complex trauma and its link to child maltreatment. Next, the local context is discussed, firstly, by considering foster care in NZ, outlining the processes and procedures involved, and exploring the typical conditions that result in a child entering state authorised foster care. The wide-ranging effects of complex trauma in the form of child abuse are reviewed, including the link between trauma and psychopathology, together with an overview of the effects of persistent trauma on the developing brain, which forms the basis of the NMT model. An overview is provided of interventions commonly used with traumatised children, and the needs of children in care and those of foster parents. Lastly, the review focuses on trauma-informed and therapeutic foster care, in particular the NMT and how it can be applied to guide trauma-informed foster care. The importance of ethnicity and indigenous cultural identity will be considered throughout the review, as those are central components in working successfully with children in foster care.

Definitions of Child Abuse and Neglect

The World Health Organization (2006, p. 9) defines child abuse as “all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child’s health, survival, development or dignity in the context of a relationship of responsibility, trust or power”. Neglect is defined as “both

isolated incidents, as well as a pattern of failure over time on the part of a parent or other family member to provide for the development and well-being of the child – where the parent is in a position to do so – in one or more of the following areas: health, education, emotional development, nutrition, and shelter and safe living conditions" (p.10).

In NZ, the *Oranga Tamariki Act/Children's and Young People's Well-being Act 1989* defines child abuse as "the harming (whether physically, emotionally, or sexually), ill-treatment, abuse, neglect, or deprivation of any child or young person" (s. 2). 'Ill-treatment', 'abuse', 'neglect', 'deprivation', or the various types of abuse remain undefined in that legislation. Accordingly, Oranga Tamariki – Ministry for Children (OT) (2019) – NZ's child protection service – defines the various types of trauma exposure and abuse of children, as shown here.

Physical abuse. Physical abuse is defined as an act that has the potential to result in physical harm to a child or young person. The nature of and manner (accidental, deliberate) and circumstances (avoidable, unintentional) in which the injury or harm happened are important. Physical abuse may include "bruising, cutting, hitting, beating, biting, burning, causing abrasions, strangulation, suffocation, drowning, poisoning, and fabricated or induced illness, shaking (of an infant), and use of an object as a weapon" (Oranga Tamariki, 2021, What it is section). Briere and Jordan (2009) consider acts of child physical abuse to be by an authority figure or a parent, towards a child, that result in some level of tissue injury, or in extreme cases, death.

Sexual abuse. Sexual abuse is defined as any "act that involves forcing or enticing a tamaiti to take part in sexual activities, whether or not a tamaiti is aware of what's happening" (Oranga Tamariki, 2019f, What it is section). This can include, but is not limited to: "contact abuse — touching breasts, genital/anal fondling, masturbation, oral sex, penetrative or non-penetrative contact with the anus or genitals, encouraging a tamaiti to perform such acts on the perpetrator or another, involvement of a tamaiti in activities for the purposes of pornography or prostitution"; as well as "non-contact abuse — exhibitionism, voyeurism, exposure to pornographic or sexual imagery, inappropriate photography or depictions of sexual or suggestive behaviours or comments, sexting, cyber grooming or grooming behaviours" (Oranga Tamariki, 2019f, What it is section). Briere and Jordan (2009) considers sexual

abuse to be sexual acts against children for the purpose of sexual gratification of the offender in the context of an age-related power imbalance.

Emotional or psychological abuse. Emotional abuse is defined by Oranga Tamariki (2019c, What it is section) as treatment that damages the "psychological, social, intellectual and emotional functioning or development of te tamaiti" by their parents, caregivers or family/whanau. It is defined as a "pattern of systematic and purposeful harm aimed towards te tamaiti that result in te tamaiti feeling humiliated and ashamed (whakamā)" and where "there is an absence of positive affirmation, love and affection for te tamaiti" (What it is section). Examples of emotional abuse include: "patterns of degradation, constant and vitriolic criticism", "a significant period of denying access to cultural, faith or other associations that sustain the sense of normality, identity and self-esteem for te tamaiti", or "ongoing exposure to family/whānau violence" (Oranga Tamariki, 2019c, What it is section). Emotional abuse is also often referred to as psychological abuse (Briere & Jordan, 2009).

According to the *Family Violence Act 2018*, psychological abuse towards a child is when a person "causes or allows the child to see or hear the physical, sexual, or psychological abuse of a person with whom the child has a family relationship", or "puts the child, or allows the child to be put, at real risk of seeing or hearing that abuse occurring" (s. 11).

Neglect. Neglect is defined as "when the basic needs of te tamaiti are not met" (Oranga Tamariki, 2019e, What it is section). Neglect includes: "physical neglect — not providing the necessities of life such as adequate shelter, food and clothing; emotional neglect — not providing comfort, attention and love; neglectful supervision — leaving tamariki without someone safe looking after them; medical neglect — not taking care of health needs; and educational neglect — allowing truancy, failure to enrol in education, or inattention to education needs" (What it is section). Briere and Jordan (2009) consider psychological neglect as involving parental or caretaker failure to provide significant care and support, emotional stimulation and/or attunement to the child.

Family violence. Although exposure to family or intimate partner violence can be considered a type of emotional abuse, it is increasingly being recognised as a severe form of child maltreatment and is associated with significant negative impacts on the emotional, psychological and physical well-being of a child (Wathen & Macmillan, 2013). Family violence is defined under Section 9 of the

Family Violence Act 2018 as "violence inflicted by any person against another person who they are or have been in a family/whānau relationship with". Oranga Tamariki (2019d) states that family violence can include, but is not limited to, "violence against a person, including patterns of behaviour that are made up of a number of acts that are all or any of physical abuse, sexual abuse and psychological abuse that may be coercive or controlling and cumulatively causes the person harm" (What is family violence section), and "psychological abuse of tamariki that occurs if a tamaiti sees or hears the physical, sexual or psychological abuse of a person that te tamaiti has a family/whānau relationship with or is at real risk of seeing that abuse occurring" (What is family violence section).

The Prevalence of Child Maltreatment in New Zealand

According to UNICEF, NZ has one of the worst records for child abuse in the developing world, with children under the age of five years being most at risk for violence and maltreatment, compared to other age groups (UNICEF, 2019). During 2022, OT received 67,400 reports of concern relating to suspected child abuse or maltreatment, of which 36,400 required further investigation. Between June 2019 and June 2020, 2,861 children (around 1.1% of the NZ population) had been found to be abused or neglected after an investigation or assessment was completed by OT (Oranga Tamariki, 2020a). In the year of 2019, 7,685 findings of emotional abuse, 3,507 findings of physical abuse, 1,066 findings of sexual abuse, and 3,700 findings of neglect were substantiated (Oranga Tamariki, 2019g). A study conducted by Rouland and Vaithianathan (2018) tracked all children born in 1998 in NZ until the end of 2015 (overall sample size of 55,443 children) and found that almost one in four children had been subject to at least one report to child protective services at 17 years of age (23.5%), 9.7% had been a victim of substantiated abuse or neglect, and 3.1% of children had experienced out-of-home placements by 17 years of age. Māori and Pasifika children were considered to be at higher risk of experiencing abuse and being placed in out-of-home care (Rouland et al., 2019). Research by Fanslow et al. (2021) found that in New Zealand's 2019 Family Violence Survey, more than 80% of Māori reported at least one adverse childhood experience (ACE), compared to 50% of non-Māori. One in nine respondents reported at least four ACEs (Fanslow et al., 2021).

It is evident that the prevalence of child maltreatment in NZ is high. Despite the large numbers of children in care and the apparent need for evidence-based interventions, Tarren-Sweeny (2013)

noted that, due to a variety of factors, the psychological development, world view and well-being of children in care remains poorly understood. These statistics provide an overview of the context in which the present research is located and highlights the need for research on how to effectively work with children who have been exposed to maltreatment.

Foster Care in New Zealand

The foster care system in Aotearoa, under the umbrella of Oranga Tamariki, involves just over 3,500 caregivers, 62% of whom are whānau or kin caregivers, and 329 caregivers who are specially trained in providing trauma-informed therapeutic foster care (Oranga Tamariki, 2022c). The NZ foster care system is currently distinguished from those in North America, the United Kingdom (UK), and other European and Nordic countries by the relatively minimal use of residential care in NZ, with kinship care being favoured for indigenous children, and the absence of adoption from care provision within social care legislation (Murray et al., 2011; Oranga Tamariki Evidence Centre, 2018). The favouring of kinship or whānau care reflects a shift towards increased cultural sensitivity and the acknowledgment of the cultural and identity needs of indigenous tamariki and rangatahi who make up a large proportion of children in care, as well as the responsibility for upholding the principles of the Treaty of Waitangi. Similar to NZ, an 'Aboriginal Child Placement Principle' exists in Australia which requires that indigenous children in the need of statutory protection be placed within their extended family as a first option (Katz et al., 2016). If that is not possible, then a placement within their indigenous community is sought (Katz et al., 2016).

Statistics reflect that the majority of children under state care in NZ are of Māori ethnicity (58%), followed by New Zealand Pākehā and Pacific Island ethnicities (Oranga Tamariki, 2020b). The *Children, Young Persons, and Their Families Act 1989* (s. 14) identifies children and young people in need of care or protection in situations where:

(a) "the child or young person is being, or is likely to be, harmed (whether physically or emotionally or sexually), ill-treated, abused, or seriously deprived; or

(b) the child's or young person's development or physical or mental or emotional well-being is being, or is likely to be, impaired or neglected, and that impairment or neglect is, or is likely to be, serious and avoidable".

In NZ, there is a range of pathways for a child to enter into OT's care (Oranga Tamariki, 2019a). A need is most often triggered by a report of concern made by a member of the public who has reason to believe a child is in an unsafe environment at home. Under Section 15 of the *Oranga Tamariki Act 1989*, any person who has concerns that a child or young person has been or is likely to be harmed, abused or neglected may report their concern to OT or the NZ Police. Upon receiving a report of concern, OT will commence an assessment process to determine whether formal action is required. The assessment involves a safety and risk assessment to ascertain the immediate safety of the children or young people involved, which may lead to an urgent decision to bring a child into care and relocate them with a whānau member or other carer while supports are put in place.

Engaging with whānau is an important part of OT's response and usually includes a family group conference (FGC) to engage the whānau in order to understand their needs, strengths, and resources, assess the safety of the child, identify the care and protection needs, as well as identify services that could address these needs. When assessing the well-being of the child initially, as well as on an ongoing basis, three main areas are taken into consideration under the Tuituia assessment framework: (1) mokopuna ora (holistic well-being); (2) kaitiaki mokopuna (caregiver's capacity to nurture the child's well-being); and (3) te ao hurihuri (the whānau, social, cultural and environmental influences surrounding a child) (Oranga Tamariki, 2019h). If care and protection concerns cannot be addressed by working with the whānau, the child or young person will enter into the care of the chief executive of OT (Oranga Tamariki, 2019a). This can occur via a range of custody orders, for example, a short-term agreement (s139 Temporary Care Agreement), by emergency action (e.g. s39 Place of Safety Warrant), or under a Court Order (s78 or s101 custody order) (Oranga Tamariki, 2019a).

Several placement options are available in NZ, depending on the needs of the child and their whānau. This may include respite care, transitional or short-term care, family home care, and permanent care or Home-for-Life. According to legislation and Oranga Tamariki's policy and practice, the preference is for whānau care whenever that is safe and possible, with a placement outside the whānau only occurring when there are no suitable whānau, hapū or iwi placements available (Oranga Tamariki, 2023). It is important to differentiate between kin care and whāngai. Whāngai is the Māori tradition and custom of tamariki of being raised by someone other than their

birth parents, most often the grandparents or other whānau. This is an informal placement that can be short-term, long-term or permanent. It is arranged directly between the birth parents and the mātua whāngai (the family who will raise the child), with OT having no involvement. When whānau placement is not possible, a child will be placed with an approved foster carer, either an OT foster carer or in a foster care placement from an approved partner. OT works with around 60 care partner agencies, including iwi and Māori organisations, community groups and NGOs, which provide placements for children in care under OT's Partnered Care initiative (Oranga Tamariki, 2022a). OHF, the organisation involved in this study, is such an approved care partner. When the child or young person is in state care, the aim of OT continues to be reunification, as it is recognised that it is best for children to be cared for in their own family context. A legal process referred to as Home-for-Life, a permanent caregiving situation, is reserved for the situations when OT determines that it will never be safe or viable for the child to return home. Children and young people will only be placed in residential care if it is not possible to have their needs met within the community setting (Oranga Tamariki, 2019b).

As the removal of children from the family home is considered to be the last resort, children who do enter care have been subjected to significant adverse experiences, with a history of pervasive maltreatment typical for children in care (Oswald et al., 2010).

Cultural Considerations and Prioritising Māori

Culture is a broad term that can be defined as a set of values and norms that members of a given group hold (Giddens, 1993), and can encompass a range of features, such as ethnicity, gender, class, religion, language, and nationality. The Ministry of Social Development (2016) in NZ defines culture as the customs, practices, languages, values and world views that characterise social groups, for example, those based on nationality, ethnicity or region. For the purposes of this thesis, the term will be used in the context of a cultural identity based on ethnicity.

In NZ, the term biculturalism refers to the relationship between Māori as the indigenous people of NZ and non-indigenous Pākehā (non-Māori New Zealanders), and encompasses a wide range of governmental, institutional, and social policies and practices (Eketone & Walker, 2015). The Treaty of Waitangi or Te Tiriti O Waitangi is the founding document of Aotearoa NZ and established

a legal partnership between Māori and the British Crown. It should be noted that there are different understandings of the Treaty based on two versions (English and te reo Māori). A foundational principle of biculturalism and upholding the Treaty is the acknowledgement that Māori are tangata whenua (people of the land), as a reflection of their rangatiratanga (authority) over and connection to the land. Three principles, identified by the Royal Commission Social Policy in 1988, are central to the Treaty and underpin the relationship between Māori and the Crown – partnership, participation and protection (Durie, 1994). As Treaty partners, this means Māori should have equal rights with non-Māori, protection and status, and that the Crown or State has an obligation to recognise Māori aspirations for self-determination, as well as protect the interests of Māori (Hudson, 2004). These tenets have resulted in diverse expectations and debates about how these principles translate to the upholding of the Treaty in modern-day society (Durie, 1994). The Treaty principles have been adopted in various capacities within government organisations as a means to address social inequalities (Hudson & Russell, 2009).

When considering the social, economic and health outcomes for Māori, there is evidence that Māori continue to be disadvantaged and that the Crown has neglected to honour the principles contained in the Treaty in regard to NZ's health and social welfare systems (Waitangi Tribunal, 2021). Between June 2020 and 2021 Māori tamariki accounted for 68% of children in state care, although Māori comprise just 16.5% of the country's population (Oranga Tamariki, 2022c). The overrepresentation of Māori in state care is consistent with other indigenous population groups, for example, indigenous Australian children (Krakouer et al., 2018; O'Donnell et al., 2019). An investigation by the Office of the Children's Commissioner (2020) found that Māori infants were five times more likely to be taken into state custody than non-Māori. That report further highlighted the persistent inequities that affect Māori, including the pervasive and ongoing effects of colonisation, intergenerational trauma, systemic biases, and institutional racism.

In March 2020, the Waitangi Tribunal launched an inquiry into the disproportionate number of Māori children removed from whānau care by Oranga Tamariki and found that current practices and policies violate the Treaty principles of actively protecting Māori rights and interests (Article 2 and 3) (Waitangi Tribunal, 2021). The overrepresentation of Māori tamariki and rangatahi in the child

welfare system is argued to be a reflection of the wider context of structural racism and the continuing impacts of colonisation, with socioeconomic factors also contributing to the disparity (Fitzmaurice, 2020). Consequently, there has been growing concerns and a call for a complete transformation of the care and protection system to one that upholds indigenous rights of Māori through self-determination. Although the colonial history of the care and protection system and its ongoing implications are a complex issue that is beyond the scope of this review, a contextual overview is useful in order to understand the historical and cultural milieu in which the present research study occurred. While placing children in foster care is designed to protect the safety and well-being of children, it poses a significant threat to cultural connection, which is fundamental to indigenous identity and well-being (Krakouer et al., 2018).

Outcomes for Children in Care

The literature is extensive about the overall health and well-being outcomes for children in state care. Children in care often, if not always, have histories of complex trauma, such as exposure to severe maltreatment, which is often correlated with parental mental health issues, as well as drug and alcohol abuse (Chernoff et al., 1994). As a result, children in care are at a significantly higher risk for negative overall outcomes, both on a short and long-term basis. Research suggest that children who are brought up in home environments that are characterised by chaos, unpredictability and abuse, with low relational health, are at a significantly greater risk for developing enduring difficulties spanning multiple health domains, for example, developmental, behavioural, mental, and physical domains (Anda et al., 2006; Bellis et al., 2017; Hambrick et al., 2018). Some research has found that the needs and symptomatology manifested by children with histories of maltreatment, such as children in foster care and those adopted from care, are often much more complex and severe in nature than those of clinic-referred children, and can be linked to the effects of complex trauma (Tarren-Sweeney, 2013). A NZ-based longitudinal study involving more than 300 children in long-term foster care found that 20% of the children presented with complex attachment- and trauma-related symptomatology that could not be sufficiently conceptualised within current diagnostic systems (Tarren-Sweeney, 2013).

Physical health. Research has found that childhood maltreatment has been associated with physical outcomes; for example, one study found that infants placed in foster care had reduced birth

weight and length, shorter gestational age, and lower 1-min Apgar scores (Kalland et al., 2006). Another study found that at the time of entry into foster care, the height, weight, and head circumference of a sample of male preschool-aged children with histories of exposure to physical neglect and emotional abuse were significantly below the normal standards, indicating a mild form of chronic malnutrition with growth failure (Oliván, 2003). Researchers concluded that the delay in growth was secondary to nutritional and psychosocial factors. Interestingly, the annual growth velocity for height after removal from the abusive home environment was significantly higher than the normal standards (Oliván, 2003). This finding reflects the principle of neuroplasticity, referring to the brain's ability to change in response to environmental experiences. Neuroplasticity also pertains to cognitive, social, and behavioural development, with different domains being differentially affected. Positive relational experiences are particularly important during early childhood when the developing brain is most sensitive to environmental influences (Tierney & Nelson, 2009).

Data from a study that included over 1,500 children aged three months to five years in foster care revealed that 87% had physical problems, with dermatological and respiratory problems being the most common (Leslie et al., 2005). Various food and eating behaviour issues have also been identified in the literature among children in care, including eating disorders and sub-clinical eating behaviours, for example, binge-eating and food-hoarding (Norrish et al., 2019). Tarren-Sweeney (2006) identified two distinct patterns of problematic eating behaviours among a large sample of children in care: 'food maintenance syndrome' characterised by behaviours such as overeating, hoarding, or stealing food; and 'pica-type cluster', which includes consuming non-food items when doing so is developmentally inappropriate.

Mental health. The literature consistently indicates that poor mental health is common in children in care and considered one of the most critical developmental consequences of early exposure to severe maltreatment (Cecil et al., 2017; Greeson et al., 2011; Turney & Wildman, 2016). A recent systematic review done by Engler et al. (2022) concluded that higher rates of mental health disorders are present in children in care, in comparison to children who are not in out-of-home care. Although rates vary, up to 50% have clinically significant mental health difficulties, and another 20%-25% have difficulties just below clinical significance (Oswald et al., 2010).

The review by Engler et al. (2022) found that common diagnoses among children in care included oppositional defiant disorder, conduct disorder, major depressive disorder, posttraumatic stress disorder, and reactive attachment disorder. Overall it was also found that children in care presented with more externalising than internalising symptoms, although neglected children were more likely to express internalising behaviours (Engler et al., 2022; Lohr & Jones, 2016). In addition, although comorbidity of mental health disorders in foster children is common (Engler et al., 2022), the construct of comorbidity has been challenged and critiqued extensively. It is argued that traditional DSM diagnoses are only fragments of a cohesive developmental disorder that result from the exposure to complex childhood trauma, and its pervasive impact on psychobiological development (De Bellis, 2001; van der Kolk, 2005) (see further discussion p. 15).

Cognitive functioning and other developmental domains. Various studies investigating the functioning of children in foster care in a variety of developmental domains (cognitive, psychomotor, language, social), using standardised measures, found that children in foster care scored significantly lower in sensorimotor function, visuo-spatial processing, memory, executive function, and verbal language (Leslie et al., 2005; McDermott et al., 2013; Pears & Fisher, 2005). Although the results vary between studies, evidence suggest that certain factors such as the type and duration of abuse or neglect, or the child's age at first placement, impact the extent and nature of the developmental delays of children in foster care (Oswald et al., 2010).

These various findings reflect the distinct, significant and complex presentations and needs of foster children, shedding light on the crucial need for thorough assessment practices within the foster care system that consider developmental, behavioural, emotional, cognitive, and psychosocial functioning, in order to identify areas for intervention. It is evident that children in care are exposed to multiple risk factors that can lead to detrimental outcomes, including maltreatment, genetic and prenatal toxic factors, such as intrauterine exposure to drugs and alcohol, intergenerational trauma, attachment disruptions, and transient living arrangements, as well as other adverse childhood events (Oswald et al., 2010). Research has also referred to the cumulative effect of trauma on mental and physical health outcomes, and its correlation between symptom complexity, as seen in children in care (Felitti et al., 1998; Hodges et al., 2013).

Complex Trauma

The difference between simple and complex trauma. Recent research trends within mental health studies signify the importance of distinguishing between two recognised types of trauma due to the difference in their nature and impact – 'simple' and 'complex' trauma. 'Simple' trauma pertains to events that are non-interpersonal, have a shorter duration, include single or limited trauma exposure, with the individual often being supported by a secure primary attachment figure or family (Lanktree & Briere, 2017). This definition corresponds with the singular traumatic event conceptualised in the DSM-5 required for making a posttraumatic stress disorder (PTSD) diagnosis, such as a natural disaster or a serious car accident.

In contrast, it is argued that simple trauma does not encapsulate the experiences of victims of trauma events that are interpersonal in nature, severe and pervasive (Cook et al., 2005). This type of trauma is referred to as 'complex trauma'. It is considered to include multiple exposures to different types of traumatic events, is of an interpersonal nature, has its onset at an earlier age, and for children commonly happens in the context of insecure attachments to primary caregivers. It can include repetitive childhood sexual, physical, and/or psychological abuse, family violence, concomitant emotional neglect, and harmful or marginalising social contexts (Lanktree & Briere, 2017). This definition of complex trauma has further been operationalised in empirical studies as exposure to two or more of the following five common trauma experiences: sexual, physical and emotional abuse, neglect, and/or domestic violence (Kisiel et al., 2009). In addition to the nature of the trauma, its effects are considered to differ significantly. It is argued that isolated traumatic events often lead to discrete conditioned behavioural and physiological responses to specific reminders of the traumatic event, such as those captured in the PTSD diagnosis. Conversely, experiences of chronic maltreatment or repeated traumatisation, particularly in childhood, have more pervasive effects, including on the development of a child's brain (van der Kolk, 2005).

Complex-PTSD and Developmental Trauma Disorder. Over recent years, this shift in the conceptualisation of trauma has seen many researchers and clinicians call for a separate classification or diagnostic category in the DSM-5. It is argued that the type of trauma exposure and the number of functional domains impacted by complex trauma significantly differs clinically to those involved in

PTSD (Courtois & Gold, 2009; van der Kolk, 2005), which necessitates a differentiating of diagnoses in the DSM-5. Two new diagnostic classifications have been proposed – 'Developmental Trauma Disorder' (DTD), and 'Complex-PTSD' (C-PTSD). C-PTSD is a disorder contained in the International Classification of Diseases (ICD-11) and has been developed to describe these complex and multi-faceted trauma outcomes, particularly in adults (DePierro et al., 2019). The corresponding diagnosis of DTD used with children and adolescents, however, is not contained in the ICD-11. Neither is included in the DSM-5 (Ford et al., 2018), which remains the primary diagnostic classification system used in NZ.

DTD as a diagnosis captures and reflects the experiences and clinical presentations of children and young people who have been chronically exposed to disruptions in protective caregiving due to a range of experiences, such as maltreatment or interpersonal violence, with the diagnosis outlined within a framework of the developmental impact of disrupted attachment (van der Kolk, 2005). DTD includes symptoms that are consistent with findings from developmental psychopathology studies, such as attachment and relational capacities, emotional and intellectual functioning, affective and physiological dysregulation (Criterion B), attentional and behavioural dysregulation (Criterion C), self and relational dysregulation (Criterion D), and some classic PTSD symptoms (Criterion E) (DePierro et al., 2019). Importantly, behaviours which would normally be considered co-morbid diagnostic labels within a DSM-5 framework are instead conceptualised as interrelated patterns of symptoms (D'Andrea et al., 2012).

The development and proposal of DTD is based on research that speaks to the inadequacy of current diagnostic labels to accurately describe the distinctive and complex clinical presentations of children exposed to complex and cumulative trauma (DePierro et al., 2019; Sar, 2011). It is argued that often children exposed to multiple and/or prolonged interpersonal trauma do not meet the criteria for PTSD in childhood (van der Kolk et al., 2009) or their difficulties exceed symptoms contained in PTSD criteria, for example, additional difficulties with emotional regulation, attention, self-perception, or significant challenges within interpersonal relationships (Roth et al., 1997). Subsequently, children are often given comorbid diagnoses (Spinazzola et al., 2005), present with sub-clinical levels for a wide range of disorders (DeJong, 2010), or present with a behaviours outside of

common diagnostic categories, for example, faecal smearing, food-hoarding, or sexualised behaviour (Denton et al., 2017).

In 2009, a proposal was submitted by the DSM–5 Trauma, PTSD, and Dissociative Disorder Sub-Workgroup to include DTD in the DSM-5 (van der Kolk et al., 2009), citing data from over 20,000 children and young people across a range of settings (e.g. inpatient, outpatient, foster, and juvenile justice settings). The proposal stipulated the additional complexities that accompany developmental trauma that is not accurately captured in the DSM-5 PTSD diagnosis (DePierro et al., 2019). The proposal was rejected on the basis of an insufficient evidence base and the concern that DTD would be too inclusive of other diagnoses (van der Kolk, 2014). Instead, the PTSD criteria were reorganised and updated in the DSM-5 to include negative affect, negative sense of self, negative beliefs about the world, risky behaviour, and dissociation (American Psychiatric Association, 2013), along with the inclusion of diagnostic criteria for PTSD in preschool children (under the age of six years). It was argued that the updated PTSD criteria incorporated symptoms consistent with C-PTSD and DTD, and is functionally the same as complex PTSD (De Jongh et al., 2016). Nevertheless, the argument remains that the exclusion of DTD from the DSM-5 leads to a lack of emphasis on the developmental effects of early and chronic trauma exposure in clinical practice (Bremness & Polzin, 2014). DePierro et al. (2019) argues that enough evidence suggests that complex variants of PTSD, such as DTD, are best conceptualised as a separate and distinct disorder that can have comorbid diagnoses, such as PTSD (Ford et al., 2018; van Der Kolk et al., 2019).

All things considered, children who have grown up in chaotic and abusive households, such as children then placed in foster care, are much more likely to have experiences of complex or multiple traumas than simple or singular trauma. When discussing the impacts of trauma on children, the literature discussion will therefore primarily pertain to complex trauma that describes the constellation of factors involved in repeated and pervasive interpersonal trauma by caregivers early in life (Greeson et al., 2011), and the resulting wide-ranging effects across several domains of functioning, including emotional, behavioural, interpersonal, physiological, and cognitive (Cook et al., 2005).

The Effects of Complex Childhood Trauma

The epidemiological Adverse Childhood Experiences (ACEs) study, published in 1998 by Felitti and Anda, found a significant relationship between the number of ACEs a person experiences and a range of negative outcomes in adulthood. ACEs became a term used to describe all types of childhood abuse and neglect, parental mental illness, substance use, and incarceration, as well as domestic violence that occur to people under the age of 18 years (Felitti et al., 1998). Poor outcomes included physical and mental health, social, emotional and cognitive impairment, substance abuse, lower life expectancy, as well as disease, disability, and social problems (Felitti et al., 1998). While the link between childhood trauma and a variety of detrimental outcomes was known in both clinical and academic communities, this landmark study underscored a wider public health movement on an international stage to focus on widespread 'trauma-informed' policy and programme development. It catalysed a public and systemic awareness of the impact of childhood adversity and the importance of investing in prevention efforts such as trauma-informed programmes to mitigate negative outcomes, with legislative actions supporting the political discourse (Beal et al., 2019; Hambrick et al., 2019).

Mental health. Since the first seminal work by Herman (1992a) on complex trauma, a large number of studies have demonstrated that early and prolonged exposure to multiple types of trauma is associated with complex psychiatric presentations as well as psychopathology across the lifespan (e.g., Dunn et al., 2017; Lewis et al., 2021; van der Kolk, 2007). Childhood abuse and adversities arising from problems in family functioning, such as domestic violence and parents with psychiatric illnesses, were significantly associated with all types of mental health disorders (Scott et al., 2010). Child maltreatment was also linked to numerous impairments in developmental processes, such as affect regulation, attachment formation, and autobiographical memory development, which has been associated with the development of a secure identity and sense of self (Goodman et al., 2010). Early exposure to adversity is also associated with neuropsychological problems such as impairments in executive functions, as well as emotional and behavioural dysregulation that may interfere with academic functioning (Beckett et al., 2007; Colvert et al., 2008; Loman et al., 2009). Several diagnoses are commonly associated with chronic trauma exposure, including PTSD, C-PTSD or DTD, depression, anxiety, conduct and behaviour issues, attention problems, and substance abuse.

Teicher and Samson (2016) have argued that abuse and neglect in childhood is a salient preventable cause of psychopathology, accounting for a significant percentage (estimated at 45%) of the population with attributable risk for mental disorders that have its onset in childhood. A study by Dunn et al. (2017), which included a sample of 2,892 primarily African American adults from a low-income socioeconomic background, found that, after adjusting for all covariates, participants who were maltreated during early childhood had significantly higher depressive symptoms and PTSD than those first exposed to maltreatment during later years. Specifically, their scores for depressive symptoms were about one and a half times higher than those first exposed during middle childhood, and approximately double the level of those first exposed during adolescence.

A limitation of the above study includes the broad definitions for time periods, with early childhood, for example, being from 0-5 years. Specific lifespan periods matter, with the work of Hambrick et al. (2019) identifying the first three months of an infant's life as being the highest risk period. As is often the case in trauma studies, the measure of trauma exposure included in the study by Hambrick et al. (2019) did not consider and specify other features of the trauma, including its severity, chronicity, or duration, which are critical for accurate links to be established. Nevertheless, this study provides grounds for arguing that early life trauma has a greater impact on health outcomes in comparison to trauma exposure during later years, and is consistent with other studies demonstrating an elevated risk for disorders among children first exposed to maltreatment in the first five years of life (Dunn et al., 2013; Thornberry et al., 2010).

Although the exact mechanisms involved in linking early trauma exposure to subsequent risk of psychopathology remains undetermined, it is hypothesised (Dunn et al., 2017; Scott et al., 2010) that childhood maltreatment disrupts the systematic psychological and biological global development process, resulting in an increased risk of a wide range of negative mental health outcomes. The increase in risk may also be due to the compromising effect of trauma on a child's ability and opportunity to master stage-salient developmental tasks (e.g., self-regulation and forming secure attachments). In addition, research has suggested that it may be due to the altering of the development of foundational neurobiological and brain architecture that are involved in regulating the body's stress-

response, as well as arousal, emotion, and reward processing, which are all implicated in the onset and persistence of stress-related disorders like depression and PTSD (Dunn et al., 2017).

A study by McDermott et al. (2013) found that the development of executive skills such as inhibitory control and response monitoring, guided by the prefrontal cortex (PFC) and anterior cingulate (ACC), is particularly impacted by early adversities that can lead to psychopathology in children. Deficits in these executive functioning skills have been strongly linked to negative developmental outcomes, such as the externalising of problems seen in attention-deficit/hyperactivity disorder (ADHD) (Bohlin et al., 2012). These findings are parallel to common difficulties seen in children in foster care, due to high levels of complex trauma histories that children in care present with.

Critiques of the ACEs study. Although the ACEs study (Felitti & Anda, 1997) and other related studies have been influential in drawing direct links between childhood adversity and adult health and social outcomes; human development is a complex process, with emotional, social, cognitive and physiological functioning being influenced by myriad factors and considerations, including genetics, social and environmental context, and other developmental experiences. As Hambrick et al. (2019) argue, it is critical to examine factors beyond the ACE score and consider the timing of the adversity, the pattern of stress and insult, and the presence of attenuating and resilience-related factors that act as buffers (Hambrick et al., 2019). Research on developmental psychopathology suggests that multiple other dimensions of trauma or maltreatment are interrelated and important for developmental outcomes. Specifically, those factors can include the type and severity of maltreatment, timing, frequency, chronicity, and the child's developmental status when the trauma occurs (Cicchetti & Toth, 1995).

Depending on the developmental stage of an individual, trauma exposure can have particular and unique risks. Early life adversity has been found to have a disproportionately greater risk on an individual’s functioning (Dunn et al., 2017; McDermott et al., 2013; Ogle et al., 2013; Raby et al., 2019). In particular, risk during the perinatal period (0-2 months) significantly predicts children's functioning due to the direct impact of the adversity on brain development (the first three years of life are considered critical periods of brain development), as well as missed developmental opportunities

(Hambrick et al., 2019; McDermott et al., 2013). Developmental stages also mediate psychological responses to trauma. For example, traumatic events that occur during adolescence can pose particular challenges in relation to identity formation and psychological adjustment post-trauma, due to adolescence being marked by the emergence of an individual's ability to formulate a coherent life narrative (Erikson, 1963; Habermas & Bluck, 2000). Experiencing a traumatic event/s as central to personal identity and narrative has been linked to posttraumatic outcomes, including PTSD and depression (Berntsen & Rubin, 2007). It is hypothesised by Ogle et al. (2013) that the associated mechanism involves the enhancement of the encoding and rehearsal process of the trauma memory, leading to an increase in its consolidation, retention and emotional impact over time. Thus, in order to accurately understand the long-term psychological consequences of traumatic events, it is critical to consider the developmental period during which the trauma occurred (Ogle et al., 2013).

The summative approach of relying solely on the number of ACEs when assessing children exposed to trauma has been further criticised for its simplistic consideration of the dose-dependent correlations between the quantity of adversities in childhood and the total risk for negative adult outcomes, which can lead to misunderstandings (Hambrick et al., 2019). Beal et al. (2019) argued that this approach does not assess the child's appraisal of the situation and the meaning attached to the traumatic event, treating all types of maltreatment as analogous. The individual's subjective emotional response to the trauma is argued to affect the likelihood of developing PTSD symptoms with individuals experiencing intense levels of fear or helplessness during or immediately after the event being more at risk for developing PTSD (Rubin et al., 2011). Some authors have suggested that a cumulative assessment of adversity may not distinguish among various mechanisms (e.g., abuse, poverty, disrupted attachment), with some life stressors not resulting in the same outcomes or risk for psychopathology as maltreatment (Beal et al., 2019). Lastly, positive relationships and social support have been found to buffer the effects of developmental adversity (Hambrick et al., 2019; Perry & Dobson, 2013), which was not taken into consideration during the ACEs study. The quality and timing of these relational experiences may have an impact on children's functioning in response to trauma (Hambrick et al., 2019).

These complexities of the interactions among the timing, nature and pattern of adversity, and the relational context in which adversity occurs, as well as the heterogeneity of responses and meanings attached to adversity, result in theoretical and methodological challenges when researching childhood maltreatment and developmental adversity (Hambrick et al., 2019). Nevertheless, the research is consistent that exposure to complex trauma has pervasive negative impacts on development at various macro and micro levels, with the brain having a central role in mediating responses and outcomes.

Trauma and the Brain

Evidence suggests that developmental trauma and prolonged adverse childhood experiences have a significant impact on the way in which the brain develops, making such people more vulnerable to mental health problems as well as other social, behavioural, and learning difficulties (Bellis et al., 2015; Jonson-Reid et al., 2012). Research has also indicated that maltreated children often have smaller and underdeveloped brain structures (Jeong et al., 2021). The mechanisms involved in how trauma affects the brain are complex and multi-levelled, and capturing the complexity of the brain and its various structures is beyond the scope of this review. However, in order to provide the context in which the NMT model is situated, the following section will provide an overview of the basic neurobiology that is involved when considering the effects of trauma on the brain.

The structural organisation and development of the functional capabilities of the mature human brain occur throughout the lifespan; however the majority of critical structural organisation takes place in early childhood (Carter, 2009; Perry, 2008). Although brain cell formation mostly occurs before birth, neuronal networks are created and strengthened through repeated electrochemical activity in response to the individual’s environment (Bick & Nelson, 2016; Carter, 2009; Perry, 2008). The environment in which the individual exists affects the number and quality of synapses formed, with repeated experience reinforcing neural networks which act as mental templates for future experiences (Carter, 2009).

Neurodevelopment. Two critical neurodevelopmental principles will be highlighted: sequential development and use-dependent development.

Sequential development. This structural organisation of the brain occurs in a hierarchical fashion, referred to as hierarchical cortical maturation. The lower parts of the brain (e.g., brainstem), responsible for simpler, more regulatory functions, develop before the higher parts of the brain (e.g., cerebral cortex) responsible for a range of complex functions (Chan et al., 2016). Any given brain area or system is thus dependent on successful development of previously organised brain areas, with patterns of neural activity (organising signals) needed to develop a subsequent brain area (Teicher et al., 2016). Consequently, there are critical or sensitive periods of development throughout childhood for every part of the brain; for example, at birth, the brainstem areas, responsible for regulating cardiovascular and respiratory functioning, must be intact for the infant to survive, while cortical areas that are responsible for abstract thought do not develop until later childhood (Friedrichs-Maeder et al., 2017). These sensitive periods represent windows of vulnerability during which the organising systems are most sensitive to input from the environment, which include stressful or traumatic experiences (Bick & Nelson, 2016). For example, abuse and neglect during the intrauterine period can result in disruptions that alter brainstem-mediated functions, which can lead to hyperreactivity, issues with sensory integration, poor state regulation (e.g., sleep and self-soothing), as well as the altered regulation of core neurophysiological functions such as respiration, and cardiovascular and temperature regulation (Perry 2001a). Compared with trauma exposure during later years, early life trauma is therefore disproportionately detrimental due to the rapid rate of brain development during that period and the cascading effect on all subsequent brain areas and functions (Hambrick et al., 2019).

Use-dependent development. The method by which adaptation to our environment is enabled is through the process called use- dependent or experience-dependent neurodevelopment. The physical properties of neurons are designed to modify in response to external cues, thus the brain is organised in response to experience (Bick & Nelson, 2016; Perry, 1999). The organisation and functional capability of the brain reflect the quantity, quality and pattern of somatosensory experience and neuronal activation present during the critical organisational periods of development (Perry, 1997). Some research has indicated that the human brain is organised in a hierarchical manner, with the lower areas of the brain, the brainstem and the diencephalon, developing first (Bick & Nelson, 2016; Gaskill

& Perry, 2014). Therefore, as neurodevelopment occurs from the bottom-up, the timing and pattern of activation of regulatory neural networks are critical in the formation of the functional capacity in all areas of the brain and body (Perry, 2002). This effect is due to the different regions of the brain being woven together into multiple neural networks which originate in the lower areas of the brain and directly impact all motor, social, emotional and cognitive functioning (Gaskill & Perry, 2014). Children who are exposed to predictable, nurturing, consistent and enriched experiences (and therefore patterns of neural input) are developing the neurobiological capabilities that optimise the potential for overall health and well-being. In contrast, children who grow up in neglectful, chaotic or terrorising environments are at risk of significant difficulties in all domains of functioning (Perry, 1997).

The specific effects of maltreatment on neurodevelopment are dependent on the part of the brain that is developing at the time of the abuse (Perry, 2006). The main brain structures affected by chronic trauma include the hippocampus (core site of memory processing), the amygdala, (core site of emotion processing), the prefrontal cortex (part of the brain that is associated with executive functioning and the higher-order cognitive processes), and the corpus callosum (part of the brain that facilitates communication between the two hemispheres) (Chan et al., 2016; Gerin et al., 2019; Teicher et al., 2016). Although certain parts of the brain mediate certain functions, neuroscientific research has supported an integrated paradigm of brain functioning; there is a complex interconnection of multiple brain structures and components in performing even the simplest of functions (Mesulam, 1998; Ziegler, 2011).

The stress-response system. A basic understanding of the neural systems involved in the brain's response to threat or danger, the stress-response system, is useful when considering the effect of traumatic experiences on the brain of a child. Research has indicated that it is the abnormal and persisting activation of the stress-response system that may lead to the multitude of trauma-based symptoms present in maltreated children. Although the stress-response system originates in the brainstem, total neurobiological participation is enabled in the face of danger due to the connection between this system and the rest of the brain (Perry, 1999).

The body's stress response is mediated by a complex interplay of nervous, endocrine and immune mechanisms that involve the activation of the sympathetic-adreno-medullar (SAM) axis, the

hypothalamus-pituitary-adrenal (HPA) axis, and immune system (O'Connor et al., 2021). When an individual experiences stress or threat, the amygdala and the hypothalamus activate a system of neurons, the autonomic nervous system (ANS), located in the lower areas of the brain, which triggers the release of neurochemicals such as noradrenaline and cortisol. The ANS consists of two branches, the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS), which are responsible for two interrelated response patterns – hyperarousal, and dissociation (Perry et al., 1995; Porges, 2011). The SNS triggers the hyperarousal response, with the release of neurochemicals activating the internal organs to mobilise near-reflexive reactions (O'Connor et al., 2021). This response involves an increase in heart rate, the mobilisation of glycogen from the muscles, and a tuning-out of distracting information. When fighting or fleeing is not possible, often due to an infant's age in the context of childhood trauma, the PNS immobilises the body and focuses on conserving energy and restorative functions (i.e., 'freeze' or dissociative response). Peripheral blood flow decreases, the heart rate goes down, and endogenous opioids are released, preparing the body for injury. Often, both responses occur in various combinations during any given complex traumatic event (Perry et al., 2016).

This active process of responding to external stress by triggering chemical mediators of adaptation is referred to as allostasis, and is an essential process for maintaining homeostasis in response to internal and external stimuli (the environment and an individual's internal state) (O'Connor et al., 2021). Although this allodynamic process is adaptive in the short-term, when the activation of the stress response system is prolonged, it has an adverse effect on development, health, and brain function, and is referred to as allostatic load. Allostatic load refers to cumulative damage on the brain and other physiological systems that results from the chronic stress and dysregulation (overactivity or inactivity) of the mediators of allostasis (O'Connor et al., 2021).

Sensitisation of the stress-response system. Perry (1999) suggested that as neural systems change in response to activity (use-dependent development); the frequent, extreme, prolonged, or uncontrollable activation of the stress-response system (as seen in in chronic maltreatment or traumatic experiences) leads to an overly-reactive stress-response network. An altered or sensitised stress-response system due to chronic exposure to traumatic stress may result in increased sensitivity

to threat in the environment, and thus frequent reactivation in response to stimuli (Cohen et al., 2013; Lovallo et al., 2019). The activation of the stress-response system during trauma may result in elements of the trauma being stored as cognitive, motor, emotional and state 'memories' (Perry, 1999). These state memories are created when activation in regulatory parts of the brain occurs in a pattern that is extreme, sensitising, or prolonged (e.g., chronic traumatic stress). Triggers in various brain systems (a cognitive thought of recalling the trauma, an emotion, or a state of arousal) can activate limbic and brainstem areas, resulting in emotional, motor and arousal changes which are associated with the stored patterns of activation during the original trauma event (Perry, 1999).

Research has suggested that the resulting alterations of the sensitised stress-response system lead to an increased vulnerability for an individual to develop significant and enduring emotional, behavioural, social, cognitive, sensory-motor, and physical health difficulties (Anda et al., 2006; Perry, 2006; Perry & Dobson, 2013), as well as enhancing the risk of psychological distress and negative outcomes following later stress (McLaughlin et al., 2010). A sensitised stress-response system may result in difficulties such as hypervigilance or avoidance in threat detection, lowered reward-processing, difficulties in emotion regulation, and a lack of executive control (Gerin et al., 2019). Perry (2006) argued that traumatised children have limited capacity to modulate frustration (e.g., self-regulate), also referred to as cortical modulation, which is the ability of the upper cortical networks (e.g., executive functions) to regulate the lower networks of the brain.

Clinical implications. When considering the neurobiology of trauma, several clinical implications exist. Children in foster care, who may have been exposed to chronic trauma and persistent threat, often present with an altered, sensitised stress-response system. A sensitised stress-response system means the child having an altered baseline, such that the internal state of calm is seldom achieved. This hyperreactivity to perceived threat can result in behavioural difficulties such as impulsive aggression which can be a significant challenge for their caregivers (Perry et al., 2016). Creating a sense of safety for the child, and understanding behavioural challenges as fear-based responses in the context of a sensitised stress-response system, is thus a key component of creating a trauma-informed environment in which traumatised children can develop.

Secondly, the brain develops in a sequential and hierarchical manner. Trauma exposure in early childhood may therefore lead to poor organisation and functional impairments in the lower regions of the brain, leading to the difficulties with self-regulation, attention, arousal, and impulsivity commonly seen in traumatised children. As Tarren-Sweeny (2013) articulates, the brains of children with histories of complex and ongoing trauma in early life prioritise lower-order stress response systems, rather than higher-level functions of learning and information processing, including executive functions. Their brains are therefore orientated to managing fear rather than to processing information. Therapeutic efforts are therefore argued (Perry, 2006) to be most effective when they are provided in a sequential fashion that replicates neural organisation and bottom-up development. Interventions should firstly target the lower areas of the brain, as a regulated brain stem is required for high order functions to operate optimally.

Lastly, neuroplasticity can be harnessed to promote healing and growth for traumatised children (Ziegler, 2011). This capacity is due to the neurodevelopmental principle of use-dependent development, with healing occurring when there is adequate repetition of positive experiences that activate the appropriate brain systems. In contrast to traditional structured therapeutic approaches that often involve a single one-hour session per week, the implication of use-dependent neurodevelopment necessitates that therapeutic input is frequent, consistent, predictable, and patterned with the correct therapeutic 'dosing' (Perry, 2006; Ziegler, 2011). Therefore, in order for the child to receive optimal opportunities for healing, various relational stakeholders who have frequent interactions with the child, such as caregivers, parents, teachers, and clinical staff, must be involved in their therapeutic regimen.

Treatment Approaches for Children who have Experienced Complex Trauma

Treatment for children in foster care with complex trauma can be challenging due to the complexity of their needs and behaviours (Dauber et al., 2015; van der Kolk, 2007), limited emotional regulation skills, as well as other barriers, such as a lack of safety and stability in daily life (e.g., being in short-term foster care situations) and a lack of attachment relationships (Struik et al., 2017). It is important that these factors are considered, and addressed at best, to ensure interventions are effective.

Trauma-focused cognitive behavioural therapy (TF-CBT). Although children who have been exposed to trauma present with a broad range of clinical symptoms (Dauber et al., 2015), trauma-focused psychotherapies that specifically address the child's traumatic experiences are currently considered gold-standard (Cohen et al., 2010). TF-CBT, first developed in 2006 (Cohen et al., 2006) and revised in 2017 to reflect advances made in research and consider its application to complex trauma (Cohen & Mannarino, 2017), is currently the leading evidence-based treatment for traumatised children, with international guidelines recommending it as a first-line treatment (Forbes et al., 2020; Thielemann et al., 2022). Randomised control trials (RCTs) have supported its use with children who have experienced sexual abuse (Deblinger et al., 2011), domestic violence (Cohen et al., 2011), natural disasters (Jaycox et al., 2010), and various other types of trauma (Dorsey et al., 2020). Its use has also been evaluated across the developmental spectrum and in a range of settings (Cohen et al., 2011), and has been found superior to comparison conditions for improving symptoms of PTSD, as well as other mental health symptoms, for example depressive, anxiety, behavioural, cognitive, and relationship difficulties (Thielemann et al., 2022). Although research supports its use, studies on its effectiveness with children with histories of complex trauma from a range of ages and with complex clinical presentations, are still somewhat limited (Hébert & Amédée, 2020; Ross et al., 2021; Sachser et al., 2017). TF-CBT involves treatment components such as skills-building to enhance children's affective, behavioural, biological and cognitive self-regulation, parental coping skills, behaviour management skills, gradual exposure work of the traumatic memory, cognitive processing of the trauma narrative, and conjoint caregiver–child sessions and safety planning (Mannarino et al., 2012).

Complex challenges exist when utilising TF-CBT with children in foster care. Parental involvement is an integral part of the TF-CBT model, with parents receiving direct therapeutic input (Cohen & Mannarino, 2015). For children in foster care exposed to complex family dynamics, the inclusion of parents can act as a barrier to therapy. This is due to biological parents often being the perpetrators of the trauma, as well as children in care being subjected to chronic chaotic living arrangements and transient care placements without the presence of a consistent caregiver-figure. Nevertheless, a pilot study that explored the efficacy of an adapted TF-CBT for children in care with a diagnosis of PTSD in a NZ setting indicated promising findings (Feather & Ronan, 2006). The

treatment protocol used placed specific focus on strengthening the child's psychosocial context during initial stages to create a sense of safety and stability (Feather & Ronan, 2006).

Some authors have argued that there is insufficient evidence to rely on any single intervention with children in foster care who have been exposed to complex, prolonged and multiple types of trauma of an interpersonal nature (Fraser et al., 2013; Frederico et al., 2019). Although Cohen and Mannarino (2015) have identified that established treatments for PTSD, such as TF-CBT, were effective for multiple domains of dysfunction, Frederico et al. (2019) argue that these treatments are not relevant to the entire age range and living situations of children in care. The World Health Organization (2013) recommends the use of trauma-focused therapies such as TF-CBT for treating trauma-related disorders, but they do not differentiate between PTSD and chronic stress disorders such as C-PTSD, commonly seen in children in care. Additionally, to benefit from TF-CBT, Cohen and Mannarino (2015) state that children must have a cognitive and narrative memory of at least one traumatic experience. As argued by Perry (1999), children exposed to complex trauma often do not have cognitive memories of the traumas, as many may have occurred before the developmental age where the child was able to store narrative memory. These experiences are stored as state memories instead.

In a systematic review by Leenarts et al. (2013) which found that TF-CBT was the best supported intervention for maltreated children, the authors excluded children under the age of six from the review and further noted the small sample sizes and high participant drop-out rates of the included studies, which may preclude the detection of moderating effects (Ross et al., 2021). Some authors (Frederico et al., 2019; Jørgensen et al., 2019) have therefore questioned the efficacy of TF-CBT for younger children due to the developmentally appropriate nature of cognitive-based interventions, as many of the studies to date have focused on youth (Dauber et al., 2015). These limitations limit the validity of drawing conclusions on best practice for children with complex trauma.

Alternative approaches. There are alternative approaches beyond TF-CBT that have received empirical support in treating children with complex trauma presentations and histories, including children in foster care, for example relational and attachment-based therapies (Arvidson et al., 2011; Ghosh Ippen et al., 2011; Hodgdon et al., 2013). The number of promising evidence-based

interventions and therapies to address complex trauma in child and adolescent population groups continues to grow, with the National Child Traumatic Stress Network (NCTSN) recommending a wide range of interventions. Some of these include trauma systems therapy (TST) (Saxe et al., 2015), Attachment, Regulation and Competency (ARC) (Blaustein & Kinniburgh, 2010), as well as more cognitively-based and structured approaches such as Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS) (DeRosa & Pelcovitz, 2009), which have all shown positive outcomes in pilot-testing or initial empirical support. There is also growing evidence to support the clinical efficacy of eye movement desensitisation and reprocessing (EMDR) in treating complex childhood trauma in children (Chen et al., 2018). However, due to the complex needs of children with complex trauma, it has been suggested that EMDR should be utilised as an adjunct treatment within a multimodal treatment plan, rather than the primary treatment (Chen et al., 2018; Briere & Lanktree, 2008).

Other therapies that are commonly used with younger children include play, music and art therapy (Gaskill & Perry, 2014). The use of more creative, somatosensory-based therapies is premised on the argument that talk-based and cognitively oriented therapies are not appropriate for children, due to the underdevelopment of the cortical areas of the brain and the limited capacity for complex functions (Landreth, 2012). Creative therapies have been found to be effective with children with complex trauma to promote modulation and emotion regulation processes, as well accessing traumatic memories that are stored as affect or state memories (Gaskill & Perry, 2014; Perry, 1999). Play therapy is argued to be particularly effective and developmentally appropriate when working with maltreated and traumatised children, as it includes essential elements of working successfully with children with a sensitised stress-response systems – perceived control, reward, manageable stress, regulation, communication, and relational connection (Gaskill & Perry, 2014; Perry & Szalavitz, 2017). Play is also historically and widely considered to be a powerful and critical ingredient in optimal child development (Erikson, 1963; Piaget, 1962). Although meta-analytic studies have supported the use of play therapy when working with children, the results were not specific to children with distinct trauma-like presentations (Bratton et al., 2005; Ray, 2011). Recent reviews of art therapy interventions have found that existing research, which is predominantly descriptive, remain

insufficient to confidently determine its efficacy, although preliminary findings suggest it is a promising intervention for traumatised children (Eaton et al., 2007; van Westrhenen & Fritz, 2014).

Other alternative therapies include animal-assisted therapy, with empirical evidence emerging on equine-assisted therapy for children and adolescents, for example equine facilitated therapy for complex trauma (EFT-CT) (Naste et al., 2018). Preliminary outcomes from an empirically-driven, clinical case outcome methodological study with children aged 10-12 years, suggest a decrease in trauma-related symptoms, anxiety, depression, somatic or sensory complaints, and behavioural dysregulation, as well as improvement in interpersonal and communication skills and overall social functioning (Naste et al., 2018). Although more controlled and empirical studies are needed to determine with confidence the efficacy of creative art-based or other alternative therapies, descriptive research and clinical accounts support the use of interventions based on creative arts when working with children with trauma (Dauber et al., 2015).

Some specific treatment approaches that have been recommended for children in foster care include attachment-based dyadic interventions such as Child Parent Psychotherapy (CPP), Infant-Parent Psychotherapy (IPP), Parent-Child Interaction Therapy (PCIT), Parent-Child Care (PC-CARE) and the Incredible Years parenting programme (Bergström et al., 2019; Hawk et al., 2020; Shea, 2015).

Phase-oriented treatment. The research base is moving towards emphasising the use of phase-orientated, integrated, multi-model novel and non-traditional forms of therapy for complex trauma cases, with phase-orientated treatment placing a focus on establishing a sense of safety before transitioning to trauma work in therapy (Metcalf et al., 2016). This approach is parallel to the growing evidence on the effectiveness of including components that integrate mind and body in trauma interventions, for example, mindfulness techniques, somatic regulation, and sensory integration and biofeedback-based approaches (Dutton et al., 2013; Kaiser et al., 2010; van der Kolk, 2014). A number of best practice guidelines for treating complex trauma in children and young people have been published, recommending phase-oriented treatment (American Academy of Child and Adolescent Psychiatry [AACAP], 2010; Kezelman & Stavropoulos, 2012). The first goal is to establish safety and develop stabilising core emotional and behavioural regulation competencies.

Subsequent phases focus on trauma-processing and integrating the narrative trauma memory into a sense of self. The goal of the final phase is to promote reconnection, integration and resilience within the family and community (AACAP, 2010). AACAP also recommends including the child's support network in the therapy process, as well as ensuring therapy is adapted to a child's specific symptom profile and cognitive and developmental capacity (AACAP, 2010). It is also acknowledged (Gaskill & Perry, 2014; Kezelman & Stavropoulos, 2012) that early life chronic trauma has significant neurobiological effects, and several authors have established that trauma interventions need to target various levels of processing, including cognitive, emotional, and sensorimotor domains. Therapeutic input could include combining and integrating multiple therapeutic modalities, such as sensory and creative arts interventions with traditional cognitive-based talk therapies (Gaskill & Perry, 2014; Kezelman & Stavropoulos, 2012).

Despite the expansion of treatment approaches for complex trauma in children and adolescents, efficacy research has lagged behind and much is still unknown (Dauber et al., 2015). The absence of formal diagnostic criteria and labelling has limited efforts to conduct robust scientific evaluations, in particular RCTs of the efficacy of these treatments approaches and modalities (Ford, 2021). Children with complex trauma symptoms often present to non-specialist mental health clinics and services where trauma symptoms are attributed to other mental health diagnoses such as ADHD or oppositional defiant disorder (ODD) (Kisiel et al., 2014), further obscuring conclusions about effective treatment modalities.

Evidence-informed practice. The scientist practitioner model of clinical psychology necessitates that agencies, services and programmes utilise treatment approaches that have been demonstrated to be effective in practice. This is commonly referred to as evidence-based practice (EBP). Empirically supported treatments (ESTs) are an important component of EBP and refer to interventions subjected to empirical study, most often utilising RCTs, resulting in conclusions about the efficacy of the intervention with a particular cohort (Spring, 2007). As argued by Frederico et al. (2019), children with complex presentations are often excluded from RCTs due to sample exclusion criteria in RCTs to reduce the number of so-called extraneous variables that can complicate the

interpretation of the results. Naturally, this gives rise to the questioning of EST's applicability to cohorts excluded from the studies (Frederico et al., 2019).

There are limited outcome studies on the effectiveness of trauma-interventions applicable to the range of ages, clinical presentations, developmental histories and wide-ranging contexts that are found in children in foster care settings. In addition, caution is needed in generalising findings across cultures; for example, in the NZ context, little data is available on interventions with Māori children. Indigenous researchers and experts have argued that trauma-informed approaches on the whole fail to provide for indigenous experiences of collective trauma, such as historical and intergenerational trauma (Pihama et al., 2017; Walters et al., 2011). Culture may also lead to variance in individuals' and/or communities' trauma responses and broad symptom expression (Trepasso-Grullon, 2013), help-seeking patterns, how individuals engage in services, mechanisms for healing, and meanings attached to traumatic experiences (Fortuna et al., 2019; Perilla et al., 2002).

To avoid either overreliance on ESTs or ignoring promising interventions for children with complex trauma, the concept of evidence-informed practice (EIP) – a more inclusive concept than EBP – has been proposed (Brandt et al., 2012). EIP is based on the understanding that although RCTs and other types of research should be used to inform practice, factors such as clinical wisdom and judgement based on experience should also inform practice, together with client and family values, preferences, needs, and context (Brandt et al., 2012; Frederico et al., 2019). Consideration is given to the child's social environment, developmental stage, and other critical developmental tasks and milestones relating to the child's presenting issues (Frederico et al., 2019), which is of particular relevance to trauma-informed foster care practices.

The Needs of Foster Parents and Children in Care

It is unsurprising that children in care have significant and unique needs which require regular screening and assessment to ensure timely interventions are provided (Cantos & Gries, 2010). A systematic literature review completed by Steenbakkers et al. (2017) found that children in family foster care have complex medical and psychological needs, and in particular, notable attachment difficulties. Children may build 'internal working models' or 'mental representations' from their lived experiences, that regulate their views on the self and others (Bowlby, 1973), largely based on their

caregiver's availability, capacity, and willingness to provide care and protection. Consistency in these experiences is critical for secure attachment and thus a secure sense of identity to develop (Bowlby, 1973). When children are exposed to inconsistent early caregiving experiences, or when foster children are separated from their biological parents, those events disrupt the development of positive and secure attachments which can result in difficulties in emotional regulation, forming meaningful relationships later in life, and overall socio-emotional development (Bretherton & Munholland, 2008). Establishing attuned and supportive relationships, characterised by secure attachments, mutual trust, and emotional intimacy, is a critical need of children in care (Bell et al., 2015; Steenbakkers et al., 2016).

Besides the foster family, other adults (e.g., extended family, teachers and other professionals) also form the social network, or what Perry (2006) refers to a 'therapeutic web'. They all have an important role in the lives of foster children in order to provide practical and psychological support, as well as a sense of stability and continuity of relationships (Bell et al., 2015). Foster parents play a vital role in creating a secure base for children, helping them manage their behaviours and feelings, strengthening their self-esteem, and building their sense of identity (Schofield & Beek, 2009). Steenbakkers et al. (2016) contend that foster children need supportive adults who understand their personal history in order to ensure their environment is sensitive and responsive to their needs and signals. Perry (2006) believes that the home environment remains one of the most important 'sites' of healing, as it is where the child spends a significant portion of their time. Despite the immense behavioural, mental health and medical challenges children in care present with, which can threaten placement stability (Eggertson, 2008), some research suggest that children in care are able to take a positive developmental turn when placed in a stable, safe and nurturing environment (Schofield & Beek, 2009).

The needs of foster and kin carers, and their experiences in caring for children with complex histories and presentations, have also been explored in the literature. The challenges involved in providing trauma-sensitive foster care for children goes well beyond the normative experiences of parenting (Murray et al., 2011). The negative impact on carers of caring for children with complex difficulties and high needs can be significant and is often compounded by environmental and systemic

factors such as agency involvement, financial challenges, limited support, and varying role expectations. These challenges can result in a high burden of care and the need for adequate levels of carer support and training (Murray et al., 2011).

Studies of foster carers' perceived needs have collectively identified the following commonly needs: adequate support from social workers and other professionals; emotional support from peers; easy access to crisis support; opportunities for respite care; adequate financial support to cover associated costs; the availability of specialist services, including mental health services; and practical considerations in accessing these services. Training was also identified as a major unmet need, in particular training on the impact of maltreatment on development, the aetiology of the children's perplexing and challenging behaviour, how to support children to develop secure attachments, and when to seek mental health support for children. Other carer needs identified by foster parents were for role recognition, sufficient access to children's information to allow foster carers to meet their duty of care, having their opinions and insights heard, and involvement in decision-making (Harding et al., 2018; MacGregor et al., 2006; McKeough et al., 2017; Murray et al., 2011; Pasztor et al., 2006; Randle et al., 2017; Reilly & Platz, 2004). An Australian study by Harding et al. (2018), involving over 150 foster and kin carers, found that foster carers reported high stress, with 20% falling in the clinical range on the Parental Stress Index (PSI-4-SF). The study highlighted the need for robust individualised services, resources, and community and peer support for caregivers under stress.

Many foster systems are not set up to routinely assess children's and families' difficulties, resulting in children who require clinical and therapeutic input not being referred to mental health services due to undetected difficulties (Steenbakkers et al., 2017; Tarren-Sweeney, 2019). Tarren-Sweeney (2019) noted that many children in care present with mental health difficulties that can be considered clinically significant but have not been formally identified through screening or formal assessment. It is therefore advised that systematic and comprehensive screening and/or assessments are routinely completed by specialised and trauma-informed mental health clinicians for children in care (Tarren-Sweeney, 2010). Evidence suggests that comprehensive assessment of traumatic experiences, children's strengths and needs, functional difficulties, and symptomatology, is essential for providing adequate service recommendations and treatment plans (Kisiel et al., 2009).

Intergenerational Trauma

It is recognised that trauma can be ‘passed down’ from one generation to another, in that trauma experienced in one generation may affect the health and well-being of future generations (Giladi & Bell, 2013; Sangalang & Vang, 2017). Children in foster care are often at risk of intergenerational trauma (Jackson et al., 2015). In NZ, Māori have been affected by generations of disadvantage and trauma, including colonisation, land confiscations, and being banned from speaking their language and practising their culture, as well as other racist government policies (Reid et al., 2017).

There are several theories of biopsychosocial and structural mechanisms that seek to explain the transmission of trauma across generations. These include epigenetics, the process during which environmental factors alter the expression of genes, and sociocultural models that emphasise the impact of the social context on the child’s learning experiences, in particular considering family system models that take into account communication patterns, roles, and family rules (Giladi & Bell, 2013). Other structural-level barriers also exist that may perpetuate trauma across generations, including land loss leading to poverty and disenfranchisement, racism, and marginalisation (Reid et al., 2017). Although the literature on the effects of intergenerational trauma reflects the resilience of families and communities as well as the significant negative impacts (Braga et al., 2012), intergenerational trauma continues to impact the lives of indigenous communities.

Due to the disproportionate number of Māori children in NZ’s care and protection system, practice should be informed by an understanding of the impact of colonisation and should respond to multigenerational injustices on multiple levels, both across the service system and when working individually with children and families (Atwool, 2020). Programmes and interventions should incorporate efforts to facilitate the child’s positive connection to their culture and whānau, within a framework of culturally safe practice. Transmitting and developing coherent cultural and family narratives, as well as restoring fragmented and misunderstood narratives within the context of a stable and affirming environment, are critical components to healing for indigenous children (Braga et al., 2012).

Trauma-Informed Foster Care

A growing body of literature has explored the idea of trauma-informed care (TIC) in foster care (Zhang et al., 2021). Its clinical application is commonly referred to as therapeutic foster care (TFC) or treatment foster care. The impact of trauma on the developing child has led to many practitioners, organisations and residential facilities adapting therapeutic programming to become more trauma-informed. This movement is paired with new ways of formulating and responding to dysregulated children and young people (Hambrick, et al., 2018). TIC in child welfare services places a focus on orienting the system's awareness of trauma and prioritises collaborating across social service, mental health and educational sectors to meet the needs of the child and the family (Lang et al., 2016). TIC incorporates scientific principles into service delivery in order to promote recovery and resilience from trauma and is argued to be most effective when it influences various service system levels, including the culture and policies of an organisation (The Chadwick Trauma-Informed Systems Project, 2012).

TFC is generally understood to be a clinical intervention approach where the caregiver acts as the primary therapeutic agent (Robst et al., 2011), and includes the systematic monitoring of progress toward treatment targets (Browne et al., 2019). TFC was initially developed as an alternative form of treatment for youth with severe socio-emotional issues, in particular youth with severe externalising behaviours, to prevent the need for residential treatment (Turner & Macdonald, 2011). Recently TFC has been further applied within care and protection settings, with a focus on security, placement permanence, and developing attachment relationships with the foster carer (Browne et al., 2019). That is, TFC services are being used as a pathway to supporting permanence and attachment security, rather than a placement alternative for children and youth with antisocial behaviour. Outcome research on TFC's use within this context is limited, with the need for community-based adaptations of TFC to advance research on tailoring TFC across various settings (Browne et al., 2019; Hambrick et al., 2016).

TFC models range from more to less structured approaches. TFC signifies a shift from the traditional child and adolescent mental health model where therapeutic interventions occur within a neutral clinical setting, outside of the family home (Frederico et al., 2017). It is underpinned by a

number of key features: foster carers are provided with extensive training, supervision, and access to support; the care placement is supported by a professional team; caregivers often receive higher-than-usual financial or other rewards; and regular monitoring of progress toward treatment goals (Browne et al., 2019; Thomas & Philpot, 2009). Although there are a wide range of foster care models, the aim and principles of TFC remains consistent – to provide children and youth who require out-of-home care with a developmentally enriching care experience, and an environment that prioritises safety, security, consistency, and predictability (Van Doorn & Connolly, 2011). TFC models that have been evaluated include Treatment Foster Care Oregon (TFCO) (Chamberlain, 2003), Treatment Foster Care Oregon for Preschoolers (TFCO-P) (Fisher et al., 2000), Attachment and Biobehavioral Catchup (ABC) (Dozier et al., 2006), Keeping Foster Parents Trained and Supported (KEEP) (Price et al., 2009), and Fostering Changes (FC) (Briskman et al., 2012). Indigenous models and approaches have also been developed, such as the Victorian Aboriginal Child Care Agency (VACCA) model (Bamblett et al., 2014), and the Halls Creek model developed in Western Australia (Hodgkins et al., 2013). In NZ, a number of TFC models are being used. These include structured evidence-based models, such as specific therapeutic residential care models which focus on children and youth with conduct or behavioural problems, for example the Teaching Family Model (TFM) (Phillips et al., 1974), as well as other caregiver-based approaches used in a wider range of contexts, such as Trust-Based Relational Intervention (TBRI) (Purvis et al., 2013) or multisystemic therapy (MST) (Henggeler, 2012).

TFC models and approaches have been evaluated over the years and have illustrated that the provision of specialised training opportunities and adequate support structures have impacted positively on carer retention, role satisfaction, resilience capacity-building, placement stability, and children's attachment to caregivers and self-regulation capacities (Staines et al., 2010). Casey's Northwest Foster Care Alumni Study (Pecora et al., 2006) also revealed that features of TFC programmes were associated with a reduction in the prevalence of mental health disorders and substance abuse later in life for children and adolescents, with the key variables identified being highly trained staff, small caseloads, and robust supplementary services.

The more inclusive term of TIC, encompasses structured TFC approaches, as well as non-clinical TIC interventions which can be implemented and executed by practitioners working outside

formal clinical contexts, for example, social workers, as well as foster or kin carers (Lotty et al., 2021). Trauma-informed interventions within foster care generally have three primary components: (1) a focus on enhancing the child's sense of safety; (2) facilitating trusting caregiver–child relationships; and (3) skill-building, for example, self-regulation and coping strategies (Bath, 2008; van der Kolk, 2005). Similarly, Lotty et al. (2021) stated that the TIC programmes are underpinned by a biopsychosocial approach, with the core components including: (1) understanding the impact of trauma on children; (2) understanding of the impact of caring for children with histories of trauma on the caregiver; and (3) developing the skills of foster parents and professionals to address the impact of trauma through remedial relationships. TIC approaches also place a large focus on screening, assessment, and referral to treatment.

Although there is a collective trend to consider more evidence-based, therapeutic, and trauma-informed approaches when working with children in care, the existing literature does not clearly articulate the challenges of effective implementation of trauma-informed screening, assessment, and approaches to care (Dunkerley et al., 2021). There is a lack of empirical evidence that evaluates TIC programmes, in particular well-scaled evaluations of the relationships between TIC programmes and child welfare outcomes (Topitzes et al., 2019).

Topitzes et al. (2019) conducted a mixed-methods study to assess a trauma-responsive programme which was implemented within a private child welfare agency in the United States (US). The trauma-informed programme included a combination of specialised training, assessment and screening, case planning, and consultation services in line with a trauma-responsive case management model. NMT assessments were also used with some of the participants. The study showed that programme participation was linked with improved placement permanency, with 58% of children in the programme group achieving placement permanency compared to 30% of children in the comparison group receiving usual care. Qualitative data revealed that agency staff who implemented the programme found consultation services particularly helpful in order to gain insight into children's symptoms and behaviours, and develop trauma-responsive case plans and recommendations. NMT assessments were found to be particularly helpful, due to their detailed analysis of the child's history, context, and current functioning. Some challenges were evident with most staff members commenting

on the additional time burden of a TIC approach to an already demanding job. The study concludes that important ingredients of a trauma-responsive care programme include staff buy-in or level of investment, consultation services, and staff training (Topitzes et al., 2019).

A gap remains in international and local literature on the efficacy, feasibility, and acceptability of TIC approaches, including how the use of the therapeutic principles of TFC and TIC can enhance practice within the foster care context. Dunkerley et al. (2021) note that research on trauma-informed models in care and protection settings is increasing, in particular regarding implementation barriers, but there is limited research on the initial implementation stage from the perspective of frontline staff who are primarily responsible for implementing new practices. Limited research also exists on the main components that facilitate successful initial implementation. In addition, there is a crucial need for culturally responsive trauma-informed approaches that highlight the importance of local context, recognise intergenerational vulnerabilities, and promote equity (Meléndez Guevara et al., 2021).

Ecological Systems Theory

Bronfenbrenner's Ecological Systems Theory (EST) (1979) is useful to conceptualise child development, the impact of trauma on the developing child, and adopting trauma-informed approaches within the child welfare system. EST asserts that child development occurs within a complex set of interactive systems, with child development and functioning being influenced by multiple levels of the surrounding social and environmental context. These interacting systems occur on five levels, organised in order of their level of impact on the child – the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Bronfenbrenner, 1979).

An ecological framework allows trauma to be considered at the various system levels, including its impact on individuals, families and communities, with consideration given to the wider social, political, economic, and legal contexts (Pence et al., 2013). Ecological theory emphasises the multiplicity of systems in which children experience trauma and subsequent healing (Baca, 2019). Bronfenbrenner's model can be used to conceptualise and consider the type of trauma a child has been exposed to, for example, the most common being traumas in the microsystem, including domestic violence, physical, emotional, sexual abuse and neglect. Trauma occurring at the outer layers, for example, the exosystem or macrosystem, encapsulates community violence, poverty, racism, and

cultural marginalisation, as well as natural disasters, war, and displacement (Baca, 2019). TIC is responsive to a systems-level understanding, integrating an awareness of trauma within the various systems affecting an individual.

Consequently, when working with children with histories of trauma, it can be argued that assessment and intervention approaches should be mindful of, and integrate, the wider systems affecting in the child's development, presentation, and healing. Trauma and resiliency research emphasises the importance of variables beyond individual characteristics in the human response to trauma (Herbers et al., 2014; Pat-Horenczyk et al., 2009). Therefore using an ecological framework to assess children's symptoms (beyond previously identified variables of type, severity, age, gender etc.) can enable the consideration of other important components such as racial, ethnic, and cultural factors, and their role in children's symptoms and functioning, healing and recovery.

Integrating an ecological theory and a trauma-informed perspective creates the foundation for service delivery and interventions that target the heterogeneous needs of the individual within wider systems, as well as harnessing the whole system as a vehicle for intervention (Hopper et al., 2010). Interventions can be targeted at individual, interpersonal and community systems. Certain therapies and clinical frameworks are particularly effective in acknowledging the influencing impacts of the systems surrounding the child, such as TST (Naste et al., 2018; Saxe et al., 2015). Research has also suggested that child well-being outcomes from therapeutic input can be predicted based on the degree of involvement of the adults in the child's caregiving system, including parents, teachers, agency staff, child welfare case managers, neighbours and community (Murphy et al., 2017). This approach is also in line with the NMT (see p. 42), where there is an emphasis on increasing the quality of the child's therapeutic web and degree of relational health in order to buffer the impact of trauma, and provide the context in which healing can take place (Ludy-Dobson & Perry, 2010). An ecological view of trauma recovery is based on this understanding that the efficacy of trauma-focused interventions depends on the degree to which they enhance the person-community relationships (Harvey, 1996).

Additionally, when engaging in research and organisational evaluation, it is important to acknowledge the complex and dynamic systems that are at play within the social work context, with each having a unique agenda that directly impacts the decisions regarding a child's therapeutic care.

There are often multiple gatekeepers, decision-makers and barriers within the various system levels that impact the care provided to the child. Within any particular organisation, the agency background, culture and systems context, combined with other micro and macro elements, for example, case, external, organisational and individual factors, facilitate the environment in which decisions are made that affect children in care (McCafferty & Taylor, 2020). By considering the real-world systems in which therapeutic care is provided within utilisation-focused evaluation practices, the development of realistic theory and practice is fostered that better serve children in care.

The Neurosequential Model of Therapeutics

Overview and development. The Neurosequential Model of Therapeutics (NMT) is a developmentally-informed neurobiological model that seeks to organise a child's developmental and relational history, as well as current functioning in a range of domains, in order to structure the application of therapeutic interventions, outlined in Table 1 (Perry & Dobson, 2013). The NMT is informed by research and principles in the areas of attachment, developmental psychology, neuroscience, and traumatology (Hambrick, et al., 2018).

Table 1.

Key Elements of the Neurosequential Model of Therapeutics Clinical Practice Tool

Areas considered during the NMT Assessment Process
1. Demographics
2. Developmental History
A. Genetic
B. Epigenetic
C. Adverse Experiences (Part A)
D. Relational Health (Part B)
3. Current Status
A. Individual Central Nervous System (CNS) (Part C)
i. Brain stem
ii. Diencephalon/cerebellum
iii. Limbic
iv. Cortex/frontal cortex
B. Relational Health (Part D)
Areas of Recommendations
A. Therapeutic web
B. Family
C. Client
i. Sensory integration
ii. Self-regulation
iii. Relational
iv. Cognitive

The NMT was developed by Dr Bruce Perry from the Child Trauma Academy based in the US (Perry, 2006) over a period of more than 10 years through their work with children who had experienced trauma, especially those involved in the child welfare system. The NMT now exists under the Neurosequential Network, and includes several variations of the model, some of which are more established than others. Models include the Neurosequential Model in Education (NME), the Neurosequential Model in Caregiving (NMC), and the Neurosequential Model in Sport (NM Sport). NMT is not a specific therapeutic technique or standardised psychometric assessment tool, and is not designed to replace other assessment measures or interventions. Instead, it is designed to structure and integrate information about the child to inform the appropriate course of intervention based on the child's specific needs, vulnerabilities, strengths, and contexts (Perry, 2006; Perry, 2009). The NMT is a web-based programme which includes a worldwide database, and is being used by over 2,000

clinicians in more than 100 child welfare, mental health and early childhood programmes in over 20 countries, serving over 250,000 clients (Hambrick et al., 2018).

NMT is based on the understanding that traditional therapeutic (i.e., primarily cognitive-behavioural or cognitive-relational) interventions often do not take into account the disorganised, underdeveloped or impaired lower brain networks commonly seen in children with complex trauma histories (Perry et al., 2016). Thus, a neurodevelopmentally-informed assessment process and therapeutic strategy emphasises the timing of the developmental risk and the way in which the child's idiosyncratic experiences are linked with their level of functioning across a range of brain-mediated domains (Gaskill & Perry, 2014).

The assessment process (described on p. 46-51) is followed by the selection and sequencing of a set of enriching educational and therapeutic interventions that consider the developmental needs of the child, including their developmental stage and capacity, current internal state of arousal, along with the brain regions involved in various neuropsychiatric difficulties (Perry, 2006; Perry & Hambrick, 2008). Focusing on interventions that target and activate the brain areas that have been altered is seen as important in choosing the appropriate therapeutic input (Perry, 2006). Gaskill and Perry (2014) noted that brain systems and their concurrent functional capabilities are affected by repetitive experiences that strengthen neuronal networks. Perry (2006) argues that therapeutic interventions have to be woven through a child's daily life, in order to facilitate the frequent and consistent activation of neural pathways to provide 'replacement' experiences. These frequent therapeutic interactions allow the child's brain to incorporate the new nurturing environment, marked by safety, predictability, and positive relational experiences.

NMT is based on and applies several perspectives, such as neurodevelopmental and bioecological frameworks, as well as child developmental, trauma and attachment perspectives, to understand the mechanisms for harm and recovery or healing.

Certification. A certification process involved in becoming an NMT-accredited assessor enables a practitioner to utilise the tool in their practice (The Neurosequential Network, 2021). It is designed for professionals from diverse backgrounds who meet certain requirements, including at qualification in social sciences, a practising license or registration, and who are working directly with

children, youth, adults or families in a clinical capacity. The training process consists of three core elements: (1) knowledge building and mastery of core concepts; (2) mastery of using the online clinical practice tools (NMT metric); (3) and learning about the selection and sequencing of specific educational, therapeutic and enrichment interventions. It is a manualised multi-stage process requiring approximately 150 hours of training and is flexible in its timing and process. The Phase I training certification programme is organised into 10 modules and includes a variety of multimedia and print content, as well as case studies and webinars focusing on clinical consultation and implementation. The training also includes bi-annual fidelity exercises to ensure practitioner competence and inter-rater reliability (The Neurosequential Network, 2021). An organisation also has the option of becoming site certified.

Neurodevelopmental principles. There are several neurodevelopmental principles that underpin the NMT and were originally outlined in Perry et al. (1995). These basic principles and clinical implications have evolved over the years through clinical experience and further research (Perry, 2001b; 2006, 2008; Perry & Dobson, 2013; Perry et al., 2016).

The brain is organised hierarchically and develops in a sequential fashion. Given the knowledge of brain development in children and impact of trauma, therapeutic interventions need to target the brainstem first to create a sense of safety for the individual, for example, using patterned, rhythm activity such as rocking and therapeutic massage, preferably within a relational context. Once state regulation has improved, therapeutic interventions can target higher areas of the brain (Perry, 2006).

The brain (neurons and neural systems) change in a 'use-dependent' manner. The development of the brain and the functional capabilities of the mature brain is dependent on the quality, pattern, and frequency of somatosensory experiences, and thus on neural input occurring in the first years of life (Perry & Pollard, 1998). The brain region actively developing is the most receptive to environmental stimuli at the time. Thus, it is crucial that therapeutic interventions are implemented in a way that facilitates the adequate frequency and patterns of experiences that will activate and modify the brain areas that mediate the dysfunction (Perry, 2006).

The early years are a rapid period of brain development. The organising brain is malleable and responsive to the internal and external environment with experiences during early childhood having significant and lasting effects on brain organisation and functioning (Perry, 2006). As the lower parts of the brain develop first, more complex brain development is dependent on optimal development of lower parts of the brain (Perry & Dobson, 2013).

Some neural systems are easier to change than others. The degree of brain plasticity is related to the specific area of the brain as well as the stage of development. Once an area of the brain is organised, it is less responsive to environmental stimuli (Perry, 2006). Areas such as the cortex remain malleable throughout life, whereas brain structures that developed early in life are more difficult to alter, so that a greater number of repetitions is required to change the neural organisation of the lower parts of the brain, such as the brainstem. A large number of trauma-related symptoms, such as impulsivity, difficulties with emotional regulation, hyperarousal, and aggression are related to dysfunctions of neural systems and activity in the lower areas of the brain (Perry, 2006).

Relational health is essential to optimal neurodevelopment. NMT places an emphasis on the importance of the number and quality of relationships and relational interactions in the child's life. It is based on the principle that optimal brain development occurs in the context of a strong relational milieu, with our neurobiology reflecting our functional interdependence (Perry, 2006). The development of the infant brain is dependent on consistent and responsive caregiving experiences, with a lack of attuned caregiving experiences in the early years leading to deficits in emotional regulation capacity later in life. Implicit representations of early childhood experience act as internal working models for future interpersonal relationships (Siegel, 2012). Therefore, it is argued that as child maltreatment occurs within relationships, so does healing. Therapeutic interventions therefore need to occur in the context of stable, loving, attuned, predictable interpersonal relationships (Perry, 2006).

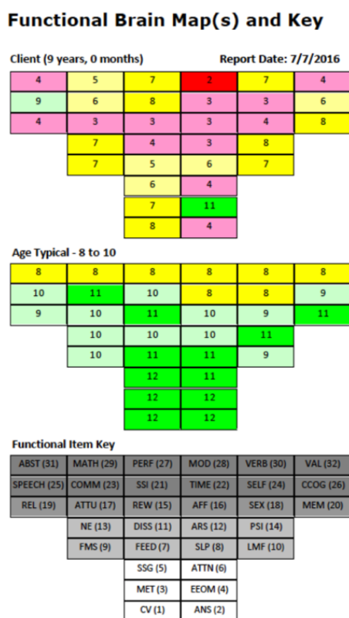
The NMT metric. The NMT assessment entails an online metric that is structured in four parts and involves gathering information with a series of Likert scale questions. Clinicians can consult with caregivers, social workers and teachers, to gather information about the child's past and current levels of functioning. The four parts are: Part A: History of Adversity; Part B: Relational History; Part

C: Current Functioning; Part D: Current Relational Health. An example of an NMT report can be found in Appendix A.

Parts A and B involve assessing the child's history of adversity, including the nature, severity, timing, and pattern of adverse events that the child has experienced, including in utero (Perry & Hambrick, 2008), as well as their relational history. Understanding the timing of the traumatic experiences is key in understanding the developmental stage of the child when maltreatment occurred, and the resulting implications. It offers insight into the chronicity of the childhood adversity, and the presence or absence of positive relationships. Part C involves an estimation of a child's central nervous system (CNS) functional status, based on estimations of functioning in the following brain areas: brainstem, diencephalon or cerebellum, limbic system, and cortex or frontal cortex (Perry & Dobson, 2013). This estimation involves an assessment of the child's current functioning in four key developmental domains: the regulatory system (e.g., self-regulation capacities, sleep–wake pattern); somatosensory system (e.g., sensory functions and integration); relational system (e.g., attachment security, interpersonal relations); and cognitive or cortical system (e.g., attention, memory, speech and language). This information is used to produce a 'Functional Brain Map' (as seen in Figure 1). The brain map is a basic visual representation of the child's neurodevelopmental strengths and weaknesses, based upon the current status of a range of brain-mediated functions, compared to an age-typical brain map (Perry, 2006). Variations and nuances to a child's development are captured in the brain map. For example, an 8-year-old child might have self-regulation capacities of a 5-year-old, but the language skills of a 7-year old.

Figure 1[1]

Example of the Functional Brain Map and Functional Item Key



Note. The meanings for the acronyms on the Functional Brain Map and Functional Item Key can be found in the NMT report included in Appendix A.

Data is collected and compiled from quantitative measures and tools, for example the Weschler Intelligence Scale for Children (WISC-V) or the Trauma Symptom Checklist for Children (TSCC), along with qualitative information, such as direct observations of the child and interviews with caregivers. Practitioners are required to have a certain level of knowledge and expertise in child development and neurodevelopment to effectively use the NMT and estimate functional scores in various areas functioning. This can be a challenge, in particular in child welfare contexts, as not all professionals have the required knowledge (Perry, 2009; Perry & Hambrick, 2008).

As shown in Figure 2, the scores on the Functional Brain Map are colour-coded, with red indicating severe dysfunction, pink indicating underdevelopment, yellow indicating moderate dysfunction to mild compromise, and green shades indicating emerging or developed function. The metric also provides a Cortical Modulation Ratio (CMR) score (illustrated on a graph, see Figure 3)

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[1] Figures 1-6 have been provided by the copyright owner with permission granted for it to be reproduced.

which is an estimate of a child's developmental age. It gives a rudimentary indication of the strength of cognitive regulatory capacities relative to the dysregulation of the lower networks, that is, a child's capacity for self-regulation (Perry & Dobson, 2013). A CMR below 1.0 suggests that the individual has marginal self-regulation capacities, with a ratio between 1.0 and 2.0 indicating emerging but episodic capacity for self-regulation. This score incorporates factors such as executive functioning and self-control that have been known to be predictive of positive outcomes in higher-risk children (Moffitt et al., 2011).

Figure 2

Functional Brain Map Developmental Function Colour Key

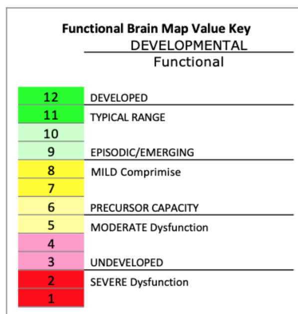
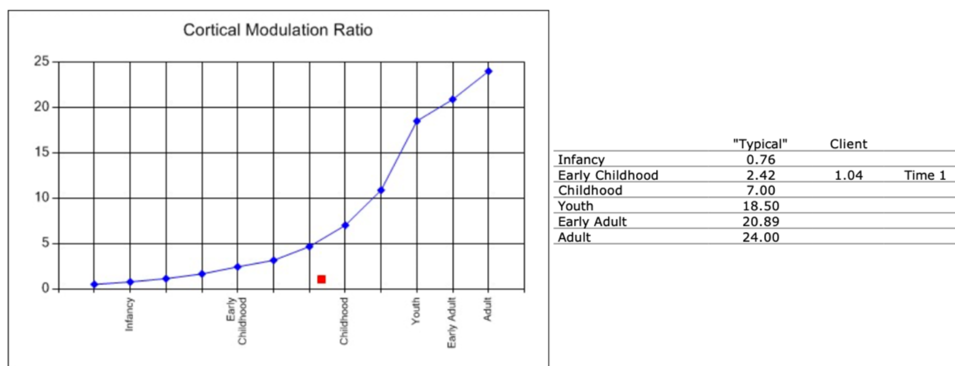


Figure 3

Cortical Modulation Ratio Graph



	"Typical"	Client	
Infancy	0.76		
Early Childhood	2.42	1.04	Time 1
Childhood	7.00		
Youth	18.50		
Early Adult	20.89		
Adult	24.00		

Part D of the NMT metric seeks information about a child's current relational health and support systems, including a child's immediate and extended family, school, community, and other positive relationships. Access to support systems and stability of positive relationships are considered

to be critical in the therapeutic process (Perry, 2006). The NMT metric report also includes a graph that displays a developmental risk and resilience curve based on a child's developmental and relational history (see Figure 4 and Figure 5), a graph with the child's current relational health score (see Figure 6), and a bar graph displaying the strength of the various functional domains, compared to age-related peers (see Figure 7). These graphic representations are designed to allow teachers, clinicians and parents to visualise important elements of a child's history and current level of functioning.

Figure 4

Developmental History Graph

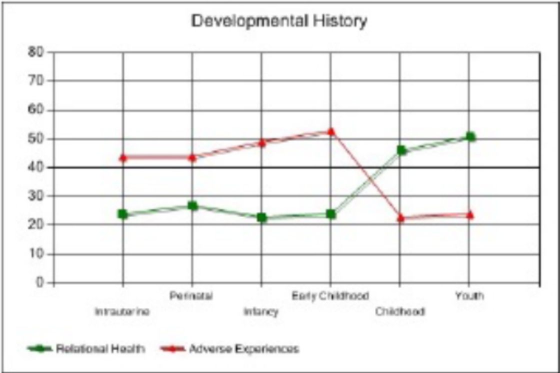
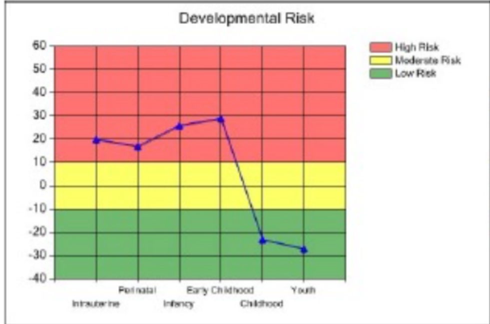


Figure 5

Developmental Risk Graph



Developmental History Values

	Adverse Events	Relational Health	Developmental Risk
Intrauterine	44	24	20
Perinatal	44	27	17
Infancy	49	23	26
Early Childhood	53	24	29
Childhood	23	46	-23
Youth	24	51	-27

Adverse Experience Confidence: Moderate
Relational Health Confidence: Moderate

Figure 6

Current Relational Health Graph

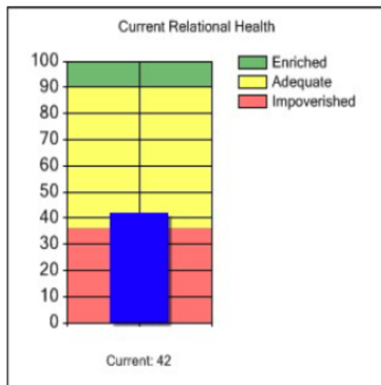
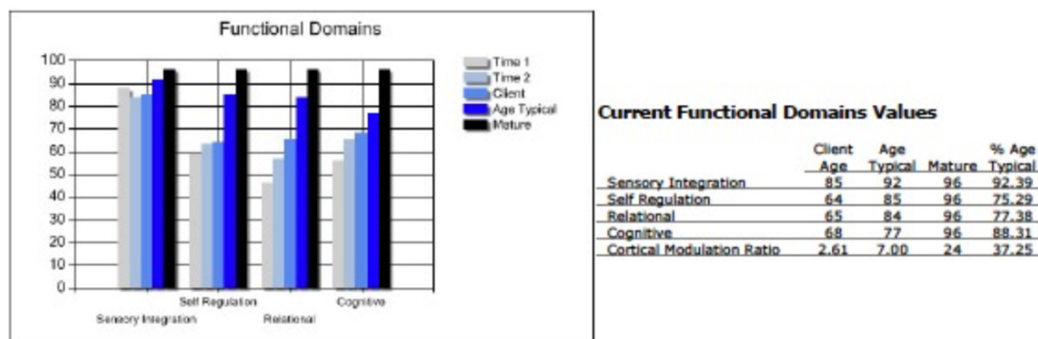


Figure 7

Graph of Functional Domains



Current Functional Domains Values

	Client Age	Age Typical	Mature	% Age Typical
Sensory Integration	85	92	96	92.39
Self Regulation	64	85	96	75.29
Relational	65	84	96	77.38
Cognitive	68	77	96	88.31
Cortical Modulation Ratio	2.61	7.00	24	37.25

Recommendations. The NMT metric, specifically the functional brain map, charts the child's strengths and vulnerabilities, which then guides the clinician in the process of selecting and structuring developmentally appropriate enrichment, educational and therapeutic activities (Barfield et al., 2012; Perry, 2006). The metric is a useful tool in tracking the child's progress over time or when providing the rationale for recommendations and therapeutic interventions with caregivers, educators and mental health professionals. Recommendations can be selected from a collection of evidence-informed strategies and interventions, depending on the needs and goals for the specific child (Perry, 2006). Interventions involve activities to increase the child's sensory integration and self-regulation capacities, as well as relational health, and cognitive functioning (Perry & Dobson, 2013). Depending on the child's profile, specific recommendations are classified as essential (a functional score below

65% of the age-typical score), therapeutic (score between 65% and 85%), or enriching (85% or above) (Perry & Dobson, 2013).

The NMT supports a variety of interventions from a range of family, school and community resources. A specific focus of the NMT training is about encouraging providers to think critically about the timing and appropriateness of therapeutic interventions based on a child's developmental age and state-dependent functioning. Interventions usually start by focusing on regulating the lower underdeveloped areas of the brain, by recommending activities that target these structures (Perry & Hambrick, 2008). A child who demonstrates significant problems in the brainstem and diencephalic functions can be recommended activities that are primarily repetitive, rhythmic and somatosensory-based, for example, drumming or music, dance or movement, sport, breathing skills, therapeutic massage, and play or art therapy (Perry & Hambrick, 2008). Later in the treatment process, when the child has had improvement in somatosensory processing and self-regulation, the treatment recommendations can shift to more relational and cognitive-behavioural approaches such as TF-CBT.

In addition to individual-based activities, there is a particular focus on creating a therapeutic web around the child to increase the number of healthy and supportive relationships and subsequent relational interactions in a child's life (Perry, 2006). A significant part of the recommendations is providing psychoeducation about trauma to the various adults (e.g., teachers, parents, youth workers, social workers, mentors, and youth leaders) to inform them about the child's developmental capacity and internal state of arousal (Perry, 2013). Family and other adults in the child's relational world are encouraged to consider the child and their behaviour through a neurodevelopmental lens and thus adapt their interactions with the child to be more trauma-informed.

Outcome research on the use of the NMT. Although the NMT is widely used to work with traumatised children internationally (Barfield et al., 2021), there is a lack of RCTs on its use, which limits its capacity to be regarded as an evidence-based tool. The current lack of empirical evidence may be due to the complexity and multi-faceted nature of the approach, and the fact that NMT is not a form of therapy in itself, but rather a way of organising assessment data to inform the best idiosyncratic therapeutic approach for a child and their family.

Several studies have evaluated the efficacy, acceptability and feasibility of NMT with a variety of population groups and within various settings. It has been labelled as a 'promising practice' by the National Quality Improvement Center for Adoption and Guardian Support and Preservation (2023). The preliminary and exploratory findings of published outcome research, predominantly conducted in the US, suggest that using NMT produces favourable outcomes in a range of outcomes. Two studies completed by Barfield et al. (2012) explored the use of the NMT on the social-emotional development and behaviour of 28 children attending a therapeutic preschool programme. Results indicated that using the NMT to determine the appropriate nature, timing, and 'dose' of developmentally appropriate activities enhanced young children's social-emotional development and reduced challenging behaviours. Follow-up data collected at the 6- and 12-month marks suggested that gains in social-emotional development and behaviour were retained. Study limitations included small sample sizes and a lack of racial and ethnic diversity of participants (nearly all white children living in the rural Midwest), which limits the generalisability of findings. Despite these limitations, the findings from these studies are promising.

A study by Zarnegar et al. (2016) considered the utility of the NMT in a 'real world' setting with 10 young children with Foetal Alcohol Spectrum Disorder (FASD). Treatment recommendations informed by the NMT assessment for children and caregivers included Child–Parent Psychotherapy (CPP) and Mindful Parenting Education (MPE). It was found that, statistically, children's functioning in a broad range of developmental domains (e.g., adaptive, motor, communication, and cognitive skills) improved significantly from pre- to post-intervention as measured by the Battelle Developmental Inventory, Second Edition (BDI-2). Interestingly, a reduction was also observed in caregivers' self-reports of general parental distress and distress regarding parent-child interactions, as measured by the PSI-SF. In addition, although the NMT metric is not a standardised psychometric measure, the changes on the metric were consistent with those findings, indicating overall improvements in the cognitive, relational, sensory integration, and self-regulation domains, as well as in the CMR score. The authors concluded that early intervention that is tailored to children's neuropsychological strengths and deficits may promote global improvements for children with FASD.

A study conducted by Hambrick et al. (2018) examined restraint and critical incident data from 10 organisations providing residential and/or day-treatment services for children in the US. The authors tracked data from before NMT was introduced until after its implementation (maintenance phase). Multilevel logistic regression models suggested that exposure to and/or certification in the NMT within organisations was linked with notable and sustained reductions in restraints and critical incidents. Limitations of these studies include small sample sizes, short outcome evaluation windows, and a lack of control groups.

Findings from a number of other pilot studies that have not been published in peer-reviewed journals have also supported the use of the NMT. One study reported significant reductions in the total score of the Child and Adolescent Functional Assessment Scale (CAFAS) when delivering NMT-informed interventions with a population of children with histories of developmental trauma and severe psychiatric comorbidity involved in a residential programme (Grove, 2012). NMT-guided interventions have also been associated with improvements in emotion regulation capabilities in a sample of children with trauma backgrounds receiving sensorimotor therapeutic input (Hansen & Lusk, 2011).

A study conducted by the Quality Improvement Center for Adoption and Guardianship Support and Preservation (QIC-AG) based in the US described the implementation of the NMT in state-wide adoption support services (Vandivere et al., 2020). Outcomes were compared between families receiving an NMT-based programme, and families that received 'services as usual' from a different service provider under the same adoption support service programme. Four outcome measures were included – child behaviour problems, staff satisfaction with their service, relationships, and caregiver commitment. The study observed gains for treatment and comparison groups in all four outcome areas, although an improvement in behavioural problems in the treatment group (NMT group) was the only statistically significant difference between the groups, with the effect size being small. Researchers concluded that the lack of observed differences in the outcomes between the treatment and comparison groups may be as a result of the large overlap in the services received by the two groups (Vandivere et al., 2020). Qualitative data added nuances to the findings, with clinicians generally finding the NMT to be helpful, and that it improved their practice. Although the evaluation

failed to generate clear evidence that the NMT is superior in improving outcomes for families with intensive needs, researchers remained positive about the NMT's usefulness, asserting that identifying the true impacts of a programme within the child welfare context is particularly challenging. Challenges to ascertaining the true impact include the complexities involved in implementing rigorously designed studies in this specific context, ensuring sufficient sample sizes, short time frames for evaluating outcomes, and families declining services (Vandivere et al., 2020). Implementation fidelity also remains a challenge; for example the NMT metric may not be completed accurately, and/or treatment plans may not be carried out by families and care teams (Vandivere et al., 2020).

Despite the limitations of the research outlined above and the small number of outcome studies, the NMT has been linked with positive impacts in a range of outcomes. It is widely used across a range of settings (Barfield et al., 2012), which may be due to its holistic and flexible approach to assessment and treatment, the intent for it to be used alongside a range of empirically validated assessment measures and therapeutic interventions, as well as its inclusion of the wider system in the therapeutic approach (Perry & Hambrick, 2008). Although significant difficulties exist in conducting research within the child welfare context to examine outcomes associated with the NMT across settings, the findings are promising. As the NMT is used in a variety of settings and services, with only a small evidence-base underpinning its use, it is important that further inquiry into the application of the NMT is undertaken. My project therefore sought to contribute to the research base on the use of the NMT, in particular in the Aotearoa NZ foster care context.

Chapter Three: Methodology

The purpose of this chapter is to systematically describe the research processes undertaken. The chapter commences with a short overview of the research study and the study setting, in particular regarding the organisational context of OHF and my position in relation to OHF. I then discuss the epistemological orientation of the study and the evaluation design principles that informed the various phases of the study, as well as methodological limitations. This is followed by an outline of the two research phases: Phase 1: Evaluation Planning and Scoping; and Phase 2: Evaluation Data Collection. A description is provided of the participants and procedures involved in the collection and analysis of data in each phase.

Study Overview

The present research study comprised of two distinct phases, each phase entailing specific evaluation aims, as outlined in Table 2. These phases were designed based on an evaluation approach that considers system needs and organisational evaluation priorities; the way in which the programme operates and is experienced by stakeholders; factors influencing service implementation; how the programme produces change; as well as the outcomes associated with programme implementation (Deane et al., 2020; Royse et al., 2016). The study was designed within and around the real-world context of a social service organisation, OHF. It is an exploratory, multi-informant, multi-method implementation study, involving a range of stakeholders and data sources. An outline of the research process is provided in Figure 8. The study involved a scoping meeting with OHF staff in management roles (Phase 1), interviews with frontline staff (social workers and trauma advisors) and foster parents involved in the programme, as well as an inquiry into preliminary measurable outcomes associated with programme implementation, in particular regarding the children's behaviour and overall functioning (Phase 2).

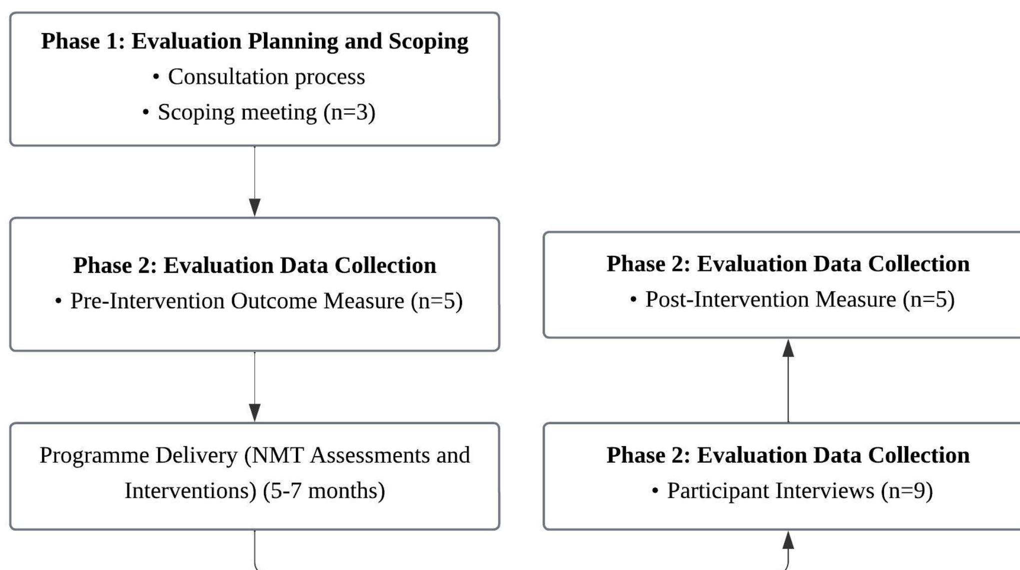
Table 2.

The Phases of the Research Study

Research Study Phase	Aims
Phase 1: Evaluation Planning and Scoping ▪ Consultation process ▪ Scoping meeting	▪ Understanding the evaluation context ▪ Identifying organisational information needs ▪ Identifying the programme's vision and scope ▪ Producing a preliminary theory of change
Phase 2: Evaluation Data Collection ▪ Participant interviews ▪ Outcome measure	▪ Exploring the programme's scope and critical processes ▪ Understanding the experiences of stakeholders involved in the programme ▪ Preliminary outcome evaluation ▪ Revising the theory of change

Figure 8

Overview of Study Procedure



Study Setting

The service: Open Home Foundation/Te Whare Kaupapa Āwhina of New Zealand. OHF is a nationwide family support service that works with OT as an approved care partner to provide placements and services for at-risk children under OT care. OHF was established in 1977 and became a national organisation in 1986. It holds custody over approximately 60 children currently, and has 14 service centres across the country. It also provides care and disability services under a different

governmental contract to a number of children who are not under its statutory care. Children under the care of OHF range from infants to those 18 years of age. Reflecting national statistics, Māori children are overrepresented within OHF, with 47% of the children in their care being Māori.

Organisational context. Chapter 4 describes OHF's practice framework and the clinical application of the NMT within the organisation, as well as providing an overview of the therapeutic support and input the families involved in this present study received. Although some information outlined in the next two paragraphs was obtained during Phase 1 of this present study, a brief description of the organisational context is included at this point to orient the reader to the context in which the study occurred.

The study took place during a time when the NMT was in the process of being rolled out more widely within OHF. The NMT had been introduced at management level in 2016, four years prior to the start of the present study. Several national-level clinicians (referred to as 'trauma advisors' within OHF) and a small number of management and other staff held NMT Phase I certification, with some being trained in Phase II. When the present research commenced in 2020, the NMT training initiative was gaining traction, and more staff were being trained in the model and in the process of gaining certification. The level of organisational familiarity and knowledge of NMT and associated neurobiological principles were therefore in its infancy, creating a unique opportunity for research to be undertaken. The aim of the study was to conduct a preliminary analysis of the utility and feasibility of using the NMT as a tool to guide trauma-informed foster care practices, by obtaining staff and foster parents' feedback on the use of NMT within this specific context. The purpose of the evaluation was also to make improvements to programme delivery as the organisation works towards widespread implementation, consistent with a formative evaluation approach (Atkins et al., 2015; Patton, 2011).

As articulated by Dunkerley et al. (2021), the implementation of new practices within an organisation, in particular a TIC approach, is a complex process that happens in stages and occurs over several years. According to the Implementation Stages Framework (Metz & Bartley, 2012), the different implementation stages include exploration, installation, initial implementation, and full implementation (Bertram et al., 2015; Metz & Bartley, 2012). Under this framework, OHF was in the initial implementation stage, which is considered the most fragile and critical stage (Dunkerley et al.,

2021). In particular, the present study was part of the process of constructing and formalising the use of NMT within OHF, to support streamlining implementation and service processes. The study therefore adopted an action-oriented research approach during which there was a collaborative partnership between the organisation, the researcher, and the university supervisors, to ensure the research was grounded in the practical needs of the organisation (Small & Uttal, 2005).

Positionality. At the commencement of the study I had been employed as a support worker in an OHF residential facility in the North Island, where my relationship with OHF was established. I had also received some training in the NMT. My employment was in a different area of the organisation and the majority of participants involved in this study were unknown to me. My employment with OHF ended prior to the data collection phase of the study (Phase 2) which enabled me to engage with the organisation as a researcher rather than an employee. Due to this relationship, engaging in reflexive practice throughout the present study was important to critically examine my own assumptions and potential biases, in particular towards the NMT model, and its impact on the research process. This process involved frequent supervision and communication with my research supervisors about all aspects of my research design and data analysis, peer review of my research design at an internal confirmation event, as well as discussing my relationship with OHF with the Massey University Ethics Committee.

My presence as a researcher within the organisational system changed the dynamics of the organisation and the way in which a programme was implemented and thus the landscape in which the research unfolded. NMT had been used consistently within OHF for several years prior to this present study; however, the use of the NMT became more intentional, structured, and systemic in response to the present study (see Chapter 4). This was because OHF was interested in how frontline staff and foster parents experienced the programme when adequate resources are put towards its implementation. For two years, as the researcher, I was embedded within the system, with my engagement and the present research study impacting the system, including service delivery processes.

Theoretical Framework

Epistemological orientation. The predominant epistemological paradigm guiding the research was critical realism. One of the main principles of critical realism (CR) is that ontology is not

reducible to epistemology. This means that objective reality exists independent of human perceptions, but that knowledge of this reality is mediated through our perceptions and experiences (Fletcher, 2016). Critical realists assert that although the world (and social world) is theory-laden, it is not theory-determined (Fletcher, 2016), and that objective reality can be approximated by identifying common causal mechanisms and conditioning influences that create patterned effects (Deane et al., 2020). CR is situated between relativist and realist methodologies, emphasising the mediating effect of language and discourse and their ability to determine people's experience of the world, while acknowledging that language is built upon and into material realities.

In contrast with a naïve-inductive approach, the study design recognises the structuring influence of pre-existing evaluation research and trauma-informed care concepts, principles and theories. The research aim was to both seek subjective perspectives on various aspects of the NMT, as well as explore measurable outcomes as measured through standardised approaches. The data was analysed from a position of emphasising the idiosyncratic experiences and social contexts of participants, while exploring common observable realities across stakeholder groups about the use of the NMT within this context. CR also asserts that there may be notable commonalities in the perceptions and experiences of individuals of a particular reality, but these are likely to vary, based on social factors and experiences, leading to different socially constructed realities (Houston, 2010). This effect is particularly relevant for evaluation practice (Deane et al., 2020).

Evaluation research involves the concept of a situated objectivity, where the context and stakeholders involved influence how reality is described, perceived and interpreted. CR can provide a coherent framework for evaluation research, based on the understanding of causal mechanisms within a social context, specifically the mechanisms that explain how an intervention works (McEvoy & Richards, 2003). This understanding leads to an evaluation design and data collection processes that is designed to understand the ways in which stakeholders define reality and programme utility and/or effectiveness, with this knowledge and definitions then used to interpret findings and measure the impact of the programme. For the qualitative component of the evaluation, thematic analysis (Braun & Clarke, 2019) was used to analyse interview data. From this position it was assumed that participants may share elements of a common reality and that thematic analysis of multiple participants' data can

unearth converging and diverse perspectives on a shared reality – in this case of a trauma-informed foster care programme (Topitzes et al., 2019).

Evaluation design principles. The design of this present study was informed by the theoretically integrative evaluation design approach and underlying principles described by Deane et al. (2020). In comparison to using a descriptive or uniform evaluation approach, Dean and colleagues (2020) propose an eclectic evaluation design process that draws on principles and tools from various evaluation models to achieve research goals. A particular focus is placed on valuing stakeholders' experience, values, and perspectives when designing an evaluation and planning for future evaluative activities. Some authors argue that a pluralistic approach to evaluation research enables conducting evaluations that are more useful and robust than if it was derived from a single theory (Bledsoe & Graham, 2005).

Four evaluation design stages are proposed by Deane et al., (2020), based on the principles of programme theory-driven and utilisation focused evaluation, with each stage entailing different aims and priorities. The aims include understanding the actors in the programme environment, prioritising evaluation stakeholders and identifying their information needs, understanding the problem the programme is attempting to address, collaboratively developing a theory of change, as well providing direction for future evaluations (Deane et al., 2020).

The theoretical foundations of the evaluation design approach described by Deane et al. (2020) includes the integration of programme theory-driven and utilisation-focused evaluation within an evaluability assessment framework. Programme theory-driven evaluation is concerned with investigating how programmes produce outcomes (Astbury & Leeuw, 2010), and is useful to uncover mechanisms and mediators of change of a particular programme (Deane et al., 2020). It allows evaluators to investigate the mechanisms of programme effectiveness that enable the informing of practice beyond a single localised programme. As outcome evaluations are designed and tailored to assess set objectives, frequently derived from the interests of funders that may be premature or unrealistic, this approach prioritises using programme theory to guide appropriate and realistic evaluation. In this approach, stakeholder perspectives of how the programme produces change are

prioritised over other information, such as social science theory and research, and used to design evaluation questions and aims (Deane et al., 2020; Donaldson, 2007).

Utilisation-focused evaluation focuses on increasing instrumental utility by involving primary intended users in the design of the evaluation. This approach encourages the involvement of stakeholders in determining evaluation priorities and questions, designing a theory of change, and choosing appropriate methods and measures (Deane et al., 2020; Patton, 2012). It ensures the evaluation design is situationally responsive by working with stakeholders to understand the evaluation or organisational context (Deane et al., 2020).

The theory of change approach described by Deane et al. (2020) is based on the work of Weiss (1997) and Rogers and Weiss (2007). A theory of change is designed to provide an overview of the core considerations of a programme, in order to both identify anticipated programme outcomes and then assess achievement against identified outcomes measures, and is to be revisited frequently as the programme and evaluation context evolve (Deane et al., 2020). The purpose is to depict the stakeholders' voices and opinions of how programmes produce change, elucidating the mechanisms involved that are presumed to drive change, as well as moderators that influence implementation fidelity (Deane et al., 2020). Key elements included are the antecedent conditions, programme participant (client) profiles, critical programme processes, anticipated outcomes, and key moderators (Deane et al., 2020). The antecedent condition and the participant profile describe the problem the programme is designed to address and the relevant target group. They outline the context in which the programme implementation occurs, as well as the needs that the programme is trying to meet. The critical programme processes refer to the mechanisms that inform programme activities and steer the programme toward desired outcomes. Key moderating influences include factors that impact the success of programme implementation. They involve factors that may impede or facilitate programme success, including individual, programmatic or external influences (Deane et al., 2020). Outcomes associated with programme implementation are also included.

Elements of evaluability assessment is also included in their approach, however this was not a core component of this present study. Although it can be considered a pre-evaluation activity (Wholey, 1987), the authors argue that it serves an important formative evaluation function that can

applied at all stages of a programme (Deane et al., 2020). The focus is on increasing an evaluation's feasibility by ensuring an evaluation is carefully planned. This is achieved through directly involving stakeholders in theory development and establishing evaluation priorities (Deane et al., 2020; Wholey, 1987). This notion rests on the idea that evaluation approaches that integrate collaborative reflection increase the likelihood for transformational organisational learning and process use to occur (Deane et al., 2020; Preskill & Torres, 2004).

Methodological limitations. Rather than follow the step-by-step process described by Dean and colleagues (2020), their framework illuminated critical considerations during the design of this present study, and guided my decision-making in terms of what areas of inquiry to prioritise. Remaining situationally responsive and adapting the design to the context was important to ensure the research's feasibility and relevance (Chamberlain, 2000). As a result of the complexity of evaluation practice in real-word contexts, flexible responses that address diverse needs are warranted (Deane et al., 2020).

The evaluation design framework was adapted based on the organisation's needs and priorities, the overall research focus, the exploratory nature of the study, as well as organisational and research capacities and constraints. Limitations and barriers included staff and organisational time capacities, staff member changes, and access to the organisation as a researcher. For example, at the commencement of the study, the exact scope and programme mechanics and activities were not well-defined, and the programme delivery process was not structured. During the planning and intervention stage of the present study, the organisation created a more structured practice framework and procedures in a parallel fashion. Thus, in comparison to more fully integrated programmes, the programme had not had the time to develop rigour, consistency, and structure in the application and implementation process. In the approach outlined by Deane et al. (2020), considerations of an evaluability assessment is incorporated, for example, Deane et al. propose that stakeholders meet multiple times to discuss feedback and that information be synthesised from various evaluation stages prior to determining whether the programme is ready for an outcome evaluation. However, due to time limitations, the scope of the research, and limited access to the organisation, this was not possible. It can be argued that the programme was not ready for a robust outcome evaluation, which is reflected to

an extent in the overall design of the study. However, there was an element of mediation between the organisational context and the research approach, and a preliminary quantitative outcome evaluation was included in order to meet the needs of the organisation. In addition, dissemination of findings and planning for future evaluative activities are included in the approach described by Deane et al. (2020). However due to time limitations of the doctoral programme and the overall research focus, this was not a formal part of this present study.

Phase 1: Evaluation Planning and Scoping

Aims. The aim of Phase 1 was to become familiar with the evaluation context and programme environment, identify stakeholders and their roles, as well as prioritise stakeholders' information needs, based on a participatory evaluation approach (Denzin & Lincoln, 2018). This stage is crucial for the evaluator to understand the evaluation context, specifically in regards to stakeholder relationships and priorities, a critical feature of utilisation-focused evaluation (Patton, 2012) and programme theory development (Gugiu & Rodriguéz-Campos, 2007). The focus of this phase was on exploring the scope of the NMT's implementation within OHF and understand the problem it is trying to address, identify benchmarks for programme success, and identify what evaluation might be needed. This phase also included an initial exploration of the various components of a preliminary theory of change, which was further modified following the completion of Phase 2.

Consultation process. In accordance with the evaluation design principles outlined above (see p. 61-63), and the ground-up approach of the present study, there was a particular focus on involving OHF stakeholders in the design of study. As a result, the consultation process was collaborative and extensive with fortnightly meetings held between OHF, in particular the research liaison and the other clinical staff who were involved in the design and implementation periods (including service delivery) of the study, and myself. A joint meeting also took place between myself, the university research supervisors, and OHF in 2020. These meetings lasted from 60-90 minutes and included discussions regarding organisational values, participant selection, the practice framework, planning therapeutic input, programme details, selecting psychometric measures, establishing programme goals, legal and consent matters, and details regarding service delivery. These meetings and the additional regular communication between myself and OHF, as well as the scoping meeting,

ensured that local knowledge was utilised, the organisation and evaluation context was understood, and the stakeholders were involved in establishing evaluation priorities. This approach was also crucial in ensuring the project was set up in a bi-culturally responsive manner by involving Māori stakeholders in the consultation process. Pathways, challenges, and resolutions were constantly reviewed in this collaborative and community-oriented approach. Entering such a complex system with a large number of gatekeepers and stakeholders on various system levels, with their respective sets of agendas, policies and protocols, meant it was a complex and challenging area to work in that required flexibility, responsiveness, and substantial ongoing communication between myself and OHF.

During the planning and consultation process of the present study, organisational consent was signed to participate in this study. A student research agreement was also drafted and signed between the organisation and the university, to set expectations and clarify the details of the study.

Scoping meeting. An important component of Phase 1 was an evaluation scoping meeting, with key management personnel within OHF. This hui was important in facilitating a discussion with relevant OHF staff in order to establish a unifying evaluation goal (Deane et al., 2020), with a particular focus on utilising local knowledge in a ground-up approach. The initial identification of the programme's antecedent condition and participant profile, as well as other theory of change components occurred at this stage, as well as the factors that may obstruct or facilitate programme success (Deane et al., 2020). The main purpose of the hui was to understand stakeholder needs which formed the basis of the design of the subsequent phases of the present study.

This process involved liaising with OHF's research liaison to select the appropriate staff members to be included in the scoping meeting. The staff members involved comprised a purposive sample, consisting of three participants (n=3) at management level within OHF. These staff members were considered stakeholders in the process of implementing trauma-informed foster care. The inclusion criteria included familiarity with the care and protection context, an understanding of how trauma impacts children in care, and having completed or in the process of completing Phase 1 of the NMT certification process. This was to ensure that staff involved had an in-depth understanding of the principles and operational factors of the NMT. They held insider perspectives on the needs of children

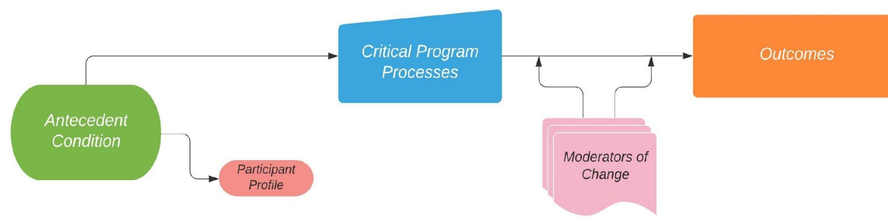
in foster care and how the NMT is used within the organisation. The Māori consultant was an essential participant to ensure the research was carried out in a way that is culturally relevant and sensitive, and to offer valuable insight into the needs of Māori tamariki in the context of foster care and therapeutic practice. Integrating Te Tiriti O Waitangi principles of partnership, protection, and participation into the research procedure was a critical element of conducting safe and responsible research in a bicultural context. The inclusion criteria for the cultural advisor were familiarity with the care and protection system and a basic understanding of the NMT, or how child development and/or neurodevelopment is affected by trauma.

An email was sent out by the OHF research liaison that formally invited identified participants to attend the meeting, with an overview of the purpose of the meeting included in the email. A semi-structured interview guide was prepared in collaboration with the research liaison that detailed the categories that would be covered. In December 2020, the hui was held at the OHF national office in Wellington, to ensure convenience for the participants. Originally two additional participants were invited to the meeting, but were unable to attend on the day. The hui was opened with a karakia, mihimihi, and pepeha or introductions, with kai provided by myself.

Development of a preliminary theory of change. After the meeting I prepared a summary document which included identified stakeholder evaluation priorities and preliminary components of the theory of change. This included the antecedent condition, programme participant (client) profile, critical programme processes, moderators of change, and target outcomes (Deane et al., 2020), as illustrated in Figure 9. This was sent along with a transcription of the stakeholder hui to the meeting participants for review and included an invitation to make any changes or add information the participant might have withheld in the group context. No amendments were made by any of the participants.

Figure 9

Theory of Change



Data from the scoping meeting was summarised into the following categories informed by critical considerations highlighted in the evaluation design approach outlined by Dean et al. (2020): the background to the use of the NMT within OHF; the evaluation context; identified evaluation needs; the NMT programme vision and goal within OHF (that is, the use of the NMT in clinical practice); the scope of the programme's reach; and preliminary theory of change components. The data gathered from this meeting is reported in a descriptive manner, and presented in Chapter 5. The data gathered in this meeting was used to inform the design of Phase 2 of the research study.

Phase 2: Evaluation Data Collection

Aims. Phase 2 of the present study was designed to address the evaluation needs revealed in Phase 1. Phase 1 revealed that OHF was interested in the experiences of foster parents and staff engaging with the NMT in order to further improve the implementation of the NMT within this context. Therefore, the purpose of this phase was to uncover the experiences of programme users in order to further establish the programme's scope and critical processes, understand the implementation process including contextual barriers, and inform a revised theory of change. These aims are consistent with a process evaluation approach (Moore et al., 2015). OHF was also interested in exploring the outcomes associated with the programme, including capturing qualitative data on the outcomes observed (Deane et al., 2020; Royse et al., 2016).

These aims were addressed through semi-structured interviews with frontline staff involved in the NMT implementation programme – relevant OHF social workers and trauma advisors, and the foster parents of the families receiving NMT input; as well as exploring the preliminary quantitative outcomes as a result of programme implementation by administering a pre- and post-outcome

measure. The term 'foster parents' is used in this present study as an overarching term that includes both non-kin and kin carers (at times referred to as 'caregivers'). As Dunkerley et al. (2021) posits, incorporating new programmes that respond to trauma and behavioural needs in young people in foster care into usual practice is a challenging process. Therefore, seeking input from stakeholders on the frontline is crucial to understand critical elements in implementation, including barriers, in order to develop effective practice.

Research design.

Mixed-method design. Based on the focus of the research questions and the organisation's evaluation needs, a mixed-method evaluation design was used, gathering both quantitative and qualitative data at different stages of the research process. A mixed-method research design was based on the theory that the use of a combination of approaches provides a greater understanding of and insight into the research problem than either approach alone (Creswell & Plano Clark, 2018). Mixed methods use a triangulation of methods, which has become a central approach to programme evaluation (Royse et al., 2016). Triangulation addresses the issue of internal validity by employing diverse data sources and methods of data collection to address a research question. Using more than one data collection method has the potential to provide corroboration or reassurance to the research findings (Barbour, 2001).

Qualitative data was selected as the main focus of the study due to the exploratory nature of the inquiry, the programme context, and the organisation's information needs. Obtaining the experiences of stakeholders through qualitative research methods was crucial in understanding the environment in which broad programme implementation will occur and the potential challenges and barriers to systemic implementation. As Dunkerley et al. (2021) notes, interviews are appropriate for action research that seeks to identify programme outcomes and potential improvements in response to the experiences of participants of initial implementation.

To supplement the qualitative data, a small-scale quantitative pilot study was included. Its purposes were to (i) ascertain whether using a trauma-informed model has an impact on common trauma symptomatology found in children, (ii) determine whether there was an increase in positive behaviours and other strengths-based outcomes, and (iii) enable some conclusions about the efficacy

of the NMT within the foster care context in NZ. This phase was also designed to explore potential outcome measures and targets that can later be used within OHF and other similar organisations to track progress and inform future programme evaluation.

Participants.

Selecting families to receive NMT programme input and engage in the present study. Selecting appropriate families to be involved in the study were done by the OHF research liaison, another staff member who held a national-level clinical role, and other staff from the relevant regional office. The families involved were selected primarily based on their geographical location and the regional service centre that they received support from, as well as the families' needs and capacities. Five families (six children) were selected by OHF based on organisational resources and capacities, and subsequently received an NMT assessment and NMT-based therapeutic care as described in Chapter 4. All the families resided in the South Island of NZ, in both rural and urban settings. One family withdrew from the study after the NMT-informed interventions had been in place for five months. This withdrawal was due to the family feeling that they were too busy to engage in the regular NMT sessions with the trauma advisors as well as the research interview. Further feedback was sought from the family but not obtained. Although it would have been useful to hear the participants' feedback on why they felt the programme required too much of their time and attention, no qualitative or follow-up quantitative data were gathered from these participants. The demographics of the final sample of families (n=4) receiving therapeutic care based on the NMT programme is outlined in Table 3. The foster parents included in this table are the foster parents that engaged in the participant interviews (see p. 72).

Table 3.

Demographic Characteristics of Children and Foster Parents across Four Families

Demographic characteristics	Children (n=5)	Foster parents (n=5)
Mean age at study entry (years)	8 years 10 months	
Gender		
Female	2 (40.0)	4 (80.0)
Male	3 (60.0)	1 (20.0)
Ethnicity (prioritised response)		
Māori	1 (20.0)	
New Zealand European	4 (80.0)	5 (100.0)
Foster family constellation		
Non-kin placement	3 (75.0)	
Whānau placement	1 (25.0)	
Mean length of foster caregiving experience (years)		4.5

Values are expressed as count and percentage

The regional service centre was initially approached by the primary research liaison to consult whether it would be an appropriate site for the research activities. Due to the number of children in OHF's custody from that region, the support and expertise of the site manager, and the enthusiasm of the social workers, this particular site was selected as the partner site to conduct the research with. Potential families were considered and preliminarily selected by the research liaison and the site manager to participate in this present study. A meeting to discuss the present study was subsequently organised with the regional office in February 2021 during which the social workers involved with the selected families, the site manager, the national trauma advisor were present. Although regional travel was suspended due to Covid-19, I joined the meeting over Zoom. During the meeting the OHF trauma advisor reviewed the NMT model with the social workers. A rating system was used to ask the staff how familiar they were with NMT before and after the meeting. I then explained the present study in depth and gave staff the opportunity to ask any questions.

The foster families identified by OHF were subsequently approached by the foster care providers, normally by the relevant social worker or trauma advisor, dependent on the nature of the

relationship. Foster parents who expressed their interest were then given information and details about the NMT programme, as well as the study via email. An opportunity was given for any questions to be asked before consent to participate in an interview was obtained.

Although OHF held additional guardianship over the children involved in the study, consent from the children's biological parent or additional legal guardian was also sought as required by OHF protocol. This process was a significant challenge, as many biological parents had limited rights in terms of access to their children. Although the research did not directly involve the children, and their involvement in the NMT programme was not outside routine practice, data was being collected about their well-being and functioning, thus gaining consent became an ethical matter rather than a legal one. This process involved the case social worker contacting the biological parents to explain the purpose of their child's involvement in the study; if the parents were in agreement in principle, they were given a participant information sheet and consent form (see Appendix G and H). One of the biological parents was given the wrong consent form (the individual consent form instead of the consent form for their child). Following consultations with my research supervisors, consent was therefore followed up by the social worker to ensure the parent had the correct information and gave consent for their child to be involved in the study. A record of permission was consequently obtained via text messaging and passed on to me for my records. Another parent was only able to provide verbal consent recorded by the social worker due to technological difficulties in returning a scanned document. Two of the initially identified child participants were withdrawn from the study as their parents declined to provide consent, for unknown reasons (not included in the final sample of five children, as described below). In this instance, it is my understanding that the children still received an NMT report and recommendations, in accordance with OHF practice, but their foster parents were not interviewed and their outcomes were not tracked as part of the research study.

The foster parents who agreed to participate in the study were then invited to a meeting organised by OHF's clinical support team (national and regional trauma advisors). I was able to attend one of these meetings where foster parents were given the opportunity to ask any questions regarding the research study and process. This meeting was also used by OHF trauma advisors to plan the NMT

programme implementation and obtaining foster parents' feedback as to what they might find useful during the months that followed.

Participant interviews. Qualitative interviewing provides a method for collecting rich and detailed information about how individuals experience engaging with the NMT as an approach to trauma-informed foster care. Using purposive sampling (Merriam, 1998), a number of foster parents from the families that were involved in the NMT programme (n=5), as well as the frontline social workers (n=2) and trauma advisors (n=2) that worked closely with the families in delivering the NMT-based programme, engaged in semi-structured interviews as part of this present study. These various participant groups were selected in collaboration with OHF to address the research aims. Initially, it was planned to conduct interviews with the social workers and foster parents, however to increase the sample size and obtain diverging perspectives on the programme, it was decided to include the trauma advisors involved with the families as well. The inclusion criteria for foster parents were having a foster child under the statutory care of OHF, being an OHF-approved foster parent, and being engaged in the NMT programme. For OHF staff (social workers and trauma advisors) the final inclusion criteria were being an OHF employee, having a basic understanding of the NMT and TIC, and being the case worker for a child involved in the NMT programme implementation. A total of eight interviews were completed involving nine participants (n=9). At least one foster parent per family was interviewed, however one interview involved both the husband and wife.

Interviews with participants were scheduled after a period of five to seven months during which programme implementation occurred, at a time convenient for each participant. Interviews were planned to be held at a place convenient to participants, usually in their home in the case of foster parents, or at the OHF offices in the case of social workers and/or foster parents. However, due to prolonged national and regional Covid-19 lockdowns, the interviews were held over Zoom as set out in the original contingency plan.

Semi-structured interview guides (example included in Appendix N), reviewed by the research supervisors and OHF research liaison, were used to guide the interviews. The semi-structured interview protocol was designed to elicit feedback from participants structured in four broad areas based on evaluation aims: (1) the antecedent conditions and the needs of foster families; (2)

compatibility and critical processes involved using the NMT; (3) moderators to successful NMT implementation; and (4) benchmarks for programme success and observed outcomes. The topics and questions selected were based on information gathered from multiple meetings with OHF during evaluation scoping phase (Phase 1), the evaluation principles outlined by Deane et al. (2020), as well as research literature on trauma-informed foster care practices and the NMT. Topics included foster parents' expectations and needs, feedback on the assessment process and therapeutic interventions, OHF's therapeutic practice framework, strengths and weaknesses of the NMT, implementation processes, culturally-responsive practice, observed outcomes for the child and family, support, and training. Interview questions were adapted according to the role of the participant.

In line with an exploratory semi-structured approach, it was important to ensure that participants felt comfortable sharing their experiences and perspectives. Therefore, although categories of discussion were predetermined and prepared, it was important to remain flexible and open to other topics of discussion as they arose organically. The interviews were recorded and transcribed with a copy provided to the participants, allowing for any amendments that needed to be made.

Outcome measure. The quantitative component of Phase 2 provided additional clinical and quantitative information in the process of developing a theory of change and was considered to be a preliminary outcome evaluation. The outcomes of the five children (n=5) from the families involved in the NMT programme (Table 2) were tracked as part of this phase. This process involved the administration of a psychometric measure, completed by a foster parent of the children involved in the NMT programme (the same foster parent who was interviewed during participant interviews), about the functioning of the child/children in their care. These children had had experiences of early childhood adversity and were in the care of foster families as their home environments were deemed unsuitable to live in, for a variety of reasons. The demographics of the children involved in this present study were not reflective of the wider population of children in care; about 50% of children in care are of Māori decent, compared with only 20% of the children represented in this study. The inclusion criteria for the children involved were being under the statutory care of OHF, and having

received an NMT assessment and NMT-informed therapeutic intervention plan as part of the NMT programme.

The measure was administered pre-intervention, and again at five to seven months follow-up (around the same time the participant interviews took place). The initial administration occurred at the start of the intervention period before an NMT assessment was conducted, and recommendations were made by the OHF trauma advisor, with the psychometric measure being given to the foster parents by the relevant social worker or trauma advisor. An invitation was extended to social workers and foster parents to contact me if they had any questions about the psychometric tool. A window of five to seven months was chosen for follow-up to fit the constraints of the Doctor of Clinical Psychology degree, as well as to ensure consistency in the follow-up time frame due to the often unpredictable and transient nature of foster care placements. The follow-up administration of the psychometric tool occurred via email, with the questionnaire being emailed to the foster parents by myself to complete at their convenience.

A single group pre-test/post-test pre-experimental design was used. Aside from ethical considerations, there were several practical considerations that prevented a more rigorous study design, for example, an RCT. Factors included the early stage of programme implementation, logistical barriers within the programme setting, and time constraints within the doctoral scope of the research. The purpose of this study was therefore not to be a tightly and rigorously controlled experimental study, but rather a pilot study that considered preliminary outcomes in order to evaluate the utility of the programme within its specific context.

Measure. Following a consultation process with the OHF clinical staff during Phase 1 of this present study, as well as additional consultation with a researcher from the Neurosequential Network, the Short-Form version of the Assessment Checklist for Children (ACC-SF) was used to track preliminarily outcomes. The supplementary checklist of the ACC, the Assessment Checklist for Children Plus (ACC+) was also included due to a strength-based approach being an important organisational value within OHF.

The Assessment Checklist Series was created by Tarren-Sweeney (2014) and includes a range of standardised caregiver-report measures of attachment and trauma-related mental health

symptomatology, specifically for children growing up in foster, adoptive, kinship, or residential care. It was created in order to measure mental health difficulties often manifested by children in care who have histories of trauma that is considered not adequately measured by other symptom checklists, for example, the Child Behaviour Checklist (CBCL). The ACC and Assessment Checklist for Adolescents (ACA) are empirically derived psychiatric rating scales based on caregiver reports, designed to assess problematic behaviours, emotional states, and relational challenges experienced by children in foster care or other population groups exposed to trauma. The series includes the ACC (children aged 4-11 years), the Assessment Checklist for Adolescents (ACA) (children aged 12-17 years), the Brief Assessment Checklists (BAC), the ACC/ACA-Short Form (ACC-SF/ACA-SF), and the supplementary Strength Checklist (ACC+/ACA+). Each of these forms has a boy and girl version. It was initially developed for epidemiological and clinical research, but is also used for clinical assessment and screening (Tarren-Sweeney, 2014). The 44-item short form of the ACC (ACC-SF) was developed primarily for use as a research instrument and as a relatively brief treatment monitoring measure, the BAC for initial mental health screening, and the full version of the ACC for comprehensive mental health assessment (Tarren-Sweeney, 2014).

On the ACC-SF, total scores of 14 and above (sum of item responses) constitute a clinical range that is highly predictive of psychiatric impairment, with total scores in the 9-11 range constituting a sub-clinical elevated range, indicating a moderate likelihood of psychiatric impairment (Tarren-Sweeney, 2014). The ACC-SF measure common symptoms across nine clinical scales: sexual behaviour, pseudomature interpersonal behaviour, non-reciprocal interpersonal behaviour, indiscriminate interpersonal behaviour, insecure interpersonal behaviour, anxious-distrustful behaviours, abnormal pain response, food maintenance behaviour, and self-injurious behaviour.

As attachment and trauma-related symptoms are often stable over a short-medium term, frequent administration of an outcome measure like the ACC/ACA is unlikely to reveal dramatic changes, with change being more reliable long-term (12-month intervals) (Tarren-Sweeney, 2014). Due to the time constraints of the Doctorate of Clinical Psychology programme, the ACC+ was therefore added as a supplementary measure, as an increase in positive behaviour is likely to occur before a reduction in negative behaviour (Tarren-Sweeney, 2014). Early signs of therapeutic recovery

might be more accurately detected through the emergence of "green shoots" adaptive behaviour (Tarren-Sweeny, 2014, p. 19). The ACC+ is a 29-item carer report that measures adaptive pro-social functioning and well-being and can be used for treatment monitoring of children aged 4-17 years (Tarren-Sweeney, 2014). The items are scaled in order to detect minor changes or improvements in the mental health of children in care, that is, being more sensitive to therapeutic change than deficit-oriented psychometric measures. Total scores for both the ACC-SF and ACC+ are calculated by summing up item responses. For the sake of simplifying interpretation due to practical and time constraints, and the primary qualitative focus of the study, only the total scores of the ACC-SF and ACC+ were incorporated into the analyses.

Previous research on the ACC and ACA have been shown to have good content, construct and concurrent validity, supported by high correlations of ACC and CBCL total clinical scores (ACC - boys: r = .89; girls: r = .90; ACA - boys: r = .90; girls: r = .88) (Tarren-Sweeney, 2014). The ACC's and ACA's internal consistency reliability was strong (Cronbach's alpha total clinical score = .96 for both the ACC and ACA and ranged from 0.70 to .90 for clinical scales) which is comparable to that of the CBCL and Connor's Parent Rating Scale. The internal reliability of the short form total score (44 items) was alpha = .92 for the ACC and alpha = 0.91. In addition, the reliability for the ACC+ has been found to be good (α = .85 – .88) (Tarren-Sweeney, 2014). A systematic review of psychometric tools available for the assessment of developmental trauma in children and adolescents by Denton et al. (2017) found that, although requiring further validation, the Assessment Checklist questionnaires were considered to be promising psychometric tools in assessing the functioning of children with trauma. While the ACC/ACA measures may offer enhanced screening and monitoring of the mental health of children in care, there is a need for their psychometric properties to be further established as it has only been evaluated with an Australian population sample, with normative data presently limited to children in foster care aged 5-10 years (Denton et al., 2017).

The ACC series was selected over other measures due to its trauma-informed approach, the wide age range it is appropriate for (4-17 years), its New Zealand roots (its author is a professor and clinician based at the University of Canterbury), the parent-report format to avoid contact with the children, and the accessibility of the tool. In order to become a registered user of the ACC, I emailed

the author, who provided me with approved access and supplementary resources. The ACC was used over the SDQ (Goodman, 2001), which is widely used in developmental and child welfare research, as some researchers (Browne et al., 2019; Goemans et al., 2018) argue that the SDQ and other standard child mental health checklists such as the CBCL (Achenbach, 1999), have limited content validity for certain groups. It is argued that they are not fully representative of the unique presentations of children in care, and may therefore fail to identify children who require clinical services (Tarren-Sweeney, 2014). Goemans et al. (2018) suggest that in addition to standard mental health psychometric measures such as the SDQ and the CBCL, the initial and routine assessment of children in foster care should include measures of attachment- and trauma-related difficulties, characteristic of this population.

Reflexivity. The role of reflexivity is an important consideration in qualitative research projects to mitigate against inadvertent researcher bias that may affect data collection or interpretation (Dodgson, 2019). Reflexivity measures in my research included keeping a research journal, where entries ranged from daily to monthly, depending on the research phase. My research journal often contained writing and records based on recommendations by Guba and Lincoln (1982) on what to include in reflexive journals: a record of evolving perceptions; day-to-day procedures; methodological decision points; and personal introspections. Reflecting on uncertainties, exciting moments, disappointments, and other emotions elicited during data collection were also included. Further, the journal was used to reflect on my role as researcher and my position within the specific research context, my personal biases, and complex OHF organisational dynamics (Janesick, 1998).

As qualitative research is often fluid and dynamic in nature, working with an external organisation with its own set of policies, procedures, agendas, and rhythms came with significant challenges, both in a practical sense, and in terms of the wider research process. The process often required a significant amount of flexibility in adhering to a ground-up approach that centred on the priorities of the local context. Balancing this responsivity whilst striving for research rigour required careful and attentive reflexivity processes, which I aimed to achieve through the research diary and frequent meetings with my supervisors.

Data analysis.

Participant interviews. Although the qualitative data in Phase 2 was predominantly approached inductively and from an exploratory perspective, the interview data analysis process drew on both deductive and inductive elements. The data was analysed using reflexive thematic analysis, in particular Braun and Clarke's (2019) six-step circular process of thematic analysis, as outlined in Table 4, to identify and construct the main themes emerging from the interviews. After transcribing the interview data, I further familiarised myself with the data by reading and re-reading the transcripts and interview notes. Initial inductive codes with corresponding extracts were generated and used to construct themes pertaining to the experiences of foster parents, social workers, and trauma advisors. Emergent themes and subthemes were reviewed multiple times to ensure an accurate reflection of the data set was captured. This process also involved having my research supervisors review large excerpts of the transcribed interviews and provide feedback on the themes constructed. Several discussions followed to review themes and work through potential tensions in how to report the findings reliably. This process was helpful in ensuring the narrative of the data was captured and presented accurately.

Table 4

Braun and Clarke's Six-Step Process of Reflexive Thematic Analysis

Phase	Description
1. Data familiarisation	Transcribing data, reading and re-reading transcripts, notetaking.
2. Coding	Coding data systematically across the entire data set, collate relevant text excerpts.
3. Constructing initial themes	Organise and collate codes into candidate themes.
4. Reviewing and developing themes	Review themes, ensuring the data relate to a central organising concept, generating a 'thematic map'.
5. Refining, defining and naming themes	Generate definitions and names of themes, work out the scope of each theme.
6. Write-up	Final stage of analysis, weaving together data extracts.

Outcome measure. A paired sample t-test that compares means from the same group at different times was used to analyse the quantitative data obtained from the ACC-SF and ACC+. Baseline data was summarised using standard descriptive statistics including means and standard deviations as appropriate. Cohen's classical formula was utilised to calculate effect sizes (ES), where

values of 0.2, 0.5, and 0.8 are designated as small, medium, and large ES, respectively (Cohen, 1992). This method was used to establish whether significant improvement occurred. Results were also presented individually to gain a more meaningful understanding of effects due to the small sample size of the study.

Ethics

The stakeholder scoping meeting (Phase 1) was evaluated by the research supervisors and judged to be low risk. A low risk research project is one in which the nature of the harm is minimal and no more than is normally encountered in daily life. A low risk notification (4000023528) was logged through the Human Ethics online system. At an audit meeting held in May 2021, the present study was selected by the Research Ethics Office for review by the chair of the Massey University Human Ethics Committee. The chairs provided feedback from the audit and confirmed that the notification was deemed as meeting low-risk criteria.

Ethics applications for Phase 2 (participant interviews and quantitative data) were reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 20/62.

Chapter Four: The Practice Framework

This chapter describes OHF's trauma-informed practice framework at the time of the present study. The information presented in this chapter was gathered in the planning phase of the present study, including the scoping meeting, as well as during multiple meetings, conversations, and written correspondence with various OHF staff, in particular trauma advisors, during the programme implementation period. Although some information presented in this chapter can potentially be considered as part of the research findings, it was included at this point to keep the findings from the formal data collection phase separate to improve clarity and maintain the focus on the data obtained during participant interviews, guided by the research questions. The chapter commences with a brief note on the term trauma-informed foster care, followed by a description of the organisational context and practice framework, as well as an overview of the clinical application of the NMT within the organisation. Lastly, an outline is provided of the therapeutic support and input received by families involved in the present study, in the form of brief case descriptions.

Organisational Context

Trauma-informed foster care terminology. The use of the NMT in OHF's practice framework is not a structured TFC programme, but rather a clinical problem-solving tool that facilitates TIC in the foster care context. Specifically, the focus is on making existing family-based foster care placements more trauma-informed and therapeutic, rather than referring children to a specific, structured TFC programme. As the trauma-informed approach implemented within OHF and in this study and is not a manualised programme, the more inclusive term of trauma-informed foster care is used over TFC within the organisation. Non-clinical TIC interventions can be implemented and executed by practitioners working outside formal clinical contexts, for example, social workers, as well as foster or kin carers (Lotty et al., 2021), and is thus more appropriate within this context. The approach used in this context seeks to weave models of clinical practice and TIC into the parenting of children in family-based foster care. Nevertheless, significant overlaps exist between the application of the NMT programme and TFC practices.

Overview of context. OHF is still in the early phases of developing and establishing a therapeutic practice framework within the organisation. This process can be complex and time-

consuming and happen over several years of systematic implementation, training, research, and resource allocation (Dunkerley et al., 2021). Trauma-informed foster care was initially implemented in OHF in order to increase the longevity of placements. Following consultations with a range of internal and external advisors, the NMT was then selected as an appropriate model to lead TIC efforts. OHF believed the model and approach was appropriate to the context as well as consistent with organisational values.

OHF's therapeutic response is based on the understanding that the children in their care have experienced significant trauma and/or are likely to have been denied important developmental and/or relational experiences, therefore requiring opportunities for recovery within a positive relational context. Children's behaviours are considered within the context of developmental trauma; for example, behavioural problems are understood as coping mechanisms in response to trauma or a way of communicating trauma-based needs, rather than deliberate acts of disobedience, disrespect or manipulation. Consequently, a focus is placed on training staff and foster parents to adopt a trauma-informed approach and other specialist skills to meet the needs of children.

Foster parent training. Foster parents are required to engage in around 20-24 hours of training prior to entering the role, involving psychoeducation and practical skills development in relation to trauma-informed parenting. The training is based on the principles underpinning the NMT and comprises six modules: Culture, Relationship, Experience, Attachment, Trauma, and Environment (CREATE). The Culture module emphasises the importance of cultural connections for children in care and foster parents' role in supporting strong cultural identities. The Relational module focuses on attachment, with relationships being foundational in healing from trauma. The Experience module centres on critical positive experiences needed for optimal brain organisation. The Attunement module focuses on trauma-informed behaviour support. The module on Trauma involves psychoeducation on the impact of complex and transgenerational trauma, whilst the Environment module encourages an understanding of environmental factors that impact a child's internal state and associated behaviours.

Practice principals. OHF as an organisation ascribes to a trauma-informed, culturally-responsive, strengths-based, relationally-orientated, and biopsychosocial therapeutic practice approach. This approach emphasises the importance of considering the current and historical context

in which the child is embedded, to ensure therapeutic interventions are individualised and adapted. It places a focus on the relational resources and strengths of the surrounding systems, including the child or young person's culture and its role in building resilience and ameliorating the effects of trauma (Frederico et al., 2019). OHF approaches assessment and intervention planning from the evidence-informed assumption that flexibility is required in order to meet the needs of not only a heterogenous client group, but also families with frequently changing circumstances (Dunkerley et al., 2021).

Based on these organisational values and practice principles, NMT was identified as an appropriate model to guide TIC within OHF. Reasons for NMT's relevance were several: its responsiveness to children of different ages and developmental stages; NMT assessment and interventions not only considering children's vulnerabilities, but also their strengths and history of positive experiences; the capacity of the NMT to adapt when placement situations or access to relationships changed; and lastly, NMT's emphasis on the need to work with the entire system surrounding the child (family, school and/or community) when structuring interventions (Perry & Hambrick, 2008).

The use of the NMT within OHF. The NMT was first introduced in OHF in 2016, with its application and implementation being steady and systemic over the next seven years. OHF is NMT site certified, with the process described on page 83. Up to this point, the NMT has been used in three principal ways:

1. Applying NMT principles in drafting the in-house foster parent training programme, CREATE (described on p. 81).
2. Training staff in NMT Phase I. At mid-2023, three current staff members were certified, with 10 more in the process of completing their training.
3. Forming the basis of clinical and therapeutic support, which includes using the NMT assessment metric in practice, as well as of clinical advice by national and regional clinician's (also referred to as trauma advisors within OHF), to staff and foster parents around the country.

According to Hambrick et al. (2018) there are five distinct stages of NMT exposure and certification within an organisation. The first stage is baseline or 'pre-NMT'. The second stage is

referred to as ‘intro-NMT’ which occurs after a senior clinical leader has been introduced to the NMT by either direct in-person training or the Neurosequential Network’s multimedia materials or case-based webinar series. During this stage, an organisation learns more about the applicability of the NMT approach within the organisation and assesses the value of formal NMT certification to the organisation. The third stage is the beginning of formal NMT certification. Phase I is the manualised curriculum (described on p. 44-45), which is completed by a number of clinical or management staff during this stage. After a number of staff have completed Phase I certification, an organisation will typically identify a group of senior staff or clinicians to become internal NMT Trainers. At this point the site then enters Phase II/TTT (train-the-trainer) of the certification process, which forms part of the fourth stage. The fifth stage is the Maintenance Phase during which the site creates a ‘sustainability’ plan, outlining their systemic and internal processes for ongoing training and support structures. A focus is placed in this phase on NMT capacity-building within the organisation, which may include facilitating a Phase I certification process for non-certified clinicians. The focus of capacity-building is for clinical and frontline staff to become knowledgeable in key areas, for example, foundational principles of neurodevelopment, the global impact of maltreatment on the developing child, attachment and bonding, basics of self-regulation and regulatory strategies, self-care practices, and interpersonal communication skills (Hambrick et al., 2018).

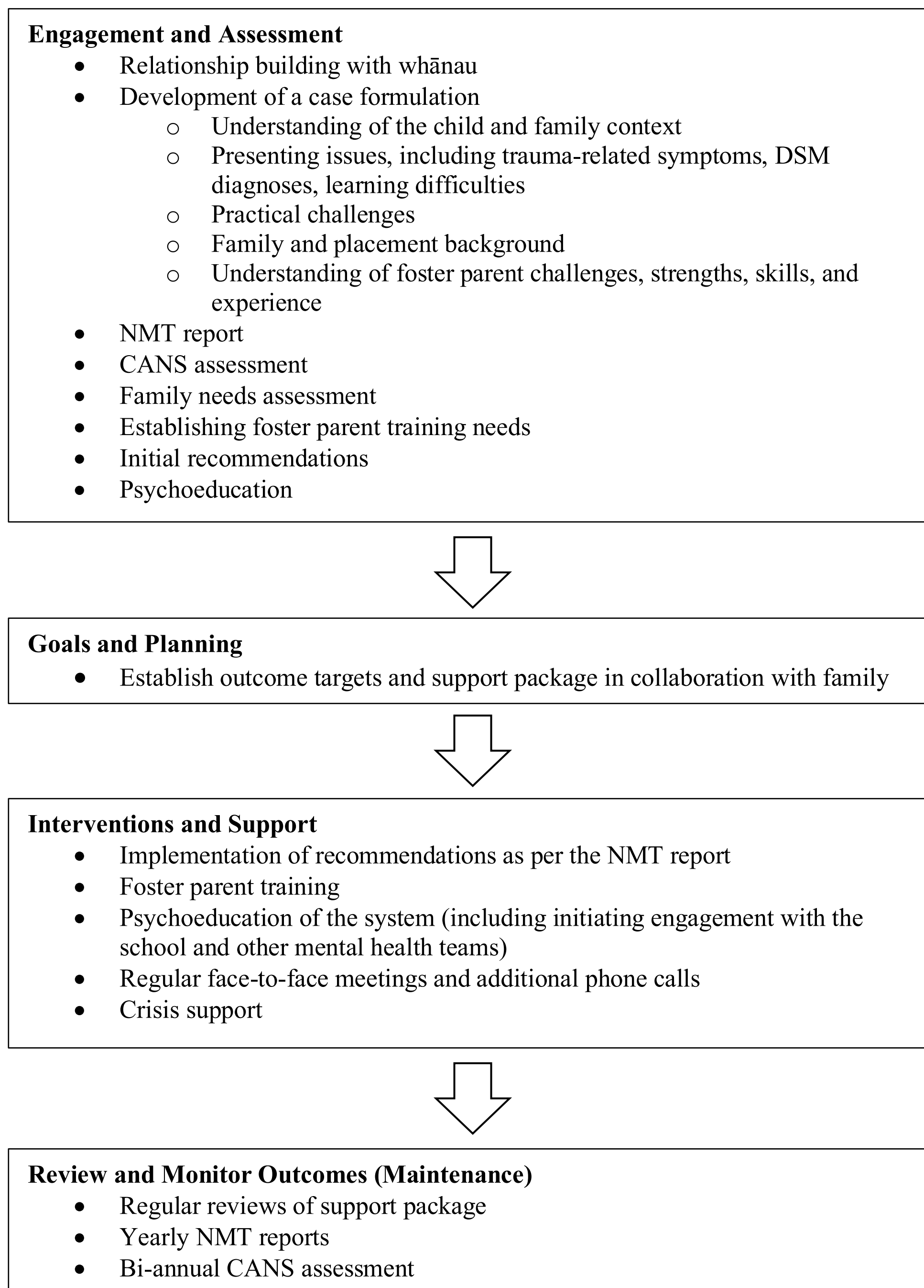
Within this framework, at the time of this present study, OHF was in the fourth/fifth stage, as a small number of senior clinicians were completing Phase II/TTT, while approximately 10 staff were in the process of completing Phase I certification. The processes and systems for ongoing training and use of the NMT within OHF’s therapeutic practice framework were emerging, with this present study playing a role in that process.

Clinical application of the NMT. The application of the NMT in the context of OHF is described below, with the basic elements of the clinical practice process outlined in Figure 10. The implementation framework involves a range of staff members, including child social workers, foster parent social workers, and trauma advisors. The trauma advisors are NMT-certified practitioners and are responsible for completing the NMT assessment and therapeutic plans. The implementation of plans is done in collaboration with foster parents, and supported by the social workers (who usually do

not hold formal NMT certification). The families involved in the present study received input as described below. As this practice process is evolving over time, the outline is simply a snapshot of how the NMT was used within the organisation at the time of the research. The clinical practice process (see Figure 10) is not a linear process, with the various phases interacting in a dynamic and often cyclical manner, involving the concurrent use of multiple modalities within various parts of the ecological system. It is my understanding that the way in which the NMT was applied in practice during this present research, as described below, had not been consistently rolled out across the entire organisation. Instead, it is a reflection of how it was used with the selected families for the duration of this present study.

Figure 10

The Clinical Practice Process within OHF



Engagement and assessment. After a referral has been made from social workers to regional trauma advisors, engagement between the trauma advisor and foster parents or family is initiated and a relationship is established. The assessment process includes gathering current and historical information about the child and their context, producing a NMT metric report and functional brain

map, and considering the context, capacity, and resources of the foster family. In addition, the Child and Adolescent Strengths and Needs (CANS) assessment (Lyons et al., 2004) is a tool that is routinely used in OHF as part of their assessment practices. The CANS is a functional assessment used in child and welfare services to plan and monitor services based on the strengths, needs, environment and context of a child in care. It is designed to be used as either a prospective assessment tool for decision support during the process of planning services, or as a retrospective assessment tool based on the review of existing information, to use in the design of service systems (Lyons et al., 2004). The CANS consists of dimensions that are areas of either need or strengths, with each rating based on the child's functioning over the last 30 days. Each dimension is rated on a 4-point scale after routine service contact by social workers, a semi-structured interview, or a review of notes from case files. At OHF, every social worker is trained in using the CANS and every child is expected to have an updated CANS every six months in order to meet relevant care standards.

Alongside the assessment procedure, this stage also involves initial psychoeducation with families on the effects of trauma on the brain and how the child's challenges or behaviours can be explained within this framework. The length of this stage is dependent on practical challenges, including the time capacity of foster parents and trauma advisors. The NMT report and other assessments may be completed in one or two sessions, or occur over several sessions.

Goals and planning. This stage involves establishing goals and integrating assessment information to produce a therapeutic intervention plan that considers the heterogeneity of the client group, their frequently changing circumstances, as well as the nature of their placement. The therapeutic plan is based on assessment results, clinical judgement, and the identified needs and wishes of the family and child. It is also closely linked to the available resources within the geographical location.

Interventions and support. Involving social workers, the third stage includes the application and implementation of recommended interventions tailored to the individual needs of the child and family. The movement between this stage and the previous is often fluid as the needs and goals of the child or family shifts.

The NMT practice tool provides child-focused recommendations from a range of evidence-informed interventions and strategies, structured within a range of functional domains. For example, for a child who suffered severe and global developmental insult due to neglect and abuse, and presents as severely dysregulated, their NMT report might indicate that all functional domains require essential intervention as they are developmentally and functionally compromised. Conversely, a child who possesses the capacity for self-regulation but is distressed by traumatic memories, the tool will likely suggest cognitive behavioural and insight-based interventions (Jackson et al., 2019). A key component is integrating the neurodevelopmental principle of providing sufficient patterns and frequency of experiences that can activate and influence brain regions that are mediating the dysfunction (Barfield et al., 2012). The sequencing, timing and frequency of interventions are carefully designed within the NMT framework.

Although child-focused interventions are a key component of the NMT recommendations, a large focus of the interventions is targeted at dyadic (the relationship between the foster parent and the child), family and/or systems work. This focus is based on the understanding that a child's development requires positive relationships (Perry & Hambrick, 2008), which is also the site of change. The approach considers the multiple systems in which the child or young person is embedded, and their interactions with each other, and offers the clinician a choice of multiple points of intervention. A large focus of the therapeutic work is thus on enabling other adults, such as family, foster and kin carers, and teachers, to respond and interact with the child in a therapeutic manner when the child is dysregulated, disconnected or distressed. Focusing the intervention on the primary caregiver and other adults in the therapeutic web might offer the greatest opportunity for change, rather than or in addition to direct individual therapy with the child or young person. Work with the caregiver and other adults includes an emphasis on psychoeducation, utilising NMT materials provided by the Neurosequential Network. At OHF, the trauma advisor and social worker work closely with the system in which the child is embedded to create more trauma-informed environments through providing intentional and intensive wraparound support. This process include involving the school. The focus of the programme is to provide structure and consistency within the wider

therapeutic web or system and does not focus exclusively on modifying the child's problematic behaviour. More detail is provided on page 88 and 89 on the use of therapeutic interventions at OHF.

The amount and frequency of support offered by the trauma advisors and social workers varies across families. Generally, routine weekly or fortnightly sessions are held between the foster parents and trauma advisors, with the social workers often included. These meetings alternate between in-person sessions and phone calls, and are designed to support the caregiver in the implementation of the clinical intervention plan and discuss the challenges foster parents are facing. The level and frequency of support the foster parents require is determined in collaboration with the foster parents and OHF's clinical support team, based on the foster parents' needs. The trauma advisors are also available during office hours should the family need extra or crisis support, and on-call social workers provide after-hours support.

Clinical components of the therapeutic model adopted are broadly structured using a CREATE planning tool, which can be found in Appendix B. The name and structure is based on OHF's foster care training which is underpinned by NMT principles and adapted to the local context. These therapeutic plans include the challenges and needs of the child and family, and the corresponding recommendations in five core areas.

Culture. This component involves: psychoeducation on cultural, historical, and intergenerational trauma; focusing on healing through the building of cultural and ethnic identity; prioritising connection to family and whānau; and the therapeutic use of music and movement.

Relationships. This component of the therapeutic plan involves: psychoeducation on key NMT teachings on attachment and relational connection, such as reward neurobiology and reward-based behaviours; facilitating attachment between foster parents and children; and implementing therapeutic touch interventions.

Experience. This includes: psychoeducation on memory and learning; the effects of neglect, sexual abuse, and violence, as well as neuroplasticity; integrating formal therapy and medication; and incorporating breath work for regulation.

Attunement. This component involves: behavioural support interventions; psychoeducation on the stress-response system (hyperarousal and dissociation); strategies for self-regulation and co-

regulation; psychoeducation on the principle of 'regulate, relate, reason', 'connection before correction', and compliance versus engagement; and engaging in other external training, for example trauma-informed crisis intervention and collaborative problem solving (CPS) training.

Trauma. The final element of the therapeutic plan incorporates psychoeducation on NMT principles, including the importance of the first 1000 days on brain development, the social brain, neuroplasticity, types of trauma (e.g., secondary trauma and complex trauma), sequential brain organisation, the autonomic nervous system, the way in which trauma impacts the body, and state-dependent functioning.

The following section examines how these therapeutic plans were practically applied to the families involved in the study.

Reviewing and monitoring outcomes. The last stage involves follow-up assessment procedures to review progress, monitor outcomes, and amend therapeutic targets to ensure the therapeutic activities remain relevant and appropriate. This includes producing a follow-up NMT metric and brain map annually, as well as updating other assessment measures used, for example, the CANS assessment. It also includes regular communication with families to gather feedback to ensure their needs are being met.

Case Descriptions

In order to create context around the families that were involved in the study, a brief description of the children and the therapeutic input that was provided during the course of the programme will be presented below. It is not an exhaustive description of interventions used, but highlights some of the main components of the therapeutic input. A total of five children across four families were involved. In order to maintain anonymity, names and other identifying details have been altered.

Case 1: Jack[2].

Background and demographics. Jack is an 8-year-old Pākeha boy. He lives with his biological sister, Anna (Case #2) with a foster family in a rural region in NZ.

[2] pseudonym

Trauma history. Jack's early development, including in utero, was marked by significant maternal stress, neglect, physical violence in the home, and the absence of his father.

Placement history. Jack was unable to remain in the care of his parents and was consequently moved to temporary OT caregivers when he was a toddler. After a short period he was placed with previous OHF foster parents until he was approximately five years old, then permanently placed with his current foster parents. He has remained in their care for the last three years. Jack and Anna have been the family's first and only foster placement.

Assessment process. When the trauma advisor initially started engaging with the foster family, it was clear that the family was in crisis and the risk of placement breakdown was high. This was due to the foster parents' difficulty in managing Jack's extreme and violent behaviours. The NMT assessment report was therefore completed over several sessions due to the family requiring immediate crisis intervention support and having limited capacity to engage in a full assessment process. Additional to the NMT metric, a play preferences assessment tool was used, which is a commonly used tool within OHF to review the child's play preferences using data from child observations and feedback from family, teachers and therapists. Each form includes a somatosensory preference, self-regulation and relational checklist, and is used to select relevant and appropriate therapeutic activities.

Identified challenges and strengths. There were a number of primary challenges that resulted in significant family stress. This included frequent violent outbursts and episodes of dysregulation, ADHD-like symptoms and severe anxiety (for which he was treated by the local Child and Adolescent Mental Health Service [CAMHS]). Several strengths were also identified in Jack, such as good physical health and well developed gross motor skills. Trauma advisors reported that when he is calm, Jack can show a strong level of empathy and is described as a very social child. He also thrives when provided with opportunities to engage in purposeful activities, such as helping out with jobs around the house.

Interventions. Interventions occurred at various levels and shifted over time. During the crisis period the majority of interventions were focused on providing psychoeducation on NMT principles to support the foster parents to feel calm and in-control when responding to Jack's extreme meltdowns,

such as the principle of regulate, relate and reason (RRR). Initial interventions also included completing a chain analysis of violent episodes in order to identify and respond to triggers.

Other interventions that were applied included whole body deep pressure massaging once per day, creating a calming sensory box, engaging with a dyadic developmental psychotherapy (DDP) psychologist, creating social stories around significant topics, for example, respite care, and creating a 'feeling' book to help Jack develop emotional literacy. Regular regulating activities were also built into Jack's day, for example, proprioceptive activities within a relational context (collecting and pushing firewood on a wheelbarrow alongside the foster father). A visual schedule was put in place that detailed his sensory diet, at home and at school, based on his play preferences. Psychoeducation on the stress-response system and other neurodevelopmental principles remained a large focus of the work, as well as adopting the PACE parenting approach (playfulness, acceptance, curiosity and empathy), which is an attachment and brain-based parenting approach.

A critical focus was also on working with the therapeutic web, in particular the wider family (e.g., adult foster siblings), as well as opening communication channels between home and school. This took the form of regular contact between the trauma advisor and the school, sharing resources such as his play preferences and his regulation plan (based on the Zones of Regulation). An accredited therapeutic crisis intervention (TCI – a trauma-informed crisis prevention and de-escalation skills approach) trainer and the trauma advisor completed a collaborative two-hour session at home with the entire family that focused on supporting the adult children to better understand Jack's needs and functioning in the context of his early life trauma. The foster parents were also engaged in CPS training during this stage and regular respite was organised and implemented.

Support provided. Support took the form of weekly 1.5 – 2-hour sessions between the trauma advisor and foster parents. The sessions alternated between in-person meetings and telephone conversations. The social worker was also present during these sessions on a regular basis.

Case 2: Anna[3]

Background and demographics. Anna is an 11-year-old Pākeha girl who lives with her biological brother, Jack (Case #1) in the same foster family.

Trauma history. In addition to details provided in Jack's case description, Anna has a history of physical and sexual abuse.

Placement history. Anna was removed from her parents' care as a young girl. She stayed with temporary OT caregivers for a short period before being placed with OHF foster parents for a number of years. Anna was then moved to her current foster parents and has remained in their care for the last three years.

Assessment process. As the family was in crisis with Anna's brother Jack, her NMT report was also completed over a longer period of time than usual. A play preference checklist was also completed for Anna.

Identified challenges and strengths. Anna had few major behavioural challenges and had a strong, stable placement with the foster family. She is friendly child, and although she has previously struggled to maintain friendships, she has made significant progress socially with her peers. Anna has a history of hoarding food which continued to remain a feature of her behaviour. She had a history of encopresis and enuresis, and although these have reduced significantly over the last few years, occasional enuresis remains an ongoing challenge, in particular after routine contact visits with her biological family. Anna's performance at school was identified as an area of concern. She has made some progress with reading and maths but is still well behind her peers. Within the family system, parental stress levels were high due to the extreme behavioural challenges of Jack.

Interventions. A range of interventions were put in place for Anna throughout the programme. Much of the family and therapeutic team's efforts were focused on Jack due to his high needs and as Anna was considered to be settled. Interventions for Anna focused on hoarding food, including providing psychoeducation to the parents on the brain's reward system and shifting from a punitive to a needs-based approach. It also involved practical interventions, for example, creating a snack box

[3] pseudonym

collaboratively with Anna. Other interventions included psychoeducation on the principles of RRR, recommendations based on her play preferences, the creation of a sensory box, and several social stories. As mentioned, the foster parents also engaged in several training opportunities.

Support provided. Routine support was provided as for her brother (see p. 91).

Case 3: Emily[4]

Background and demographics. Emily is a 10-year-old girl of Māori descent living with a Pākeha foster family in an urban setting.

Trauma history. Emily entered care as a result of significant neglect. She was not provided with adequate supervision and stimulation during her early years of development.

Placement history. Emily entered care when she was in her early school years and was placed with the foster family she currently resides with. The foster parents had over three years of fostering experience prior to Emily joining the family.

Assessment process. As was the case in the previous two case descriptions, a play preference checklist was completed alongside the NMT report. The NMT metric was completed and presented to the family over a period of three to four sessions.

Identified challenges and strengths. Emily's primary presenting difficulties were limited self-regulation skills, regressive behaviours, and a lack of developmentally appropriate communication abilities. She also has a diagnosis of ADHD. Limited information was provided on her specific strengths.

Interventions. Interventions included a weekly speech, language and occupational therapy-based social skills group, referred to as Socially Speaking. This programme is designed to support children with social, sensory and communication difficulties. Emily also engaged in equine therapy as a key intervention. In addition, cultural mentoring sessions were provided by OHF to support Emily's development and strengthening of her cultural identity. Psychoeducation on neurodevelopmental and NMT principles were also a central component of the intervention approach, primarily focusing on the stress-response system. The foster parents also completed CPS training.

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[4] pseudonym

In addition, a large focus of the work was on supporting the foster parents to engage in self-care practices to reduce parental stress and increase placement longevity. This resulted in some financial support from OHF to allow the foster mother to reduce her paid work hours. Individual counselling was also recommended for the foster mother.

Support provided. Support sessions occurred weekly, either in-person or via phone calls. Regular emails were also sent between the trauma advisor and foster parents which included resources such as video materials, articles, and websites, or any follow-up questions the foster mother had.

Case 4: Ben[5]

Background and demographics. Ben is a 9-year-old Pākeha boy who lives with a temporary foster family in a small town. He is the sibling of Henry (Case #5), although they are not living together.

Trauma history. Ben's in utero development and his first three years of life were impacted by significant maternal stress, which had a detrimental impact on the mother's physical and mental health. This resulted in neglect of Ben. Other trauma included parental drug and alcohol use and frequent arguing within the home. Ben also experienced emotional and physical abuse from caregivers during previous foster placements.

Placement history. Ben was removed from his parental home as a toddler. Until the age of nine he moved between a number of foster homes. He was subsequently placed with his current foster family temporarily, while a permanent placement is being sought for him. The foster parents have other children living at home, including biological and foster children.

Assessment process. A play preference checklist was completed alongside the NMT report.

Identified challenges and strengths. On assessment, Ben presented with severe dysregulation and regressive behaviour (e.g., extreme meltdowns at home and school), impulsivity, and difficulties with social skills and peer relationships. Ben also has a diagnosis of ADHD and is on a high dose of Ritalin, although his CAMHS team queried the validity of this diagnosis and were exploring whether his symptoms were more in line with a trauma presentation. His mental health team were therefore eager

[5] pseudonym

for Ben to receive a more holistic, non-medical therapeutic approach. Within the family system there was some difficulty engaging the foster father who had taken a back step in the care of Ben.

Ben's strengths included strong physical health, developed gross motor skills, and a wide range of interests and hobbies (e.g., animals and being outdoors). He has strong visual-spatial skills, and learns well when given visual cues and instructions.

Interventions. Interventions implemented included extensive psychoeducation and knowledge-building about the impact of trauma on neurodevelopment for the foster parents. Concepts grounded in the foster parents' experiences and challenges with Ben included adaptive responses to threat (hyperarousal and dissociation), the intimacy barrier, the nervous system, and state-dependent functioning. The foster mother was also particularly interested in and proactive about engaging in additional resources and read a number of Dr Bruce Perry's written work, for example, *The Boy who was Raised as a Dog*. The foster parents also completed CPS training. A key point of intervention was to support Ben's grandfather to complete OHF's CREATE training to ensure consistency in the therapeutic care approach during fortnightly respite weekends.

Social stories and life story work were used to support Ben to understand his family and care history. Other therapeutic activities included the creation of a 'feelings book' and implementing a consistent and purposefully structured daily routine to create predictability in his day (set out in a visual schedule). Ben engaged in animal-assisted (equine) therapy and was connected with a male mentor. It was also recommended that Ben engage in a local school drumming group. Interventions at school were predominantly focused on following Ben's play preference recommendations and creating a sensory space for him as a proactive and preventative measure to support him in staying regulated throughout his day. He was also given frequent 'sensory breaks' during the school day.

Support provided. Support took the form of weekly 1.5-hour sessions between the trauma advisor and foster mother. The sessions alternated between in-person meetings and telephone conversations. Both the foster parent social worker and the social worker for child were very involved in providing therapeutic care for Ben and the foster family, and were proactive members of the therapeutic team.

Collaboration and coordinating care between various providers was also prioritised. A professionals meeting was held fortnightly between various care providers, including the CAMHS

team, the school, Ben's mentor, OHF, and his equine therapist. The various professionals were guided by the NMT approach in structuring and providing their therapeutic interventions.

Case 5: Henry[6]

Background and demographics. Henry is a 6-year-old Pākeha boy who lives with his grandmother in a small urban setting. He is the sibling of Ben (Case # 4).

***Trauma history*.** Henry's early development was impacted by the same chaotic home environment as experienced by his brother Ben (see p. 94).

Placement history. Henry was unable to remain in the care of his parents and was moved to a short-term foster placement as a toddler. After a number of months he was placed with his grandmother in a permanent placement.

***Assessment process*.** An NMT metric and play preference assessment were completed.

***Identified challenges and strengths*.** Henry is described to be a positive and energetic child, with strong athletic abilities. Several difficulties have been identified by his grandmother and care team. Issues include challenging behaviours, such as purposefully urinating in inappropriate settings, difficulty maintaining friendships, episodes of severe emotional dysregulation triggered by relational interactions, impulsive behaviour, and an inability to play independently. Henry consistently seeks a high level of adult attention which places significant stress on his grandmother, in particular due to her long work hours. Other needs identified included the lack of a strong male role model figure in Henry's life who can engage in sport and physical activity with him.

Interventions. Initial interventions focused on basic psychoeducation on the stress response system and the impact of trauma on brain development. Psychoeducational resources and concepts were simplified to match his grandmother's needs and capacity. A key intervention was also the RRR principle, which the foster parent applied frequently. Sessions were focused on highlighting Henry's needs in the context of his trauma history and moving away from a punitive approach, underpinned by the principle that children do well if they can (Greene, 2008). Interventions also included visual social stories (e.g., on the topic of friendship) and the implementation of a sensory space for Henry at school.

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[6] pseudonym

It is not clear how many of the sensory recommendations were put in place at home. A focus was also on developing Henry's social skills; recommendations therefore included a Socially Speaking board game and other handouts and resources. In addition, the option of a male mentor for Henry was being pursued.

To ensure the longevity of the placement, it was identified that OHF needs to continue providing monthly respite weekends to alleviate the pressure on the kin carer, as well as provide an opportunity for Henry to spend time with a family that can engage him in outdoor activities.

Support provided. Support took the form of weekly 1.5-hour sessions between the trauma advisor, social worker and kin carer. Members of Henry's biological family attended one of these sessions. Frequent contact was also facilitated between the social worker, trauma advisor, and the school.

Chapter Five: Results

This chapter is structured into three parts: (1) an overview of findings from the scoping meeting with key management personnel in Phase 1; (2) qualitative results from the participant interviews in Phase 2; and (3) quantitative results from the outcome measure that was administered in Phase 2. The primary focus of the results section is on the qualitative data obtained in Phase 2.

Phase 1: Evaluation Planning and Scoping

Scoping meeting. The scoping meeting with key management personnel provided important findings that were used to design Phase 2. The Phase 1 findings reflect the contents of the meeting summary document that was created and sent to the participants for review (included in Appendix M).

Background. It was revealed by the stakeholders that NMT was first used within OHF in 2016 (four years prior to the time that the focus group took place), and that OHF had been NMT site certified. No formal evaluation of the use of the NMT within OHF had yet been completed. NMT had been used predominantly in three ways within the organisation:

1. As the guiding paradigm in the design of OHF's foster parent training, CREATE. Every individual or couple that is interested in becoming a foster parent is required to undergo this training. The modules are based on the principles of the NMT.
2. To train staff (social workers and clinicians/trauma advisors) in Phase I of the NMT training. At the time of the focus group 15 staff had completed or were in the process of completing Phase I and had collectively completed 130 reports relating to children under their statutory care. NMT is thus used as a clinical tool to assess children and provide recommendations based on their developmental and relational history, current functioning, and current relational milieu.
3. As the evidence base underpinning support and advice to frontline staff and foster parents around the country regarding case-related and clinical issues.

Organisational context. One of the key purposes of the scoping meeting was to explore the history and context within which the research occurred, as set out by key OHF management staff.

The goal of moving towards care standards that aimed to provide TIC to foster children was based on research completed by an OHF staff member who explored the link between therapeutic

foster care and placement longevity. The goal then became to find a trauma-informed therapeutic model that demonstrated good fit with the organisation's values, mission, vision, principles, and cultural kaupapa. A central aim was also to find a model that focused on the strengths of children and was not primarily deficit orientated. 'Hope' was identified as an important value at OHF that guided their strength-based approach. Several internal and external professionals, including child psychotherapists and social workers, cultural advisors or kaumātua, and Māori foster parents were consulted in the process in regard to the suitability of TIC models within the OHF context. NMT was therefore selected as the preferred model to adopt within the organisation to inform clinical practice, train staff, and guide assessment and therapeutic activities. In addition to the NMT, it was decided to use the CANS assessment tool (Lyons et al., 2004) to assess children and to track outcomes. At OHF, every social worker is trained in using the CANS and every child is expected to have an updated CANS every six months in order to meet relevant care standards.

It is against this backdrop that OHF was seeking to address a gap in the follow-through of the therapeutic recommendations generated from the NMT and CANS assessments. To date, limited human resources had restricted OHF's capacity to implement therapeutic recommendations and interventions; however this was in the process of being addressed with the clinical team now consisting of several trauma advisors. There was also a lack of formalised programme implementation processes.

Stakeholder needs. Therefore, the principle information needs of the organisational stakeholders (key management staff) were identified to be:

- Ascertaining how to effectively use NMT within the service at a clinical practice level and embedding NMT at an organisational level.
- Establishing best practice for implementing the NMT recommendations, thus formalising the NMT implementation processes and procedures.
- Ascertaining the capacity of the foster parents to engage in the implementation process.
- Exploring the needs and experiences of foster parents in the implementation process of therapeutic-informed care: what support is required from OHF or beyond, and how

to ensure that foster parents remain focused on and intentional about therapeutic goals and practices, as well as sustainably implementing therapeutic recommendations. Fidelity to trauma-informed principles was identified as a challenge during one of OHF's pilot projects – a therapeutic group foster home for sibling groups that operated in Auckland.

- Preliminary outcomes when resources are put towards the implementation and follow-through of NMT recommendations.

Programme vision and goal. The implementation of the NMT in the context of OHF seeks to address the gap and need that exists in the foster care space in terms of meeting the therapeutic needs of children in care. The implementation of trauma-informed practice includes establishing a shared understanding between social workers, clinicians, and foster parents of the effects of trauma on the child and their corresponding therapeutic needs. NMT was selected as a model to implement trauma-informed and therapeutic practices due to its close fit with the organisation's goals, kaupapa, and values. The hope is that it becomes part of the culture of how staff and foster parents work in providing care for children. The vision of the programme is to meet the therapeutic needs of children and enhance their well-being, increase placement longevity and foster parent resiliency, and increase staff expertise and knowledge.

Scope of the programme's reach. Within OHF, the implementation of the NMT targets two primary groups, alongside the foster (including kin) families providing placements for the children outlined below:

1. Children for whom OHF holds legal custody and additional guardianship. The long-term goal is that every statutory care child will receive formalised and routine NMT assessments and recommendations.
2. Other children who are in OHF's care and for whom OHF does not hold legal custody or guardianship. The NMT principles are used to guide professional practice and a therapeutic approach to care, however, these children will not receive a formalised NMT assessment.

Preliminary theory of change components. Based on the group discussion, several components were determined to constitute the preliminary theory of change.

Antecedent conditions:

- High and complex needs of children in care due to adverse experiences/trauma that led to their entry into care.

Client profile:

- Children under OHF's statutory care (0-18 years of age) with a history of trauma, abuse, or intergenerational trauma that are placed within a family foster care arrangement. These children are identified to have high needs due to the impact of trauma on development and functioning.

Critical programme processes or outputs:

- The completion of NMT assessments by accredited staff members.
- The creation of therapeutic support plans for each child based on NMT recommendations.
- Intensive and ongoing support from clinical staff.

Moderators:

- Availability of human and financial resources.
- Engagement from foster parents (linked with capacity and resilience factors).
- Support from school personnel.
- NMT certification process and training delays due to staff time constraints.

Outcomes or benchmarks for programme success:

- Reduction in trauma-related symptoms or mental health difficulties.
- Positive impact on parental stress, resilience, and well-being.
- Increase in foster parents' sense of reward regarding the fostering role.
- Reconnection to culture and cultural health for Māori and Pasifika children.
- Increase in staff (social workers') and foster parents' knowledge and competence in trauma-informed professional practice.
- Positive impacts on child functioning and well-being.

Phase 2: Evaluation Data Collection

Participant interviews. This section presents the results from the participant interviews. The experiences and perceptions of participants from various stakeholder groups (foster parents and frontline OHF staff or service providers – social workers and trauma advisors) are integrated in order to present the relevant data on each topic within one section, and avoid repetition. Quotes from the research participants are given verbatim and are attributed to the relevant general participant group (i.e., foster parents, social workers, or trauma advisors). Hesitation markers and filler words (e.g., ‘um’, ‘ah’) have been omitted where doing so does not alter the meaning of the interview data, following usual practice in qualitative research (Corden & Sainsbury, 2006).

Four themes were constructed from the data as shown in Table 5. Each theme involves a number of subthemes that describe participant experiences in engaging with the NMT as a model to guide trauma-informed foster care practices. The first theme (contextual needs) speaks to the context within which the NMT model operates, outlining the challenges children and foster parents face, and the needs that arise from these challenges. The next theme (utility of NMT) discusses the perceived utility of the NMT in this context and how the NMT, as model, is seen to respond to these unique challenges by considering the experiences of various stakeholders (foster parents, social workers, and trauma advisors) in using this model. The third theme (implementation and maintenance) details the implementation and maintenance of the programme, with the last theme (outcomes) reviewing the outcomes associated with using the NMT as a model of TIC, across various levels of the system.

Table 5

Research Themes and Subthemes

Theme	Subthemes
The foster care context: complex needs and challenges exist.	1. A system under stress: "It is not normal parenting". 2. Children in foster care present with complex and idiosyncratic needs and behavioural challenges. 3. The effect of complex challenges on foster parents. 4. Foster parents' responses to these unique challenges.
The utility of NMT as a model within this context.	1. The NMT facilitates a flexible and idiosyncratic approach in designing a therapeutic support package. 2. The NMT facilitates the building of a collaborative relational therapeutic web around the child, enabling a community approach to their care. 3. The NMT focuses on developing a shared understanding of trauma-informed care within the therapeutic web, guided by neurodevelopmental principles. 4. Foster parents adopted an active, purposeful role as the primary therapeutic agent. 5. NMT was found to be a useful tool in bridging the gap between theory and practice. 6. Reflections on the NMT assessment approach. 7. The NMT's compatibility with a culturally-responsive approach.
The implementation and maintenance of the NMT programme within this context.	1. The receptivity and capacity of the system is a predictor of how readily the programme is adopted. 2. Feedback on the level of support provided to foster parents. 3. Feedback on the implementation of the NMT recommendations and therapeutic activities as guided by the NMT assessment tool. 4. Feedback on training opportunities available to foster parents. 5. Factors influencing implementation fidelity of the NMT approach. 6. The impact of Covid-19 on programme implementation. 7. Wider organisational-level considerations of programme implementation and maintenance.
The outcomes of the NMT programme.	1. Changes observed in the children. 2. Changes reported in the foster parents. 3. Changes reported within the family system. 4. Changes reported among frontline social workers.

Theme 1: The foster care context: complex needs and challenges exist. This theme is based on the commonly shared idea between participants from all groups that there are complex challenges involved in caring for children in foster care who have significant histories of maltreatment, trauma, and chaotic home environments. Consequently, people in the system in which the child is embedded (foster families, the school, the foster care organisation) are faced with idiosyncratic challenges and thus have complex needs that require a high degree of flexibility and responsiveness from other stakeholders in the system. This theme seeks to elucidate the context, as

described by various participants, in which the NMT is operating and the subsequent identified needs that are guiding service delivery.

A system under stress: "It is not normal parenting". All the foster parents (n=5) communicated that parenting children with histories of significant and complex trauma is "not normal parenting", and is a "different kind of parenting". According to all the foster parents, this aspect is due to the children in their care having unique, high, and complex needs, which require intensive support from foster parents and other supportive adults in their life. These high needs make parenting often incredibly challenging and difficult. As one foster parent noted: "It's the mindset of thinking, getting out of what normal parenting is, because this isn't normal parenting, you're mad to think this is normal parenting, this is such a deep level of parenting".

Most foster parents spoke of feeling challenged in their identity and expertise as a parent. Two foster parents noted that although they have raised their own children, they felt like they didn't know how to parent the foster children in their care. They described attempting to parent them with the same approach they had taken when they raised their biological children, but finding 'normal' parenting strategies ineffective.

> … I've got three children, biological children, who oh, my gosh, we didn't have anything like this, because I didn't need to, and yet, it was like I cannot parent … I can't parent her and [other foster child in her care] to the same level as I did … it has to be different parenting. And it's not to say one is better than the other, it's just different. *(Foster parent)*

This notion of a self-imposed expectation of a sense of expertise in the parenting role falling short due to children having different needs, led to two primary responses communicated by foster parents – either adapting their approach, or placing blame elsewhere, for example, on the child or undiagnosed mental disorders.

> Yeah, I'm trying to parent [child in care] how I parented my three kids ... Obviously, I've done it three times. So it's like, you know, my kids, my three kids weren't so controlling and to the point of manipulative and all that, you know what I mean? *(Foster parent)*

Parenting children with complex needs was therefore described by some foster parents as a learning process which elicited strong emotional responses from caregivers (foster parents), both positive and negative, and required an openness to stay adaptable, flexible, and willing to learn.

> And I guess like the learning process too, like you know, you come into it as a normal parent but it's really not much use to you with these kids … 'cause they're so different, they got so many needs that normal kids don't have, and they [referring to children without histories of trauma] are lucky not to have them. *(Foster parent)*

Children in foster care present with complex and idiosyncratic needs and behavioural challenges. The children in care were described by the various participants – foster parents, social workers, and trauma advisors – as having high and complex needs, in particular high levels of emotional dysregulation which required a large focus on, and commitment to, regulation work. The majority of participants from all groups identified that children with trauma histories have a complex developmental trajectory, leading to heterogeneous challenges and subsequent needs. Their behaviour was described by foster parents and service providers as oftentimes being developmentally inappropriate, extreme, volatile, and highly perplexing. Challenging behaviours included both internalising and externalising behaviours, although extreme meltdowns, aggressive behaviour and oppositional behaviours were the most commonly reported. These behaviours often resulted in difficult dynamics with other children in the home, as well as suspensions at school. They were challenging to respond to and were identified as placing the familial system under considerable stress, including the OHF staff engaged with the family in a supportive capacity.

> … they were all quite stressed and anxious because of some of [child in care's] previous outbursts and how he become quite physical with their mum and he had hit people, and held knives, and climbed on top of cars and you know trash the whole house … *(Trauma advisor)*

Several foster parents also described the nature of the challenging behaviour.

> I mean it started off as obvious frustration, when she didn't get her own way, or the majority of it was the word 'no'… or you know, something that wasn't going to her plan, and so she would get, you know, quite loud, she would throw things, kick things, tip things over. If you tried to then move her to a spot where it

> wasn't affecting [other child in care], 'cause I have to be mindful of how these episodes affect him. So we'd move … try and move her, so we'd get bitten, punched, kicked, just anything … and we'd get her into her room, and then we'll just quietly shut the door, and everything would get thrown around in her room … it was a real overload of [child in care] not being able to handle things. *(Foster parent)*

Most foster parents observed that the child in their care required substantial one-on-one contact time within the parent-child dyad to support them to regulate their heightened emotions. This was described by foster parents as challenging, due to some parents having limited time and capacity to provide this in a consistent manner.

> And it is slightly more difficult too, 'cause like with [child in care] … you've really got to have the time with [child in care] to be there right with him … you know, so if he does pick a hobby it's got to be something that's very one-on-one almost, so that he can cope. *(Foster parent)*

The effect of complex challenges on foster parents. Due to the above-mentioned challenges, foster parents detailed experiences of feeling exhausted and oftentimes experiencing a sense of powerlessness. The majority reported being in a constant state of perplexity and feeling that a sense of mastery in parenting is unachievable. This feeling was echoed by both trauma advisors who worked closely with the families and made several observations on foster parents' experiences. One trauma advisor noted: "this foster… mother and the family was just feeling really exhausted, and really run down …".

> I think that [foster parent] was so tired, that she kind of just felt like … a kind of a helpless bystander in a way, that the challenging behaviour was kind of happening, and she was powerless to do anything about it. *(Trauma advisor)*

The children's behaviour described in the previous subtheme caused significant stress and anxiety for the foster parents charged with their care. The majority of foster parents described feeling hypervigilant in terms of their child's triggers and associated behavioural outbursts, often of a violent nature. This reaction was observed by the trauma advisors as well, with one commenting, "they [foster

parents] were all quite stressed and anxious because of some of [child in care's] previous outbursts… so they were all quite on edge I think”.

It was reported by trauma advisors that foster parents often enter foster care not knowing how to manage these complex behavioural challenges, which can lead to feelings of inadequacy and disempowerment. Similarly, social workers are not well-equipped to support foster parents due to a lack of training, which is particularly difficult as social workers are positioned to be the professionals.

> … providing foster care for children who are experiencing difficulties in terms of their self-regulation can be disempowering for the foster parents, but it can also be disempowering for the social workers, because they are, they are the professionals in this picture, people are looking to them for answers … and the reality is that child protection social workers are not trained in behaviour support. It's just not part of what you learn about when you study social work, right? So, you're being asked to, you're being asked to provide solutions or suggestions and you just don't have that knowledge or information really, in order to be able to do it. *(Trauma advisor)*

Foster parents' responses to these unique challenges. As a result of the children's challenging behaviour and the effect on foster parents, most foster parents identified a need for deeper knowledge about trauma-informed parenting and effective therapeutic strategies to meet the children's needs.

> I was hoping it [the NMT programme] was going to bring in a really positive aspect on how we approach things and a therapeutic, you know … because what we maybe thought was therapeutic and helping [child in care] may not been at the level that she needed, and we needed to maybe go a wee bit deeper … I wanted … just the knowledge that we could approach things in a different way that was more beneficial for her and that deeper understanding which … and I don't think we were covering that. *(Foster parent)*

In particular, foster parents identified a need for developing skills in the practical application of pre-existing basic understandings of TIC principles, covered in the OHF foster parent training (CREATE), as well as expert and in-depth support from professionals.

> We were also very ... we were lost … we're doing everything we assumed [child in care] needs … and yet we were just hitting some really hard stuff … and yet, we were still seeing such volatile and negative

> behaviour to the extreme of we're thinking, what has even … where is this even coming from? And we couldn't make sense of it and so it was like, what more … we need more help, we need some more support, because we're not understanding what she's going through at that stage. *(Foster parent)*

The majority of foster parents were eager to engage in the NMT programme and were expectant in terms of what it could offer in the context of the challenges associated with providing foster care. Most foster parents reported feeling excited about receiving further training and being equipped with tools and practical strategies to respond to the high needs of the children in their care. One foster parent stated, "I think I was just really excited to be able to be given the opportunity and the tools to, to have a go …".

Theme 2: The utility of the NMT within this context. This theme discusses the way in which the NMT was described by participants as responding to the challenges set out in Theme 1. It details the perceived utility of the NMT to guide service delivery as reported by the various participants. It covers practical feedback and reflections provided by the participants about the feasibility of using this model in this particular context. Subthemes include the importance of a collaborative relational therapeutic web with a shared language and approach, the importance of the foster parent adopting the role of the primary therapeutic agent, challenges associated with the assessment process, and cultural considerations.

The NMT facilitates a flexible and idiosyncratic approach in designing a therapeutic support package. Participants, in particular service providers – trauma advisors and social workers – discussed the need for flexibility when engaging therapeutically with foster children and families due to the heterogeneous nature of their situations and subsequent needs. There are complex family dynamics and circumstances, as well as other external factors (e.g., placement length) involved which require adaptability and flexibility in the therapeutic approach, with families often being at different stages of fostering. Those differences required responses tailored to their circumstances and needs which also meant that the intensity and frequency of support needed varied significantly across families.

I think what the experience of using the model for this particular project has shown really clearly is … how complex the situations are that children are living with and how flexible we have to be, and how we very often have to change what we're doing and be really open in terms of our response … so we can't be wedded to a particular response or a particular intervention, we have to be really open in terms of the advice that we're giving. *(Trauma advisor)*

NMT as a model, and the guiding principles of the approach, were considered by service providers (social workers and trauma advisors) to be widely applicable and highly relevant to all families, regardless of the specific needs of each family. The principles had a somewhat universal quality about them, with all families speaking of their relevance to their context, the child in their care, and their needs. The majority of foster parents and social workers felt that the application of the NMT approach was compatible with the families' lifestyle.

Participants, in particular service providers, reported that the NMT's flexibility and responsiveness to the environment and needs of the system was a significant strength of the model. Trauma advisors thought that the NMT is not prescriptive, but rather an individualised and curated approach. The implementation of TIC principles were considered to be flexible to the child's needs and the context.

… that's one of the things that I really like about NMT is that it's not prescriptive in its approach, so the way that you consider the child's developmental history and the way that you a consider their current … their functioning … that is within a certain framework, but what happens after that in terms of your recommendations, and then how the NMT report is actually implemented can be really flexible … that's one of the reasons why we use NMT in Open Home Foundation, because there are other trauma-informed models that help with planning and treatment, but they are much more prescriptive, so we have the ability to choose from a wide range of types of intervention for children which is really good. *(Trauma advisor)*

This sentiment was echoed by another trauma advisor.

I think some of the successes of it [the NMT programme] is that it can be quite flexible, it's not really rigid in terms of like … I know some of the other formal assessment processes you have to do … like before you even engage with the family you've got to do all these screenings and this or that, and

> sometimes the families are just needing help now. And I kind of like too that it is not prescribed, as in you work through it this in this order, you can just jump in depending on what they bring up that day. *(Trauma advisor)*

The lack of prescriptiveness of this approach, although considered a strength by some service providers, can also bring challenges to effective service delivery. Interventions are implemented in a nondescript manner which, although guided by neurobiological principles, relies primarily on the practitioner's (usually trauma advisor's) initiative, skill, creativity, and experience. This flexibility holds challenges for ensuring consistent care provision across the service and across practitioners, as well as ensuring the fidelity of the application of NMT. In particular, practitioner confidence was identified by trauma advisors as crucial for successful programme implementation to occur, due to the lack of prescriptiveness of the programme.

> I think one of the challenges though is that you do have to feel confident in out-rolling it … I think as well because it's not so prescriptive, you also have to bring that yourself in terms of creating structure. So, like each of the visits I would need to think about them beforehand and be like "ok today I'm going to focus on this, this and this" or "today we're ging to break down these concepts" because we're not ... because they are not handed to you on a platter, you do have to have a certain amount of initiative when you're rolling it out yourself. *(Trauma advisor)*

One social worker commented on their desire for more structure by noting that set templates would be helpful in creating and following a therapeutic plan. Shortly prior to the commencement of the present research, such templates were created by the trauma advisors, but it appeared that they had not yet been disseminated widely within the service.

> And I think having set templates as well, for everybody, like the same core templates … and obviously change them up for different ... I think that's really important, too, because we don't really have that with a lot of our practice stuff here. It's like, all the social workers kind of just make up their own plans and they all look different. *(Social worker)*

Other challenges were also identified by service providers (social workers and trauma advisors) in terms of the collaborative, idiosyncratic and flexible manner in which a support system and therapeutic plan for each family is established. The intensity and extent to which support and therapeutic activities were put in place depended largely on the family's preference, capacity, time, resources, and their understanding of the importance of a therapeutic approach. This approach meant that if foster parents had limited capacity, or a minimal understanding of TIC, they may opt for less support, which may limit the quality of TIC provided to the child.

The NMT facilitates the building of a collaborative relational therapeutic web Around the child, enabling a community approach to their care. The NMT is based on a relational systems approach that was considered by most participants to be key in the success of the programme. The focus is on creating a robust relational web that can provide consistent wraparound support to the child. The focus of NMT is thus not just on the child, but on the system in which they are embedded, with interventions occurring at various levels of this system. A central element of the NMT recommendations is a recognition of the importance of creating therapeutic opportunities within the wider community settings in which the child operates. Interventions are recommended for various 'sites', including at schools or childcare centres, communities of faith, other extracurricular or community spaces, and within the immediate and extended family. Trauma advisors and social workers spoke of various meetings held with the children's schools and extended family members during the NMT's implementation, as well as collaborating with teacher aides and mental health teams in order to coordinate care. The efficacy of the relational therapeutic web was considered by participants to be contingent on the cohesion and intentionality of the system, with the system being shaped and strengthened by various practical factors (e.g., regular sessions to ensure fidelity, practical resources, training etc.; see Theme 3). One social worker reflected on this collaborative approach.

> I think it's just big collaboration, you know, and that's another thing that I really believe in … you know, you can't do it on your own and … you know we got him [child in care] covered from every angle. And this is … I think, actually, somebody used this term in the meeting once that "we've got him" … having this reassurance that there's someone you can go to, I think it's huge. *(Social worker)*

The NMT programme was considered by participants from all groups to effectively facilitate the working together of the key stakeholders in the child's life towards a shared goal and trauma-informed framework of care, due to the guiding principle of collaborative care underpinning its approach. For many children it involved forming a team of professionals to create a therapeutic safety net around the child and provide wraparound support. One foster parent referred to it as a "village" with another social worker commenting that "that whole… tag team type of thing… you're not just left to one person". This process involved encouraging, educating, and equipping the entire team around the child in TIC principles.

> And so it's so much wider than just educating a foster parent … and actually educate a team and encourage a team and give them resources and bring them on board, because a child can't just survive with one caregiver, not a child with behaviours of that, that high end. *(Trauma advisor)*

One social worker commented on the reassurance she experienced as a professional within this collaborative team approach.

> I know how well I'm supported as a practitioner, going every day to do the frontline work. So, you know, the resources that we have … Because from the start, it gives them this "we're not alone in this, we're not going to just be left with the challenges". So I really, you know, I really feel that how accessible this is … having this reassurance that there's someone you can go to, I think it's huge. *(Social worker)*

This approach naturally led to several challenges, in particular in ensuring consistency across all environments and across the team of professionals. Consistency here refers to ensuring that the same therapeutic approach is taken and that the same messages are given to the child at home, school, and in other environments (e.g., using the same regulatory and therapeutic activities at home and school, or responding to meltdowns in the same way). The therapeutic web is a complex system, with everyone involved having diverse values, expectations and assumptions that inform how they care for and respond to the child. Having a shared language, common goals and a consistent approach was found by participants to facilitate the bridging of these differences (further explored in the next subtheme).

> The stuff about the therapeutic web and the relational health around the child … it is just so important to make sure you're working with all of the … with all of the players … so they are all on the same page. 'Cause it's that community approach … so you needed to meet with them as a whole family group … Yeah, so much about that relational health and the therapeutic web … 'cause if you're missing that I think you're … the rest of the people around [child in care] could ... in a way it was almost undoing the stuff that the foster mum was trying to put in place. *(Trauma advisor)*

Within this team approach, each member in the system played a significant role in the implementation of the NMT programme: the role of the trauma advisors was to complete the NMT assessment, create the therapeutic plan, and support the frontline social workers and foster parents with therapeutic resources; the foster parents were then responsible for the majority of the implementation of recommendations in the home, which was primarily overseen by the social workers.

> And I think a positive though is that when you involve the wider team it's not necessarily that … that I would need to be the clinician working out the whole thing, like I could be making some recommendations, but … if the social worker or the foster parent social worker were on board they can then outwork the recommendations and they can follow through with, with what I've suggested. *(Trauma advisor)*

The school also played a key role, with participants referring to multiple meetings that were held between the foster parents, OHF team, and the school, and the subsequent positive ripple effects of this information-sharing. Two of the children involved in the study attended schools that were particularly eager to shift their approach to adopt a more trauma-informed model in behavioural management and structuring the learning environment. The Resource Teacher: Learning and Behaviour (RTLB) of one of the children was also heavily involved in the professional meetings and used the NMT recommendations in her approach. This collaboration contributed to narrowing any divide in how the child is responded to at home and school.

> … and I really feel that because they all grasped that together it started to change the divide between school and home. He used to come home quite dysregulated from school because he had a really rough

> day or he'd be quite heightened, whereas now the teachers are right on board with the approach that we're using, and we've seen a really big shift in [child in care] over time. *(Trauma advisor)*

Additionally, participants spoke of other professionals and care providers who came together during the programme implementation to ensure a consistent trauma-informed model of care, including the CAMHS psychologist and social workers. This collaborative team approach is the foundation of the NMT and left social workers feeling supported and strengthened.

> … as the professional, for me, it was great to know what I'm not doing this on my own. I have a team. So you know, if we had some challenging stuff going on, it will be psychologists in the room from CAMHS, it will be [trauma advisor], it will be a therapist who is doing this and we could all kind of brainstorm and … so we've done it on the fortnightly basis. *(Social worker)*

This relational approach is central to the NMT, with trauma advisors and social workers speaking of the importance of prioritising relationships when engaging with foster parents. One trauma advisor found prioritising relationship building in the initial phases of the programme's implementation was critical, noting that "the main thing I think, was relationship-building. So focusing on building a relationship between myself and the foster parent… was kind of the first thing that we did". It was commonly considered by service providers that the success of the approach was dependent on the strength of the relationship and partnership between staff and foster parents.

> … also what I mentioned before but the relational base, so if you don't go in at it with the relational basis with the foster parents and you want to get to know them and you want to get to know the child and you want to understand it … if you just went in as kind of the expert, I don't think that that would have great success and there wouldn't be great response. So it's very, very much should still be a relational approach to supporting foster parents. *(Trauma advisor)*

This wraparound model of care facilitated by the NMT was identified by some service providers as a challenge. The interventions are applied across settings, for example, home, school, external therapeutic providers (e.g., equine therapy), and was found to be time- and resource-intensive. There is an understanding that it is not a 'quick fix' approach, with interventions being of a long-term

nature, with the focus on providing enough repetitions for change to occur and to be enduring. The therapeutic interventions of the NMT are often small actions located in the routines of the everyday across various settings. This approach can lead to challenges in terms of sustainability, as wraparound support from social workers and trauma advisors have to be of an ongoing nature. The full effects of such an approach are also only visible over time. Trauma advisors and social workers were of the opinion that the challenge is therefore to motivate primary caregivers and other stakeholders in the therapeutic web to stay committed to the approach over time. As NMT is considered a long-term approach, it requires leadership and commitment from the team to "keep it alive" and to consistently implement written plans.

> I guess the challenge will be to get people to stick with it over time, because you can only see the effect over time … And I think that could be a potential challenge, that you know, you need this number of repetitions, you need this routine, you need this … you need to apply this over a significant period of time to be able to see the difference. And I think that's where the challenge comes, because they're often, you know, the foster parent or caregiver just wants a quick fix. *(Trauma advisor)*

The NMT focusses on developing a shared understanding of trauma-informed care within the therapeutic web, guided by neurodevelopmental principles. Trauma advisors and social workers spoke of the importance of creating a therapeutic web around the child, and considered it critical for the therapeutic web to adopt a shared discourse of a TIC approach, guided by the language and concepts underpinning the NMT model. Having a central frame of reference, that is, a shared set of therapeutic and/or scientific principles, allowed agents within the system to be moved to action in a cohesive manner. The focus of the NMT programme was reported by trauma advisors to orient and change the system in which the child is embedded to respond in a more trauma-informed way to the child. Within a systems approach the understanding is that everything is connected, and when one part of the system remains stuck in an unhelpful pattern of understanding and responding, it can escalate the behaviour of the child further. One trauma advisor noted that the goal of TIC is to surround the child with adults who share an in-depth, functional and committed understanding of the realities of the child's world and the challenges they face on a daily basis. As a result, the majority of her work was

with the foster parents. A central focus of the trauma advisors' role was to support the foster parents to enable them to regulate the home environment, which leads to the regulation of the children in their care.

> I really am of the view that, that when we have children in foster care that the vast majority of the work that we do is with the adults in that child's life … The child needs to be surrounded by adults that understand what's happening for them; and so that's where I see my role is to help those adults around that child understand what's happening for them. *(Trauma advisor)*

The majority of participants from all groups reported that the integration of all the information delivered in the programme was considered effective in building knowledge and a deeper understanding of the child and their challenges. In particular, trauma advisors observed that the psychoeducation delivered as part of the NMT programme led to a more robust understanding of developmental trauma, which was helpful in shifting foster parents' perspectives on their child's behaviour. This shift in mindset challenged assumptions and beliefs about the individual child being 'faulty' or 'naughty' and instead considers the function of their behaviour and the needs, rooted in developmental trauma, that behaviour is trying to meet.

> And stuff that, stuff that they would have previously through was manipulative, or naughty, or them being demanding you know, some of those label words … I've seen a shift in people starting to see that the child is not willingly trying to behave like this or wanting to do poorly, and coming back to that 'kids do well if they can' stuff. *(Trauma advisor)*

The approach of the NMT that places knowledge-building at the centre, offering foster parents' insight into their child's behaviour and its link to neurobiological processes (e.g., the stress-response) was considered to be a strength of the model by the majority of participants from the various groups. This increase in knowledge and understanding resulted in a shift in perspective that reframed difficult behaviours, focusing on challenging behaviours as a form of communication. This process was thought to elucidate the child's needs, enabling foster parents to support the child more effectively. Most foster parents spoke of this change.

> I see things through completely different eyes now. So what I'm seeing is behind the behaviour, where they just see it through one thing … remove that child because the child's naughty. Well why is the child doing that? *(Foster parent)*

Changing the narrative that surrounds the child and their behaviour was thought by most participants to be critical to therapeutic parenting as it directly impacted parenting attitudes and behaviours. Both staff and foster parents reported that understanding the child's behaviour as a form of communication was pivotal in altering the adults' expectations of the child, and thus their responses to the child. Changing the adult responses occurred through the reframing and formulating of behaviour using neurodevelopmental frameworks, as well as subsequently equipping adults to respond in more effective ways. This shift in narrative was found to lead to more empathetic and therapeutic responses from the adults.

> And yeah that's the strength of the … it's just the knowledge of and thinking, "well, they're not doing naughty, they're not doing …", because that's what a lot of people who wouldn't know this, and they would see it as a behaviour that … and they just end up going down a completely different level where it wouldn't be therapeutic, wouldn't be helpful at all, you'd get a negative response from it. So then you think, "well, they're becoming really naughty now", and then … and it's not at all, it's just that we're not understanding them. *(Foster parent)*

A trauma advisor reflected on the effect this knowledge had on the teachers working with the child.

> … [his teachers were] really really keen to hear about how this stuff works for [child in care] and… and really open too, like they were reflecting on some of the earlier responses to him hadn't been overly helpful … they've been more in that power battle with him which was increasing his stress response and making his behaviour worse. So they'd really … were recognising how powerful that change of response was … *(Trauma advisor)*

It is this process of creating a shared language of understanding that led foster parents to feel equipped and empowered to deal with challenging situations and behaviours that would have

previously led to them feeling overwhelmed and inadequate. This change was reported by the majority of foster parents, as well as observed by both social workers and trauma advisors. Inferences can therefore be made that TIC is not only a set of strategies and tools to support the child, but it is about important adults in the child's life adopting a lens that contextualises the child's behaviour, which is key in creating more healing environments and subsequent successful outcomes.

> And seeing a real … just actually seeing the behaviour, the whole behaviour of the child change because of how they're viewed and treated by their foster parents or their teacher or whoever is going around you know, whoever is wrapping around them … Someone said … during the meeting with the school, if you see a child differently you see a different child ... Definitely what we're seeing, different children. *(Social worker)*

Several components of the programme were reported by participants from all groups to enable a deeper insight into the children's behaviour. This practice included trauma advisors using neurodevelopmental terminology and concepts to formulate children's perplexing behaviours for foster parents; frequent check-ins; regular sessions between foster parents and social workers or trauma advisors with a focus on psychoeducation and its application to practical scenarios; as well as frequent revision of the NMT concepts. In addition, several social workers and foster parents emphasised that the NMT report, in particular the brain map and the section on the child's relational history, enabled a major shift in their understanding of their child's behaviour. According to multiple participants from all participant groups, coaching foster parents and other members of the therapeutic team through the NMT report was critical in developing this insight and understanding.

> I know that the brain map that [the trauma advisor] completed was a massive shift for not only us, but other professionals involved … And in the recent meeting … transitional IEP meeting to a new school, she [the RTLB] was absolutely raving about the brain map … I just remember when she presented the brain map to everybody it was like this click of "wow, you know, that's the area of his brain and this is why this is happening and this is …" That was just amazing. *(Social worker)*

Foster parents adopted an active, purposeful role as the primary therapeutic agent. The NMT approach, reflective of trauma-informed foster care practices, attempts to break down myths of

who the experts in the therapeutic milieu around the child are, considering the foster parent as the primary therapeutic agent, rather than designated professionals (e.g., therapists, psychologists, counsellors). This concept was summarised by a social worker who noted that "the foster parents are the ones who do most of the therapy, and obviously it's a 24-hour gig".

This process of positioning the foster parent as a therapeutic agent was observed by trauma advisors to be both a daunting prospect and one that offers hope, a sense of purpose, empowerment and autonomy for foster parents. There was a shift from being helpless bystanders to the foster parent adopting the understanding that they have influence during difficult situations, primarily by changing their responses to the child. This was identified by trauma advisors as a challenging shift, however, as under stress foster parents can become stressed and overwhelmed, impeding therapeutic responses. Trauma advisors considered emphasising the foster parents' therapeutic role to be a strength of the NMT approach as it led to a sense of empowerment for foster parents. This view sends the message that the foster parents hold agency and a level of control they have previously felt stripped of due to the children's challenging and often highly confusing behaviour.

> … speaking to adults, in general, about the power that they have in influencing some of these situations can be both kind of very daunting for them, and also give them a lot of hope at the same time. Because on the one hand you're saying to the adults, "you have the power in this situation to make a difference so you have you have influence here, and you have a certain degree of control, in that you control what you do, and that can make a difference"… that can be scary, especially if you're very stressed and very tired … But then at the same time … it can be very empowering for the foster parents, because they can realize that they're not just at the mercy of the whims and moods and, you know, difficulties that their child is experiencing, but that actually, they do have the ability to really influence what's happening. And that, I think, ultimately gives them a lot more confidence, you know, in their own response. Yeah, that they're not, they're not helpless anymore in the situation. *(Trauma advisor)*

Another trauma advisor echoed this sentiment.

> … emphasising that they're part of the therapy … like they're better than any therapist we're going to send this child to … like it's actually the therapeutic work that they do with them at home or at school

> and that's through their relationships and it's quite powerful … I think it's quite empowering for them. To see that also, they're the experts. *(Trauma advisor)*

Several of the foster parents reflected on the active process of becoming a critical part of the therapeutic milieu and the sense of individual responsibility involved in adopting this approach. Considering the foster parent as a member of the professional team and a key therapeutic agent with intimate knowledge of the child was experienced by the majority of the foster parents as creating a sense of agency and purpose, with one foster parent referring to it as "purposeful parenting". This involved constant problem-solving, as well as meaning-making of the child's presentation and behaviours through the lens of the NMT brain-based principles. Foster parents also reported that this restoration of agency led to increased levels of confidence and intentionality.

> Makes you really intentional, again, in what you're doing, what you're thinking, and when they do something it gives you an 'aha' moment, 'I'm in control here', instead of just floundering through parenting, not really knowing what you're doing each day … it gives you that confidence in that intentionality … *(Foster parent)*

Trauma-informed parenting was outlined by some participants, specifically trauma advisors and foster parents, to be a proactive approach that prioritises an attunement to the needs of the child. In practice, foster parents stated that this means changing the environment if it is not working for the child, prioritising developmentally appropriate interventions or activities instead of age-related, as well as shifting the language use in the home to being more trauma-informed. As observed by a trauma advisor:

> … from a trauma-informed point of view, this child was very clearly not managing, very clearly overwhelmed by all of the demands on him in the school situation, and what [foster parent] did was respond in a developmentally sensitive way and say, "this environment is not working for this child, I'm going to change the environment" … we were really lucky that because the foster parents were very attuned and they were able to recognise that actually, they needed to take measures to kind of scaffold this little boy and set him up for success. And that is trauma-informed care. *(Trauma advisor)*

A trauma-informed environment was identified by various participants across groups to be one that includes structure, security, predictability, and positive behavioural and social modelling. Two foster parents reflected that therapeutic parenting includes a consideration of the child's brain states and states of regulation before they intentionally choose how to respond to the child's behaviour. The predictability of the foster parent's consistent responses to the child was a considered an important healing agent. Careful attunement to the child's regulatory state was found to guide foster parents in meeting the children's needs, but it required openness from the foster parent. Furthermore, the majority of foster parents were also found to actively work towards creating a therapeutic physical environment which allowed for a sense of autonomy for the child (e.g., the child seeking out the swing when feeling dysregulated), as observed by service providers (social workers and trauma advisors). Trauma-informed parenting was reported by the majority of foster parents to mean entering the parenting dyad in a new way, with a focus on parental responses and attitudes, as well as an openness to learn and adopt new approaches.

> I think to stay calm, have yourself in a good headspace and don't take that personally. Because a lot of time, you can do that. I think just take a big breath, and yeah, it's hard at the time to ... I think the thinking of 'they would if they could', you know? ... So let's, you know, just be very open, open to different ways … *(Foster parent)*

Participants across groups reported that this process requires a mental shift which can take time and necessitates the repetition of ideas and principles. One foster parent explained that having more knowledge and new understandings led to an increase in parental skills and being more attuned to the child's needs, noticing cues and sensory preferences in the child that previously were overlooked. Thus, an increased understanding of the child's needs led to practical action with positive effects.

> Some of the activities though, I found also by his trial and error … so I figured … that he loves sieving and pouring and water … then I'm going "uh huh, that comes under things that [trauma advisor] had already gone through" and I thought "right, we need to follow up on that". It's just that calming you know … and he just he likes it, he needs it. *(Foster parent)*

Built into the model of care were frequent opportunities for foster parents to engage in reflexive practice in the process of taking the lead therapeutic role. Weekly or fortnightly sessions served the purpose of facilitating reflective practice and gave foster parents the opportunity to 'stop and think' about their own responses to the behaviour of the children in their care. Having frequent check-in sessions allowed for a dedicated time and a non-judgmental space to reflect on therapeutic parenting practices and locating the foster parents' sense of self within the parenting dyad. Discussions with trauma advisors were reported by most foster parents to be helpful to make sense of their own responses.

Based on foster parents taking on the role of the primary therapeutic agent, the majority of the work of the trauma advisors was in supporting, coaching, and teaching the foster parents, rather than working directly with the child. As reported by both trauma advisors, their role was to support and 'hold' the foster parents to enable them to step into the role of becoming the therapeutic agent for the child. Success was therefore identified by trauma advisors, as well as social workers, as equipping foster parents as agents of change to facilitate a stable environment that enabled the child to flourish. Staff participants (social workers and trauma advisors) reported that the majority of foster parents displayed an eagerness to step into this therapeutic milieu.

> I think that … one of the things that foster parents really appreciate is when I say to them what Dr Perry says, which is, "as a parent goes, so goes to the child", that we cannot allow dysregulated adults to stay dysregulated without supporting them. And that's why so much of my work goes into actually supporting the foster parents to get enough rest, to get breaks, to adjust their own expectations so that they're not putting unnecessary pressure on themselves, to give themselves a break in this situation that's really stressful. *(Trauma advisor)*

As reported by social workers and trauma advisors, the role of the social workers was to remind, prompt, encourage, and support the foster parents in the implementing of the plan that the trauma advisor has created and set in place. Their role was to provide a space, in the form of regular contact and face-to-face sessions where foster parents can reflect, ask questions, and disclose

frustrations. Foster parents shared that this made them feel supported and equipped in the process of adopting a trauma-informed approach.

> … those meetings with Open Home … it's another good thing about them is that they sort of reassure you that you're on the right page and what you're doing is okay and it's normal to have these, you know these bad times and to have feelings that are not great, you know what I mean … it's just… we're all human. *(Foster parent)*

The majority of foster parents reported feeling understood by other professionals in the team, who had empathy for the challenges they were facing. Participants reported a strong sense of mutual respect between stakeholders (foster parents and service providers). As one social worker commented, "they [foster parents] are fantastic foster parents… they're doing so much otherwise, you know, and sometimes you're just a human, and sometimes you're just tired, and sometimes you just had a bad day". NMT was considered by multiple participants to be an empathetic approach to foster parents and the professionals (trauma advisors and social workers) providing care to the children. One trauma advisor stated, "I think that NMT is a very empathic approach, both for children and for the adults that are looking after them". In summary, it was reflected by the majority of participants from all groups, that the NMT approach emphasised the fact that everyone has an important role within the therapeutic team.

> … because nobody asks the foster parents to get it right every single day. They're not going to get it every single day, and we're not going to do it perfect every single day. None of us can. But having this reassurance that there's someone you can go to, I think it's huge … *(Social worker)*

NMT was found to be a useful tool in bridging the gap between theory and practice. Participants, in particular the social workers and foster parents, noted that bridging the gap between neurodevelopmental principles and their practical application is essential to the success of this programme. The foster parents considered the NMT psychoeducational sessions interesting and helpful in the focus on theoretical concepts such as attachment theory, hyperarousal, the intimacy barrier, and other neurodevelopmental principles. According to the majority of participants from all

groups, the pivotal success of the NMT is in its focus on bridging the gap between theory and practice, offering practical guidance to everyday challenges. Social workers, foster parents, and trauma advisors thought that it is the exposure to practical ideas and examples of how to apply the NMT principles that makes the model effective in facilitating the adoption of trauma-informed parenting.

> So the focus of those conversations [between trauma advisors and social workers] was partly about understanding what was happening for the child in those moments. But it was also about then practical strategies for de-escalating and making sure that everybody was going to stay safe. *(Trauma advisor)*

The majority of participants commented that the simplicity and digestibility of the way in which NMT presents concepts is a strength of the model, making it accessible and easy to transfer into practice. One foster parent noted that at first the new information is overwhelming, but she quickly realised that the concepts are simple and straightforward.

> I just think in one way it's just so simple. I don't know, I think maybe when you first come to it, it seems like really, it's like a really big, you know, but at the same time, it's very simple … it's the whole model, and there's a lot of study and, but it's, you know, but it goes to basics … And so I think it's just so, I don't know if easy … if I should say easy, but it is quite easy to transfer it into practice. *(Foster parent)*

One trauma advisor thought that visual tools and resources that contain infographics about neurodevelopmental principles were particularly helpful in aiding the process of understanding concepts and translating these into practical strategies.

> I used a lot of visuals … I've just got different diagrams or different visuals to explain things, like for example the intimacy barrier … and then I can just pull that out and talk about the intimacy barrier, and then talk about the levels of the brain, and then we'll talk about the three Rs, but they can see it visually… That made a big difference. *(Trauma advisor)*

Although NMT principles have underpinned OHF's therapeutic approach for several years, the way in which the NMT was applied during this programme was reported by both trauma advisors to allow for more intentional, deliberative and intensive therapeutic care practices. All social workers and trauma advisors considered this model of support to teach social workers, who have been trained

to some degree in trauma-informed principles, to put their knowledge into practice in a more functional way. This process was within the context of an identified omission in training provided to the social workers, where there is a gap in learning how to translate knowledge into practice and implementable strategies.

> I kind of knew a little bit about NMT, now I know a little bit more. But also, it showed me ways to implement strategies, like because sometimes when you're doing trainings or whatever, you get all this stuff of like, "oh, this is what this is", but you don't actually get the how to put it into practice. So that was really good … Actually putting it into practice. *(Social worker)*

The NMT was also reported by all service providers to be an integrated model of working and compatible to various other models and assessments that were also used in the service, for example, the play preference checklist, DDP or TCI, which further increased the practical utility of the approach in this context. One trauma advisor noted that, "… for each of them [children receiving NMT input] I also did the yeah play preference recommendations which aren't classically part of the NMT assessment or anything like that, but I just find that they dovetail together so nicely".

Reflections on the NMT assessment approach. Participants from all groups reflected on the assessment phase of the NMT programme, making several observations. Most of the foster parents considered it to be a valuable and key learning process during which they became equipped with knowledge about developmental trauma and its implications, as well as other concepts underpinning the NMT approach. The assessment phase was lengthy, but foster parents considered it to be comprehensive, insightful, and significantly helpful in the way in which it shed light on the difficulties the children in their care were facing. One foster parent commented that the assessment results enabled him to have more developmentally appropriate expectations of the child, to which the child in his care responded well. One foster parent noted that the assessment process was validating and increased their level of self-trust in their observations and judgments. This change was due to the findings of the report confirming their instincts about what is happening for the child in the context of their relational and developmental history.

> … what was good was that someone else noticed it too. Like, maybe because you just think, "oh, my gosh, what if I imagine this whole thing and there's absolutely nothing wrong at all". You know, it was, "yay, someone else has seen it as well", and this is what, well I've made sense of it as well. *(Foster parent)*

The history section of the NMT report was thought to be particularly helpful for most of the foster parents, and was considered to play a key role in contextualising the child. Many foster parents commented that it was the first time they were provided with more comprehensive details of the child's developmental and relational history. Having this information about the child was described as "gold" by one foster parent who reported that it enhanced their overall understanding of the child and their behaviours, allowing them to better support the child.

> … the fact that it's given us [foster parents] more information, and information is key, 'cause often when you get the foster kids … they come with so many scrappy little bits of information that you don't even know their real history … we had a really vague picture of what life might have been like for them, so I mean it's hard to help someone when you don't know where they've been … it's like someone turning up injured but they won't tell you what happened, you know … how do you help without knowing? So that whole process of [trauma advisor] going right back through the records from as far … as much as she could find … that's been gold for us. *(Foster parent)*

Sharing information about the child's history was observed by several participants from all groups to have been a critical intervention.

> … talking to them [foster family] about his history helped because it gave them some more empathy about why he behaves the way he does … and then you could just see them starting to take stuff on … and I was so excited when the next week I met with [foster parents] and they said it had been the most helpful intervention that they've had, like full stop. *(Trauma advisor)*

Another foster parent echoed the significance of learning more about the child's history.

> For me, though, still, the key part for me personally was finding more out about their history. Because you've got more compassion and more understanding when you know where they've come from, what they've been through. *(Foster parent)*

A foster parent also reported that the assessment findings enabled him to answer questions the child had about their own history, enabling an identity formation process through accessing the child's story.

In addition, one trauma advisor reported that it gave an eagle eye view of the child's life which the social workers often don't have access to. Completing the report gave social workers the opportunity to consider the child's history, rather than focusing only on the future or current reality. For example, a trauma advisor reflected on the information report being used to determine whether there were other extended family members who might be involved in the child's life. Trauma advisors appreciated the way in which the NMT assessment approach considers the whole system that the child is embedded in, as opposed to an individual-based model that is common within psychometric measures.

> So, when you gather the information to do a report, and to use the metric tool, it's very comprehensive, I feel, because what you're doing is, basically looking at every single experience that the child has ever had in their whole life. So, it's pretty comprehensive … And, and then you're also looking … at the relational health … and because you're looking for those people, you're looking for those significant relationships, and it can lead you to ask questions like, "this child used to go to these foster parents for respite, but then they stopped because … whatever, they had a baby, is there any possibility of re-establishing that relationship?", for example, you know. It helps you to kind of to get this eagle eye view of the child's life that the social worker doesn't necessarily need to hold, because they are there in the here and now with that child and looking very much to the future for them. *(Trauma advisor)*

One trauma advisor also commented on the non-linear approach of the assessment process due to the challenges the foster family faced at the time, again reflecting the flexible nature of the NMT approach.

> I found it really non-linear, I think … so especially in [children in care's] case, their foster parents were in so much of crisis that if I had started the intervention and just gone out with like a whole lot of questions and like try to just work through the brain map stuff … initially they needed like bang for buck. They needed to describe the issues and they needed some resources like straight away. *(Trauma advisor)*

Trauma advisors and foster parents stated that interpretation of the child's NMT report was critical, as the graphs and presentation of the results can be confusing. All foster parents noted that a 'translation' process was needed to make the information more digestible, with one commenting, "I think if she hadn't gone through it with us we would look at it and go, what?". However, the majority of foster parents agreed that the way in which the results were presented by the trauma advisors was clear and easily understood.

A number of OHF staff commented on the report revealing findings and facilitating conversations within a framework that creates hope through the explicit focus on neuroplasticity and its implications. This framework was thought to increase foster parents' sense of perseverance in the face of daily challenges by trauma advisors working with the families. The principle of relational health acting as a buffer to the impact of traumatic stress, which the assessment report highlights, also increased foster parents' sense of purpose in their role. This effect was observed primarily by trauma advisors.

> But also, then, at the same time, really emphasising the neuroplasticity, and how those functions can develop over time, and how with kind of with repeated activation, that those systems will get just get stronger and stronger and more efficient. *(Trauma advisor)*

One foster parent communicated her scepticism regarding the report findings and neurodevelopmental explanations, finding the report difficult to understand: "So yeah, I mean, we just don't really know. What makes him… what's sort of really made him who he is today. I don't think we can really know". This parent had difficulty articulating her thoughts during the interview, or was perhaps reluctant to voice her opinions. She later stated that the report findings were relevant and applicable, and that it increased her level of understanding of her child's functioning. This foster parent voiced her hesitancy in adopting trauma-informed explanations and associated therapeutic recommendations.

One trauma advisor identified an area of improvement for the NMT assessment tool as it is currently used, noting that including school or teacher reports into the metric can shed light on any differences in the child's presentation at school and home.

> I think the difference between … how they interact and present at school versus home. It's not always captured just in that basic assessment tool, 'cause you really ... you're working a lot with the foster parents to gain that information but … they [children in care] look completely different at school often as well, and they [the teachers] see different things that are playing out for the child. *(Trauma advisor)*

A weakness or limitation of the NMT metric as identified by one trauma advisor was that it is not a standardised assessment tool, potentially resulting in practice limitations such as a need to present the report findings with a caveat to families. The trauma advisor stated that when presenting the findings to families, she makes the limits of the assessment tool clear, but remains confident in its utility to assist in the process of forming an educated judgement about what is happening for the child. The trauma advisors thought that although it is not a standardised assessment tool, it is a helpful in providing a comprehensive clinical picture of the child.

> So, it's just about the precision, about the precision of the metric itself and how it's not a psychometric tool. So that what you have to do is you have to present it very carefully and say, "This is my considered opinion as somebody who is accredited to produce … to use this tool". So, it's not a WISC [Weschler Intelligence Scale for Children], you know, for example, it's not going to give me a full-scale IQ within certain values right. Yeah, and people sometimes want that. And people sometimes say, "Well, how did you … how did you get this value?". And so, you have to be able to stand behind your judgment as a professional … *(Trauma advisor)*

A significant challenge in providing effective therapeutic support in the foster care context, as reported by three participants, two foster parents and a trauma advisor, was the issue of information-sharing between the organisation and caregivers. Foster parents expressed a strong desire for increased sharing of children's historical information in particular, in order to better understand the child and their challenges. In contrast, trauma advisors discussed the challenges to disclosing information due to the need for protecting the privacy of the child. In that sense the NMT report was found to be a valuable tool to highlight key information that would be useful for the foster parent, while at the same time filtering the amount of information that is passed on about the child to protect their privacy.

… when children come into foster care, the foster parents have … to have information about the child, but we have to balance that against people's right to privacy … because if your child goes into the care of the state, or the care of, you know, an organisation like Open Home Foundation, that's *your* story, what happens to your information … we need to treat that carefully and with respect; but at the same time, the foster parents really sometimes need to know, who is this child who has joined their family, what have their experiences of life been, what have their experiences of relationships and being parented been? *(Trauma advisor)*

The NMT's compatibility with a culturally-responsive approach. Of note, no participants that were interviewed in Phase 2 were Māori, thus limitations exist to these findings.

The NMT was considered to be compatible with Māori-specific cultural approaches by the majority of social workers and trauma advisors. However, cultural relevance was dependent on a range of factors, including practitioner skill, creativity, initiative; the cultural knowledge of the professional team; as well as a commitment from the therapeutic team and foster family to engage in culturally responsive practice. Due to the flexibility of NMT's approach, the model can in principle be adapted to indigenous cultural approaches and used across many contexts, for example, using cultural practices like kapa haka for regulating rhythmic movement, or considering the child's well-being from an indigenous framework captured in Te Whare Tapa Wha (Durie, 1985). However, due to NMT's lack of prescriptiveness, its effective application relied on practitioner skills, intent and motivation (mostly trauma advisors'), and the availability of resources.

… the model allows for that cultural input, but again it comes down the clinician ... their own sort of skill to bring that through. So, a lot of the things you can recommend, even the sensory stuff … or you know there could be a lot of rhythm and music and movement and … language … that's all tied up with the child's culture and … that can be done so well through the concepts of NMT ... it doesn't necessarily just come in the package you know … 'cause you're going to get kids from all different ethnicities so you do have to be creative with it … but I think that the model certainly allows for it to be effective across different ethnicities. *(Trauma advisor)*

Some participants, in particular social workers and trauma advisors, reflected on the idea of locating oneself as cultural bearer and the personal values and worldviews they bring to their role. Social workers, trauma advisors, and foster parents were often not from the same cultural background as the children in their care, which reportedly made it somewhat challenging to adapt their care and therapeutic approach in a culturally responsive manner. It was reported by service providers that the extent to which the NMT can be considered appropriate in meeting the cultural needs of the children and their families, is dependent on the organisation and clinician (trauma advisor), as evidenced by a range of responses.

> So [the NMT] is able to be used across many different types of cultural contexts, which is a pro. But then the flip side of that is in relies on your knowledge of what's culturally appropriate and what are the kind of … the big ideas of that particular culture, the major kind of things that we want to focus on. Yeah, so it really relies on the clinician or whoever's completing the report to have that knowledge themselves. For me as an advisor, so I'm Pākehā … both children that I did a report for were Māori. So I have to then think about, how can I make sure that this child's cultural identity is addressed as part of their trauma-informed care? *(Trauma advisor)*

One social worker, who did not receive direct NMT training, considered the model to be primarily based on Eurocentric principles and approaches. She felt ill-equipped, lacking the experience and training to adapt the practices culturally, reflective of a potential gap in staff training and service delivery.

> I mean, it's a very European model, let's be honest. I wouldn't… I can't really see any cultural stuff in there to be fair … I find this really hard because I'm so used to working from a Pākehā framework. I find it really hard to think of Māori … like how to change something to be more culturally diverse or whatever, like, I find that really hard. *(Social worker)*

Trauma advisors noted that the NMT model places a distinct focus on the importance of facilitating the space for children to develop a strong cultural identity which is considered essential for healing and growth. The trauma advisors emphasised both the focus the NMT training places on the effects of historical and intergenerational trauma and the importance of taking those factors into

consideration when working with indigenous children and communities. Considering the impact of intergenerational trauma on children in care was observed by trauma advisors to be a learning experience for foster parents.

> … there's no ambiguity in terms of what NMT says about the importance of healthy cultural identity. Right. So Dr Perry is very, very clear about that, about what a protective factor, cultural identity is, and also about, about the effect of historical trauma and intergenerational trauma for indigenous people. So even that is sometimes a real learning journey for our foster parents especially. They just have never really properly considered the fact that if you have different experiences, if you have experiences of grief and loss and abuse over generations, and on a kind of a societal level, what effect does that have on a community that then has an effect on individuals who are trying to raise children? *(Trauma advisor)*

In terms of wider elements of OHF's practice framework, both trauma advisors reported that OHF's trauma-informed foster parent training (CREATE), as well as other assessment tools used by OHF (e.g., CANS) had been adapted to the bicultural context of Aotearoa NZ.

> So in our therapeutic foster care training, we wanted to address culture and put it front and centre. And it's the only module that is given over entirely to only one subject, if you like, which is fostering, nurturing, healthy cultural identity for our children in foster care, no matter what their background is, how these things are, how culture shapes identity, and how culture can be kind of a pathway for healing and recovery out of trauma. *(Trauma advisor)*

Several participants from all groups reflected on the practical application of these principles. For example, one social worker reported that the care team actively worked towards involving the child's grandfather (whom she was not placed with) in her care, and providing him with the opportunity to complete CREATE training. This approach reflected the importance of whānau, as well as an intergenerational approach that considers the wider system the child is embedded within. Two participants – a trauma advisor and foster parent – spoke of making a storybook for the child in care about the origins of their name, as well as their whakapapa, including details about her whānau, iwi and hapū.

> … a lot of [child in care's] stuff was around identity and family connection in a sense. And also … through it I found a lot of information about the meanings of their name and why their mum had like named them … and about their surname as well, and where it came from. *(Trauma advisor)*

A trauma advisor also mentioned that the care team made a point to read stories about Māori history and pūrākau (Māori myths and legends) with the child, as well as suggesting including tikanga or cultural practices in the home. Other therapeutic practices had also been adapted for children, for example using poi (Māori form of dance) as a regulating activity.

> They were exploring … with a little boy, they were exploring getting him to do some whakairo, carving … And then for the little girl, we talked about doing kapa haka for her because that was going to be a really regulating activity that is very culturally relevant for her as well. *(Foster parent)*

A foster parent reflected on the child's positive response to the inclusion of culturally-specific activities.

> She loved it because it wasn't something … she didn't even acknowledge it. You know, it wasn't something that was even in her thinking of her Māori heritage and what she you know, she loves being, and she's in kapa haka, she's you know, speaks Māori beautifully … I needed her to know that this is where her ancestry is. And yeah, so … she's loved that. *(Foster parent)*

Trauma advisors believed that that having Māori cultural advisors as part of the local care teams supporting the staff and families was an important part of strengthening the therapeutic web to reflect the child's cultural identity. Where possible, mentoring sessions were facilitated between the advisors and the children, where their Māori identity could be explored and strengthened.

> … there is a cultural advisor as part of our team locally, who is able to do work to support them. So he was having fortnightly mentoring sessions with both of them, [foster children] and doing really nice stuff, like just talking to them about what it means to be Māori, about talking to them about their iwi, reading stories with them about their history, about Māori folklore, you know, myths and legends, things like that. *(Trauma advisor)*

Theme 3: The implementation and maintenance of the NMT programme within this context. This theme focuses on practical elements involved in the implementation and maintenance of the NMT as a lens to clinical practice within the context of OHF. It identifies which elements of the programme were identified by participants as critical to successful implementation, including the principle of repetition in fidelity assurance (ensuring the therapeutic plan is implemented as intended), training, managing organisational barriers to implementation, and participants' perspectives on future directions for the use of the NMT within the organisation.

The receptivity and capacity of the system as predictor of how readily the programme is adopted. Participants identified several challenges in the onboarding process for orienting the system or therapeutic web to the NMT. Participants, in particular social workers and trauma advisors, reported variance in the pace at which members of the therapeutic system (e.g., foster parents, extended family, teachers, other care providers) adopted the NMT and a trauma-informed approach to care, and the extent of uptake. The receptivity of the system was reported to be a key facilitating factor in ensuring the successful implementation of the approach and subsequent favourable outcomes. The majority of foster parents spoke of their motivation, capacity and eagerness to adopt the trauma-informed principles as guided by the NMT approach. For example, one foster parent noted:

> Anything [the trauma advisor] recommended, we've done. We've pretty much done everything because I'm thinking … like I said, no stone unturned. I can't just say, "well it's not going to work", because what happens if it does? *(Foster parent)*

In general, the trauma advisors experienced the majority of foster parents and other members of the therapeutic web as receptive, open and committed, and also spoke of the eagerness of the schools to adopt the NMT approach. A number of foster parents commented on their willingness to give any new strategies and recommendations "a go". There was also a significant willingness from the social workers to continue learning and growing in their professional practice.

In contrast, although the majority of foster parents involved in this study were found to be open and eager to adopt the principles, some participants revealed that introducing these new trauma-informed conceptualisations can be met with resistance. As trauma advisor explained, "I find still a

little bit of scepticism, you know, for people to kind of embrace the NMT approach… because sometimes it's just easier to… not to, you know?". This view was consistent with another trauma advisor who stated:

> I have definitely encountered foster parents who, you know, are more resistant. So I think it's not just a matter of giving people information … some people are, are open to understanding more, and some people, some other people are less open. *(Trauma advisor)*

One foster parent spoke of her reluctance to concur with the approach suggested by trauma advisors. She discussed her limited capacity to adopt the principles of the NMT in her parenting approach, and the difficulty she experienced in implementing the recommended therapeutic activities and structure in the home environment. This barrier was due to time constraints and a lack of belief that the change in approach and other therapeutic strategies would make a significant difference. Throughout the interview it was evident that her focus remained on the challenging behaviour of the child in itself, rather than the needs the child might be communicating through their behaviour. She frequently used negative terms such as "manipulative" and "controlling" to describe the child, and reported to have continued using more punitive parenting strategies.

The capacity and receptivity of the system surrounding the child, as well as the attitudes and motivation of the foster parents were identified by service providers as significant contributing factors to the level to which the NMT can be effectively applied in the home and school environment of the child. The effectiveness of the NMT was therefore centrally based on the openness of the foster parent and other stakeholders to adopt a trauma-informed lens, with one trauma advisor commenting, "I think after doing this [NMT programme], it's made me realise that anyone can benefit from it if they're open". One foster parent's reluctance to part from more traditional approaches to parenting affected her degree of commitment to the NMT approach, and the NMT recommendations were implemented to a lesser degree. She reported less buy-in into the NMT report findings and the trauma-informed explanations of the child's behaviour, and as a result, the foster parent continued using negative labels to describe her child's behaviour. As one social worker stated, "I find it's also … you have to buy into it as well, as an individual, you know?". Interviews revealed that the receptivity and capacity of the

system have a significant impact on the fidelity of the NMT's implementation, and further work may be required to increase its fit to some of the foster parents' realities.

Participants from all groups also spoke of adopting the NMT approach in a slow and continuous manner, with some referring to trauma-informed fostering as a "journey". The majority of participants reported that trauma-informed care involves a gradual process of shifting the 'lenses' through which the children's behaviours and challenges are viewed. Adopting this approach is not an instant cure, with the shift often taking time, and requiring ongoing commitment to revisit concepts and engage in reflexive practice. In one foster parent's view, "There are no magic wands, no. No, it's really, you know, I hate to say it, but it really is a journey that you go on with a child, it really is". One social worker also commented that not all members of the wider therapeutic web (e.g., extended family members) are able to fully make this shift.

> And, and definitely … granddad who is in his late 60s … I think, he came and shifted with some stuff during even just CREATE training. There is stuff he didn't shift with. There's stuff that we just accepted he's not going to shift with. *(Social worker)*

Feedback on the level of support provided to foster parents. All the foster parent participants described the support received from OHF over the course of the NMT programme as positive and successful, and that it met their needs. Foster parents made comments such as, "It was amazing, really, really amazing", and "The knowledge and the support I have got has been immense. I couldn't have faulted it". Several foster parents commented that they were unable to fault the programme and reflected that the NMT as a model of TIC exceeded their expectations of support, or that concerns were always answered in a timely manner.

The level and type of support varied across families depending on their specific needs, with scheduled sessions usually occurring weekly or fortnightly. Support was provided on a routine basis, as well as on a needs basis. All the participants reported satisfaction with the frequency of the support sessions. On top of their focus on capacity-building, the purpose of the sessions was reported by service providers and foster parents to encourage and reassure foster parents, normalise and validate their experiences, and support them to stay on track with implementing therapeutic plans. One foster

parent noted that fortnightly sessions gave her time to implement strategies and apply newly learned concepts, as well as observe their effects.

> I think more than that, I wouldn't have had time to actually see and observe and deal with each of the situations. But I think it would have been like, just too much information to have time to process. *(Foster parent)*

Another foster parent described her satisfaction with the way in which support materialised during the programme's implementation.

> So it's been so insightful for me to know that … yeah it's just having that deeper knowledge … someone who can advise me and be calm, and just say "you're doing a great job", "keep it up", "try this and let's see and if that doesn't work, we'll go back to the drawing board". It's not like "well, once you've done this, I don't know how to help you anymore, you're just on your own"… there's always that, you know, it's been wonderful. *(Foster parent)*

The majority of foster parents spoke of support being accessible, with social workers being "always available". One foster parent stated that expert support from the trauma advisors was also readily available, and that she would often contact the trauma advisor for support in how to respond to practical scenarios and challenges, with the advisor acting as a "soundboard". When asked whether she would have liked any further support, she replied:

> No. I couldn't think of anything … yeah, no, I don't think so. Because I always knew [trauma advisor] was just another phone call away, Open Home was just another phone call away. It's taken me a lot to be able to reach out because I would like to think I can do this all on my own, so it has taken … it's a big step for me too … so yeah, I couldn't fault anyone. *(Foster parent)*

Two foster parents noted that although ad-hoc support was available to an extent, there were limits to the availability of the right support in crisis situations, leading to some frustration.

> I guess the only thing that can be frustrating is in a crisis trying to get hold of someone, or get hold of the right person – that can difficult, but generally the support … there's as much support there as we want, you know what I mean? *(Foster parent)*

Frontline social workers also considered the support provided to foster parents throughout the NMT programme as sufficient and effective. One social worker stated that OHF's therapeutic model of practice offers a considerable amount of support to foster parents, significantly more than previous organisations she was employed with. She also spoke of the observable impact this highly supportive model of care, and the knowledge it has equipped her with, have on the system.

> … the access to the support … I obviously, I have comparison with working for [different organisation] and working for Open Home Foundation is just … I'm not going to say much … But, you know … I worked there for five years, and I'm thinking, oh my gosh have I known that … or have I been able to go to the foster parents and sit down with them and talk them through the situation with the knowledge that I have now … how much would that change this child's life? *(Social worker)*

One foster parent expressed their need for peer support in order to learn from the experiences of other foster parents. Although this support was not facilitated through the programme, they actively pursued other channels in order to access it.

> There's also … that foster parents' Facebook page or something, and that's really helpful ... it's just a page for foster parents to vent, you know if they've got a concern or the, you know, "does your child do this?" or "this is what I'm going through, does anyone have any ideas of what they've done?" ... I found that quite helpful. *(Foster parent)*

Feedback on the implementation of the recommendations and therapeutic activities as guided by the NMT assessment tool. Foster parents commonly thought that the recommended child-specific interventions were a good match to the children's needs, interests and day-to-day functioning, as well as the families' resources and lifestyle, which enabled easy implementation. The majority of foster parents were of the opinion that the recommendations were practical and realistic. However, multiple foster parents noted that it did necessitate some trial and error during implementation to ascertain what the most effective therapeutic interventions were. Some initial recommendations that were made after a period of assessment, did not work well, and thus needed to be adjusted to fit with the child's preferences. This process was done collaboratively between trauma advisors, social

workers and foster parents in a dynamic process involving multiple conversations. This dynamic collaboration, which is a pillar of trauma-informed foster care, ensured the child and family received specific, relevant, practical and tailored interventions.

> … some of the things that she [trauma advisor] recommended and that he [child in care] was using at the beginning, like this fidget toys, and popping things and stuff like that … that didn't seem to work so much with him. But the outside, he loves outside and those things … So some of her ideas, I took the idea but substituted it with other things … Some of the activities though, I found also by his trial and error. *(Foster parent)*

In order for interventions to be consistently applied, and thus be effective, this approach required significant commitment from foster families, as well as a belief in the validity of the concepts. The required level of commitment can act as a barrier to the implementation of the NMT approach. In contrast to other participants, in one family the recommendations were not put in place in a consistent manner, primarily due to the foster parent displaying scepticism of NMT-based explanations for her child's challenging behaviour, as well as lacking capacity due to work-related stress. She spoke of her limited capacity to engage with the programme, and found that some of recommendations did not relate well to the child in her care, and were thus not implemented fully.

> … a lot of it I feel didn't really relate to [child in care]. It's like, he is quite a calm kid. In saying that, we've had an incident at school on Thursday. But other than that, he's pretty … he's not really an angry kid. *(Foster parent)*

She had difficulty recalling specific recommendations and thought that some of the intensive support had dwindled towards the end of the programme, when the trauma advisor had gone on maternity leave, commenting "Yeah, so nothing's really happening that was put on the plan". Nevertheless, she noted that the child in her care responded well to some of the recommendations when reminded of specific interventions.

The majority of foster parents were unable to identify any significant barriers to implementation. Trauma advisors and social workers valued the intentionality in the NMT approach

for ensuring recommendations are tailored and realistic, and that implementation is gradual to ensure foster parents do not become overwhelmed.

> I think [the trauma advisor] worked really hard to ensure that the recommendations are realistic, and not too overwhelming … when she was developing these plans … and she presented it, she would say it's a recommendation only, and it's a list of things, not all of them have to be implemented. *(Social worker)*

Although implementing the interventions were considered to be time intensive by social workers and foster parents, most foster parents considered it to be sustainable within their family context, depending on the family's overall capacity, commitment, and willingness to adopt the approach. Nonetheless, as one social worker noted, the time-intensive nature of the NMT approach, along with families often being time-poor, was a challenge to the family implementing recommendations.

> I think it's probably a time factor for foster parents, like, I don't know, like getting up in the morning and doing this and then doing that, and then going to school … and just sticking to it, I think the stickability is quite hard. *(Social worker)*

Participants from all groups also noted that complex family dynamics can hinder the implementation of recommendations, as some families may have limited capacity due to having other children in their care, including some with high and complex needs.

> … it's hard to sometimes do something intentionally with one child when you've got four or five others … so considering all of the other kids at the same time could have been trickier, but not necessarily, it didn't really stop anything. *(Foster parent)*

Although the NMT recommendations were considered to be helpful and relevant regardless of the specific stage of fostering the families were in, trauma advisors reported that the fostering stage impacted the way in which interventions were structured. This variance was due to differences across the children's behaviour and level of regulation, depending on each child's sense of attachment security, which in turn was impacted by the type of placement (e.g., short-term transitional placement vs a long-term permanent placement).

> I had them all at different stages … [child in care's] foster parents were in total emergency, like the placement was going to break down any day kind of scenario. So, someone like that versus somebody like [child in care] who was quite stable with [foster carer], and you know they're ticking along, you know … like there were a few challenges, but it wasn't as obvious. *(Trauma advisor)*

Generally, trauma advisors and social workers reported that the initial focus of interventions was on crisis and behavioural support such as de-escalation strategies, as well as foster parent self-care practices.

> So that was our … that was kind of the first thing that we did … Self-care, because this foster … the mother and the family was just feeling really exhausted, and really run down, and talking to her about her own brain function and how could she expect to be able to give 100% to this child who really needed her to be in kind of full possession of all her cortical faculties? You know, if she was just coping … *(Trauma advisor)*

Later, the focus shifted to more child-focused interventions, as well as non-traditional therapies like equine therapy. The type and timing of interventions depended largely on the family's current situation and the child's regulatory capacities. Overall, social workers and foster parents thought that the NMT metric and trauma advisor's judgement were effective in identifying the appropriate therapeutic support for each child and family.

Another challenge raised by a trauma advisor was the professional as an 'outsider' making recommendations for within the family's personal space and context. For example, recommendations are made that pertain to personal daily practices, like bed-time routines, as well as other features like parenting approaches. The success of the approach, and other trauma-informed foster care approaches, therefore relies on a strong relational base between the social workers or trauma advisors and the foster parents, as well as adopting a strength-based approach that recognises the foster parent as an expert in their own right.

> So that's a challenge for us [service providers] is to figure out how to communicate with foster parents about what's happening within their own homes, because remember, I mean, the sphere here is personal, right? It's not professional, it's personal. So we have to be very thoughtful and very sensitive about

> working with people to understand that what we're talking about is home and family, and these are private things … and so to a degree, as a professional, I mean, yes my organisation has placed that child in that home and so we do have, you know, we have a role and we have responsibilities, but at the same time, there is a sacredness about that space, if you like … I would like as much as anybody else for somebody to come into my house and tell me what to do and how to raise my children. *(Trauma advisor)*

The accessibility of external services was also a practical challenge that affected the ease of programme implementation, especially in rural areas where there were limited external therapeutic services available. For example, a male mentor was identified as an important intervention for one of the children in the study, but remained unavailable due to the difficulty of finding an appropriate person in the rural area where the family resided.

> I think just the accessibility of some of these services in different areas … so certainly, in [local region] for [child in care] … there's just such a limited anything really … it's sort of like an hour and a bit's drive to get to a lot of services. So that's been hard. *(Trauma advisor)*

These challenges were responded to by employing creative solutions. Due to the social workers' and trauma advisors' intimate knowledge of the families they worked with, the therapeutic plans were adjusted accordingly.

> In [local region] … we couldn't find like the equine therapy as such, but we've managed … the social worker up there – she's amazing … she found this farmyard where he could go for horse rides and through scoping it out and talking to the lady who ran it, she realised that this lady had worked for child mental health services for like over 20 years and so she … she was trained in working with children with mental health issues and she has a great understanding, so her input has been incredible … So, when you can't find stuff, you can be creative. *(Trauma advisor)*

There were several organisational factors that presented challenges to the implementation of therapeutic interventions and activities as reported by social workers and trauma advisors. Contrary to short-term interventions that have been popularised by the managed care model that dominates Western mental health care frameworks, the NMT emphasises the importance of incremental and

regular interventions grounded in attachment relationships, over a long period of time. The focus is on engaging with the system the child is situated within, at both macro and micro levels - that is, daily micro interactions, as well as investing in the wider systems the child operates within to become more trauma-informed. This approach is much more time-intensive and is impossible to limit to a fixed number of sessions. Within foster care there is opportunity for long-term and systemic involvement, but organisational factors can challenge that level of therapeutic input. Potential barriers identified by OHF staff (social workers and trauma advisors) include the sustainability of social worker input to provide wraparound support, the time-intensive nature of the programme and interventions, as well as the long-term nature of the approach. Most trauma advisors and social workers reported that the programme required notable commitment from the professionals involved, with time limitations being a major challenge to the long-term vision of organisational widespread implementation, especially for social workers.

> I [social worker] even found it quite hard just having those weekly meetings, having those conversations every second day with [foster parent], which was already happening because [the child in care] was in crisis. So it was … like I was pretty much talking to her every day anyway. Just to check-in. Yeah, it was quite time-consuming even though I wasn't doing like most of the big work. *(Social worker)*

Feedback on training opportunities available to foster parents. Almost all participants across various groups considered adequate training opportunities to be an essential component of TIC. The training foster parents received, in particular the OHF foster parent training CREATE, was found by most foster parents to be comprehensive, interesting and helpful. In general, CREATE was deemed to provide foster parents and social workers' with a solid foundational knowledge base in TIC. Other training offered by OHF was also reported by foster parents and service providers to be effective in consolidating information that was covered in individual sessions.

Several participants from the various participant groups believed there were some gaps in the training provided as part of OHF's trauma-informed practice framework. Currently, once foster parents have completed the compulsory training (a prerequisite to becoming an approved caregiver which occurs before a child is placed in a foster parent's care), there are no further training

expectations. Feedback from participants to improve programme delivery included creating opportunities for foster parents to review CREATE training modules regularly. Two foster parents believed that compulsory CREATE training refreshers would be useful, a sentiment echoed by two OHF staff members.

> I think CREATE would be enough if we [foster parents and social workers] did regular, like, update … like, retraining kind of things … I think that it's important to regularly, at least once a year kind of thing, have that top up … a refresher. *(Social worker)*

> I would love to see this … this kind of a model play out where we … we do our initial training with foster parents which is awesome and it's a lot based off NMT … and really good training, but I think the problem is that they do all of that and then they get the child … and so it doesn't get necessarily revisited in a purposeful way. And so, I would love to see that after they've come on board… that all of these concepts are revisited on a specific … "how does this look for your child in your care and what are you struggling with?". *(Trauma advisor)*

When asked about social workers' and foster parents' training needs, one foster parent identified further training in FASD as a potential area of interest, with two other foster parents commenting on their desire to learn from care-experienced adults in order to gain a deeper understanding of the fostering journey from the child's perspective. Two foster parents also noted that they had independently sought external training opportunities to meet their training needs.

> Another thing that I've said from the beginning, is it would be really cool to have the perspective of someone that's been through the system that was a foster kid and is now an adult and living a normal life or whatever, or maybe they're not living a normal life, I don't know. But their perspective, and their experience, to me is good knowledge, you know what I mean? *(Foster parent)*

For other foster parents, capacity was identified as a barrier to engaging in further training, with one foster parent stating that she did not have the time, and considered her age and life stage a barrier to engaging in further training, where she did not value learning opportunities to the same extent as she believed some of the younger foster parents might.

No. I've been quite firm on that ... yeah, no, I haven't got the time for that. That was made quite clear when I took [child in care] on, that I just feel at my age I'm not prepared to go and do parenting courses and all that, you know? *(Foster parent)*

Trauma advisors' observations were consistent, with one advisor stating that although there were other training opportunities available, foster parents often do not have the capacity to attend them.

So one of the difficulties that we found with some of the families in this project was that they, we have a really good behaviour support training that we offer our foster parents that are trauma-informed, many of them have not been able to attend that training. So the information and the knowledge is there, but people can't get there. *(Trauma advisor)*

A social worker also echoed this sentiment.

Because I mean, our foster parents do go through CREATE training … and then they can do refreshers … but it's very rare that they do … because, half of them say that they can't come or whatever, because it is quite a time-consuming training … it is quite time-consuming for people who are working full time. *(Social worker)*

For social workers, a lack of time was also identified as a hurdle to engaging in other training opportunities. One social worker noted, "…that's another thing… like we're so time-poor it's actually hard to attend trainings".

Nevertheless, social workers and foster parents were of the opinion that a range of training opportunities exist, and that they felt comfortable to request further training if needed, with one foster parent noting, "I think we'd only have to ask and they'd be happy to come up with whatever".

Factors influencing implementation fidelity of the NMT approach. Participants reflected on the principle of fidelity as a critical component of successful programme implementation. Participants across groups reported that ensuring therapeutic plans and trauma-informed parenting approaches are put into practice in a consistent manner that closely aligns with NMT principles, is important in facilitating favourable outcomes.

OHF staff (social workers and trauma advisors) and foster parents reported that fidelity of TIC was cultivated by frequent, consistent and regular contact between staff and foster parents. Regular check-ins were found to keep foster parents focused, intentional, energised, motivated, and "on track", and were instrumental in ensuring therapeutic plans were put in place in a practical capacity. The majority of foster parents spoke of the importance of these frequent sessions, voicing comments like the following:

> Yeah, and … like being like every two weeks or whatever, it just kept me constantly going over what I needed to do. More aware. Yeah, constantly refreshed and aware and gaining more information. *(Foster parent)*

> … often we'll go into a meeting, we feel "ah this and this happened" and then we come out, we think "ah yeah, no we're ready to go again now", you know … It gives you new energy. *(Foster parent)*

These regular sessions were reported to be essential to successful implementation of interventions and an ongoing commitment to the approach, due to families often getting side-tracked from intentional therapeutic practice and strategies. One social worker and another trauma advisor reflected on how regular visits acted to refocus the foster parents on the principles of therapeutic care.

> I think the regular check-ins were awesome. Yeah, that was really helpful. Yeah, because sometimes I think, throughout the week, like a few things have happened and then the family start to sort of revert back a little bit. And then you have that check-in again, remind them, you know, reinforce what they've done is amazing and then they kind of come back up. *(Social worker)*

> I think maybe some people will … go well for a bit but then you might find that you go back and it shifted again to, to perhaps a more punitive approach or you know like … you kind of make sure that it's staying on track. *(Trauma advisor)*

The weekly contact sessions were identified by a number of participants from all groups as an opportunity for information to be repeated in multiple formats, which was thought to be important to further consolidate new knowledge, leading to a deeper and more expanded understanding of

principles and their practical applications. Repetition of information was also facilitated through multiple training opportunities for foster parents, with regular training being identified by some staff and foster parents as an essential component to ensure fidelity to a trauma-informed approach.

Several foster parents and trauma advisors also noted that, although the focus of the programme is to increase foster parents' understanding of the child's behaviour from a trauma-informed perspective, it remains difficult to maintain this approach during stressful situations. Applying strategies was challenging when foster parents were under stress, or experiencing significant emotionality like anger or frustration. Being under stress resulted in a tendency to revert to traditional, more unhelpful parenting responses. For example, focusing on behavioural parenting approaches situated in the context of operant conditioning theory, that is, a method of learning that uses rewards and punishment to modify behaviour. This approach and other reactive approaches that add to behavioural escalation in a dysregulated child are argued to be ineffective with children who have experienced trauma (Cook et al., 2005; Perry et al., 2016).

> … that's something that happens, that the more stressed we become the more we rely on very concrete solutions and the more we revert to what has worked for us in the past … it can be really tempting to use traditional parenting responses … for behaviour support … and so when you speak to foster parents about the idea of trauma-informed care and what that looks like ... I very rarely encounter any kind of real resistance, so most of the time people understand and they're on board, but when the rubber hits the road at home, we tend to revert to our what has helped us to cope in the past. *(Trauma advisor)*

One foster parent commented on this issue when the child in her care presented with significantly challenging behaviour, conceding, "Oh, I'd be yelling at him most of the night. Oh, what strategies I would use… none. None that day, I can tell you now… he wouldn't have deserved any strategies".

Being flexible and creative in adapting the support package to the context of the child and family were identified by staff as crucial in ensuring the fidelity of the approach within a dynamic environment. Several service providers suggested that a good review system of therapeutic plans and recommendations, as well as the level of support required, might be useful to ensure interventions

remain relevant and viable and target the family and child's needs effectively, in order to increase programme fidelity. Linking with a previous subtheme on the role the capacity and openness of the system have on the adoption of trauma-informed framework as a whole, the receptivity and capacity of foster parents also have an impact on how closely therapeutic recommendations are adhered to. The importance of trauma advisors remaining attuned to the foster parents' needs and perspectives, and adapting the therapeutic plan accordingly, was noted by some trauma advisors and social workers to be a key element of implementation fidelity.

At an organisational level, ensuring implementation fidelity remains an ongoing challenge due to the idiosyncratic way input and interventions are structured for each child and family, and the large impact practitioner competence and preference have on implementation processes. One trauma advisor identified that having social workers adequately trained and confident in the delivering the NMT approach will facilitate fidelity of programme delivery, as social workers tend to have more regular contact with families than the NMT-trained trauma advisors.

> And I guess this is where it will be really beneficial to have all the staff trained, and confident in delivering it … so having these conversations, having the recommendations written and having them used, you know … And so keeping it alive. And that's, I think that's a challenge across the social work, really, you know, that we write a lot of plans, and we do a lot of different things, but do we then go back to them and we actually use them? So you know, some kind of a review system. *(Trauma advisor)*

The impact of Covid-19 on programme implementation. The present study occurred during the second year of the Covid-19 pandemic experience in NZ. Parts of the country experienced strict restrictions and lockdowns for extensive periods of time. The majority of the families involved in the study were located in the same region, where restrictions were in place for a limited time. The impact of Covid-19 on programme implementation was considered at various system-levels.

At a family level. The majority of foster parent participants (n=4) considered the Covid-19 lockdown that transpired during the study (as well as other previous lockdowns) to have been a positive experience for their family and children in their care. As one foster parent reflected, lockdowns simulated an ideal, stable, controlled and contained therapeutic environment where the

child in their care thrived. Another foster parent reflected that the lockdowns brought consistency, predictability and safety in boundaries, and was an opportunity for intensive, focused and relationally-orientated care and interventions. They reported that lockdowns enabled the family to establish helpful routines and implement a comprehensive and effective regulatory sensory diet for the child, as well as model prosocial behaviour, that strengthened the child's sense of belonging and led to a reduction in his anxiety.

> And I think having lockdown was just perfect. Because there was no outside interruptions … there was also the quietening inside him. He wasn't anxious. He knew the routine. He knew what he could do, that he belonged, the routines that were going to happen in the home, the relationship between everybody else in the home … so lockdown was just amazing. *(Foster parent)*

The lockdown was a described as a "catalyst" for positive change by one social worker, who reported that it highlighted foster parents as the key agents of change. One foster parent reported that their child made significant progress in maths and reading during that time. One social worker also commented that one child presented as markedly different post-lockdown, with a significant positive shift in his regulation and behaviour.

> … [the] school said that [child in care] came back a completely different boy after lockdown. But I think this was the period of time when all was relational. You know, they are really good at keeping the routines, the predictability, his sensory diet and plans that were really … he made amazing progress! He was tested at school and he jumped a level in maths and reading. So no I didn't see this as a barrier at all, I think, once you have this relationship and consistency, you can really translate. There was no reason for not making phone calls or you know, because again, who's the agents of change? That's what we believe … it's the foster parents. *(Social worker)*

This period did require additional organisation and intentionality from foster parents to facilitate ongoing school work over Zoom, but one foster parent reported that once a routine was established, that was not a difficult venture.

> … so it was just being very … timetable-wise… they each had their written timetable, timers got put on, and it was just … and that's how they thrived … Structure, structure, structure, it's key. It really is. *(Foster parent)*

Only one foster parent spoke of the intense challenge Covid-19 restrictions and lockdowns were to her family. Lockdowns were challenging due to ongoing work pressures without additional family and external support structures that were part of their regular routine, for example, after-school programmes, so that "… that first lockdown was for a long time. And it was just torture".

At a clinical practice level. All social workers and trauma advisors reported that although providing support was slightly more difficult during lockdowns, due to interruptions at home (e.g., other kids in the home during Zoom meetings between trauma advisors and foster parents), there was no major impact on service provision.

> … some of the linking in with them was challenging as well because they would be at home with the house load of kids and trying to get a time to talk to them where you … where you kind of got little ears in the background, was a little bit tough. *(Trauma advisor)*

Some external therapeutic activities were disrupted, for example, equine therapy, but only for a short period of time. As the duration of the lockdown was only for a limited number of weeks, the long-term impacts on service delivery could not be ascertained. Nevertheless, it was not considered to be a significant challenge to the provision of clinical support.

Support was adapted during the lockdowns and consultations were moved to Zoom or telephone conversations. Participants, in particular service providers, considered these digital tools and other telehealth avenues useful in mitigating challenges associated with Covid-19. Although service providers spoke of the high value the organisation places on face-to-face connections, technology was considered to be an enabling tool in meeting both foster parents' and organisational needs. Several social workers and trauma advisors commented on the importance of good rapport and a well-established relationship with foster families, which enabled the transition to telehealth to be seamless.

Once the relationship was established the medium through which support was offered was reported to be less important.

> … I think because of building the rapport through visits initially, it made it way easier when you did need to rely on Zoom or phone calls, 'cause … you could just call them up and have a chat or have a text conversation, but I think you need to do the face-to-face first. If the whole thing had been done over Zoom and phone calls, I don't think it would have had the effectiveness. *(Trauma advisor)*

At an organisational level. One trauma advisor reported that the pandemic did impact programme delivery in a wider sense, in that it prevented planned initiatives, for example, peer support and training workshops. It also meant her role changed as she had to take on other leadership responsibilities, which disrupted her provision of family-based therapeutic support. This perceived disruption was not noticed or commented on by the family she was working with, who experienced the support to be comprehensive and robust.

> … if we had not had the pandemic … we were planning to get all of our foster parent social workers together nationally, and then to have a workshop about supporting foster parents with trauma-informed care. It's pretty difficult to workshop something like that online. And so that didn't happen … and … we wanted to get some peer support happening for our foster parents in [local region] … *(Trauma advisor)*

Wider organisational-level considerations of programme implementation and maintenance. During the course of the NMT programme one of the trauma advisors went on maternity leave, resulting in a minor disruption of programme implementation. This was supplemented with other organisational resources such as engaging the foster parents in an external therapeutic crisis intervention course, and arranging for another OHF trauma advisor to provide additional support to the families. The impact of this disruption was not considered significant by the affected families, although it was commented on by one foster parent, highlighting the importance of organisational structures and systems that can manage and absorb planned and unforeseen interruptions to programme implementation.

OHF trauma advisors and social workers (n=4) all believed that adopting the NMT as a model of therapeutic care is sustainable if there are adequate organisational structures and resources in place,

for example, an adequate number of trained staff, low staff turnover, financial resources, and streamlined implementation systems and processes. Trauma advisors reported that, in order to improve long-term service delivery, OHF's goal is to have systemic implementation that focusses on a proactive approach to care, as opposed to the current needs-based and reactive practice approach that sees trauma advisors get involved when families are already in crisis. This change will mean therapeutic plans are initially created by trauma advisors or social workers certified in the NMT for every child in their care, after which therapeutic support is managed by the relevant social workers.

> … initially the stuff is set up and supported to be established by say the advisors … we heavily involve the social workers and the teams so that they then … we make recommendations and they keep outworking them long-term. *(Trauma advisor)*

Implementation barriers to training more staff in the NMT were identified by a trauma advisor as including high financial costs, staff turnover, time limitations due to high caseloads of social workers, and a limited number of training providers available (number of staff trained in Phase II of the NMT).

> … one of the things that really affects us, because trauma-informed social work practice and trauma-informed foster care is relatively new, what I find is that we're often starting from scratch when we have new staff; they don't have experience of the kind of knowledge that that our staff have. And so we're doing a lot of training. So staff turnover is an issue for us … *(Trauma advisor)*

One trauma advisor thought that the NMT programme was not implemented as intended, and to its full capacity, throughout the duration of this study, which is reflective of wider organisational barriers, in particular being a small organisation with limited resources.

> So as the kind of the lead person leading the NMT report, and the implementation, what I had hoped was to be able to kind of carry on doing some pretty intensive work with both families for a six-month period. And about two months in, I started a project that took me away from my role for a significant period of time. And it was really, really difficult to be available, and to stay involved to the same degree … So we are a small NGO, right … we don't have many people in senior leadership … what that meant was that the number of people in the organisation, with the kind of knowledge of NMT that would have been able

to step into to take over what I had been doing fully, that just wasn't an option … that speaks to the constraints, I think, from just working in a small organisation. And, just the kind of funding constraints that you know, the not-for-profit sector have to deal with. *(Trauma advisor)*

Two service providers, a social worker and a trauma advisor, identified rigidity in delivery methods of training as a barrier to implementation, recommending an increase in the flexibility of training opportunities and the delivery of the support package to increase the accessibility of the programme.

> … as an organisation … I probably would like us to be more flexible in terms of being able to offer training … that we will have more flexible kinds of delivery methods, that technology will enable us to connect and to do things online, that will be, you know, that will meet some of those needs ... I don't think that there will ever be a replacement for face-to-face, kanohi ki te kanohi … but at the same time, we have to be realistic about time constraints that people have and things like that. And we have to still find a way to give them the support that they need within the worlds that they are living in. *(Trauma advisor)*

Theme 4: The outcomes of the NMT programme. This theme outlines the observed changes and outcomes associated with the implementation of the NMT as a framework for therapeutic TIC, as reported by participants across the various participant groups. Outcomes across the system are separated between the changes observed in the children, foster parents, the family system, and the OHF social workers involved in their care. Overall, the results associated with the programme's implementation across the system (children, families, and wider professionals) were indicated as positive, with the feedback generally highlighting the positive qualities of adopting this model in providing TIC. Participants reflected on the slow pace at which outcomes are observable, and the fluctuating nature of progress in children, as well as the importance of considering contextual factors when ascertaining the effectiveness of using a certain tool or approach.

Changes reported in the children. Although the majority of foster parents and other participants involved in the children's care (n=8) reported positive changes in the children's behaviour and trauma-related symptoms in response to the NMT programme, the changes were mostly modest and the progress was described as non-linear. Conversely, some social workers, trauma advisors, and

foster parents reported observing significant changes, commenting, "… so seeing with this intentional approach, you know, what it has done to him, and the results that we're seeing today, it's absolutely, it's phenomenal". This change was echoed by another member of the team supporting the same child:

> … we had … boy who had come into transitional placement, absolutely broken, and 100% in survival mode … he was pretty much just falling apart … And so you know, [child in care] is today, is in a completely different space ... *(Social worker)*

It was common for a period of positive behavioural change to be followed by regression in the same behaviour. Realistic expectations of measurable short-term outcomes were considered to be important by the majority of participants across groups, as most of the changes reported were gradual in nature, with significant changes only expected to be visible over a longer period of time.

> Oh, huge, huge changes from when he came to what he is now. But I think the changes just sort of … are so gradual as they go through, you often don't know them in stages. *(Foster parent)*

Children's presentations, and the extent to which changes in their behaviour and regulation levels were expected as a result of therapeutic interventions, were also reported by trauma advisors and social workers to be dependent on environmental circumstances and other external variables, such as the type of placement. For example, for a one child, the transitional nature of the placement significantly impacted his overall regulation levels and associated behaviours. Additional factors that influenced noticeable changes included the shifting of schools for one child, resulting in heightened anxiety, as well as the Christmas holiday period, during which the child's progress appeared to stabilise without significant advancement.

One common change observed in children by multiple foster parents and OHF staff included an increased capacity for regulation. In one example, the foster parents noted a bigger gap between episodes of emotional outbursts or 'meltdowns'.

> There has been a shift in the fact that there's a bigger gap between the outbursts … Like he was good for a period of three or four weeks with not an outburst and then of course he had a great big outburst but it's like … there's going to still be those bumps in the road … but looking at the good stuff as well like you know … the amount of time between … you know, growing. *(Foster parent)*

The social worker working with the family also observed a reduction in the severity or intensity of the episodes.

> … [child in care] has come a long way from like, where he was six months ago. He's come a long way. Like even if he's still having moments, but he's not thrashing the house I'm like, "woohoo, he's not thrashing the house!" Yeah so definitely. I don't think he's trashed the house for a long time actually. *(Social worker)*

This observation was corroborated by the trauma advisor working with the same family.

> And we just saw such a shift happening with him … since then he hasn't had any severe outbursts. He's moved up the continuum ... he gets like a little bit up there to like aggression agitation but he never gets to the outburst and that is a miracle in itself … And the school haven't seen anything either ... like he's just … everyone's commenting that he's starting to show he can … he's developing a bit more capacity to regulate, so he's still getting triggered but he's not, he's not rising like he was. He's able to kind of come back down. *(Trauma advisor)*

One foster parent also noted that her child had started to independently seek out regulatory activities when dysregulated.

> I think he's on a good way to learn how to regulate himself and making the links between what he's doing and just helping him to be calm. I don't think he's there yet. It just hasn't been long enough. *(Foster parent)*

Other changes reported by a foster parent included an increase in a child's emotional literacy (the ability to name their feelings) and replacing negative behaviour as a form of communication with "I'm feeling" statements. One child was also reported by a trauma advisor to be less anxious and disruptive in the classroom.

There was also some variation in how participants from different groups involved with the same child or family perceived outcomes, with one foster parent commenting that no change was visible in her child, whereas the trauma advisor involved with the family was able to identify several observable

changes. Changes reported with the children were also considered by trauma advisors and social workers to be closely linked with changes observed in foster parents' parenting approaches.

> I've seen that behaviour has changed for the children because of the adult response changing … so yeah the [foster carer] was reflecting on that yesterday, just how her responses to him has changed and she's noticed he's just not … he's not stressed as much, and he's not getting as heightened as much. *(Trauma advisor)*

Changes reported in the foster parents. The majority of foster parents (n=4) reported that they gained a deeper understanding of the child in their care, specifically in terms of their child's development and the neurobiological impact of traumatic experiences. Two parents described how having an enhanced understanding led to a shift in perspective about the children's challenging behaviour and the reasons for the behaviours, which in turn shifted their parenting approach.

> And I think like I said, it's just … it is more of the mindset … this is such a deep level of parenting in a way that … so yes, it's changed me immensely. *(Foster parent)*

> I did notice some changes in me 'cause I said I was like … some of the things she was saying, I was acting out, you know, like worse than [child in care] sometimes. So, it made me stop and think about how I address certain things. *(Foster parent)*

This effect was also observed by both the social workers.

> But now their go-to is thinking that, this is a child with trauma, and this is a child who needs a different approach. And I think this is where I've seen the shift. *(Social worker)*

> I think it changed a lot, especially for [foster parent's husband] because he was more in that mindset of like, you know, you need to put consequences in and he's just being naughty … So I think I saw the biggest shift in him, because at the beginning, he was the one that was just like, "we can't do this anymore" … And then, towards the end, I think they could kind of see that "ah this is working". *(Social worker)*

All the foster parents (n=5) reported that the programme provided them with practical skills and strategies in dealing with children's difficult behaviour and complex needs. The foster parents' experience of being supported and equipped to step into the role of primary agents of change was also described as an empowering journey of learning. Some foster parents reported that this led to an increase in confidence in their own responses towards their children

> I've got more tools and I feel probably more confident even if I'm not using them, I just know that I have those tools now. *(Foster parent)*

> So we need to try and make sure we do this right. And yeah we've got the confidence to do that now, whereas yeah, I think before it was because it was so ongoing, and I didn't see the light at the end of the tunnel, whereas now, there are snippets there … Still going down the long haul, but you know they're there, we've seen those. *(Foster parent)*

A salient finding was that most foster parents (n=4) reported a reduction in parental stress as a result of the programme. This change was ascribed to the increase in knowledge, having more strategies and skills in their kete – or parenting 'basket', feeling like they were part of a team, as well as a shift in perspective about what success comprises in this context, with a focus on celebrating small wins and milestones and managing their expectations of the children. Social workers were thought, by some foster parents, to play a key role in facilitating foster parents' awareness of subtle yet significant changes in their children, perceptible from a more removed vantage point.

> It's just the hugest difference and yeah, it's not rocket science but at the time, you [foster parent] can get yourself in that whole mindset of just how hard it is, and I cannot do this or I cannot be successful and it makes you realise the importance of what that success looks like … it could be just the smallest thing and yet you have been successful with it. It doesn't have to be the whole big thing. Because overall, I mean we haven't got … you know we haven't got the most perfect child in the world. But my gosh, we've had success. *(Foster parent)*

These factors were reported by participants from all groups to lead to an increase in parental confidence, perseverance and commitment, as well as a sense of reward and enjoyment in the parenting journey.

> I think that, in general, what I [trauma advisor] noticed was that it seemed to me like the foster parents were enjoying their little one more, which was lovely. *(Trauma advisor)*

Some changes in the parental unit were also noted. One foster parent articulated that prior to the family's engagement with the programme, she possessed a good baseline understanding of TIC, but felt like her husband's parenting approach was at odds with hers. She expressed that although there was some reluctance on his part to move away from a punitive and behavioural model of parenting, participation in the NMT programme not only changed the way he parented, but was successful in getting them to stronger consistency and working from the same knowledge. They were thus able to operate as a more cohesive unit or team. That change was also observed by the trauma advisor working with them.

> … [my husband] and I also too, are working a lot more alongside … so it would often either be just me, and then if [my husband] happened to be in, I would just then step back, whereas now we're doing it alongside together … it's brought us a lot closer as a unit. Just knowing that we are … working together on this. *(Foster parent)*

Changes reported within the family system. Within the broader family system, some service providers reported that the wraparound engagement provided during the programme's implementation resulted in the stabilisation of the family system in which the child is placed. In one family, the input had the effect of stabilising the risk of a placement breakdown, which had been a primary concern when the programme commenced. The change was reported by the foster parents and relevant trauma advisor to be due to a reduction in extreme behaviours of the child, an increase in parental skills in managing these behaviours, as well as an enhanced understanding for foster parents of the impact such an additional trauma will have on the child. Another outcome reported by multiple social workers and trauma advisors was the ripple effect of positive changes among various members of the family

system. It was reported by some foster parents and service providers that other siblings in the family, both foster children and biological siblings, experienced a greater sense of security in the family home as a result of the therapeutic input the children in the study received. One foster parent observed that as the child in her care (who was involved in this study) achieved better emotional regulation, the other child in her care experienced a corresponding improvement in their sense of security.

> So I've seen a positive side with him [other sibling in their care] … at the beginning, he would … what we're finding is that he would go and pack his bag and he was out of here. He just didn't want to be part of it, it was a trigger for him [initiating meltdowns] … so he's a lot more secure in himself. *(Foster parent)*

Several service providers and foster parents reported that other family members, such as older biological siblings, also felt more equipped to respond to challenging situations in the home due to the systemic approach that was taken by the trauma advisors when providing support and input to the family. The majority of foster parents reported an increased sense of support from their family and partners through the programme's facilitation of cohesive collaboration, fostering a unified approach among all members.

Changes reported among frontline social workers. All social worker participants (n=2) reported that being involved with the implementation of the NMT programme increased their knowledge of the impact of childhood trauma and TIC, as well confidence in their professional practice as social workers. One social worker noted that close collaboration with the team's trauma advisor resulted in a notable enhancement of her professional competence, which she attributed to the extensive learning opportunities that arose during the experience.

> … so I feel competent that I can go in and especially now in the last few months, you know, working so close with [trauma advisor], I feel like you know, “oh wow, I can go and give some advice, that’s awesome”. *(Social worker)*

According to a trauma advisor, social workers frequently lack sufficient training during their university education to adequately prepare them for the challenges they encounter in this particular

workplace. This programme therefore equipped them with the tools to be more competent and effective in their practice.

> … we very rarely have social workers saying, "I don't know about this". Because they know … their work and they know the children who they are supporting, and they know that they don't present like typically developed children. And so they are faced with a challenge that they didn't really have a solution for before. But now they do. *(Trauma advisor)*

Quantitative outcomes. At baseline, each of the five children who were involved in the study had scores on the ACC-SF that indicated clinically significant impairment (>14). A single-group pre-test/post-test pre-experimental design was used to determine the effects of an NMT-guided intervention plan on the functioning of five children. Paired t-tests were conducted to determine differences between pre- or post-test means. Tests were two-tailed, with an alpha level of $p < 0.05$ indicating statistical significance. The data from the ACC-SF and ACC+ is presented in Table 6.

Table 6

Descriptive Statistics of Measures

						95% Confidence Interval	
	M pre (SD)	*M* post (SD)	*p*	*M* difference	*d* (effect size)	Lower	Upper
ACC-SF	31.6 (5.27)	26.4 (12.66)	0.34	5.20	0.54	-8.07	18.47
ACC+	65.2 (10.76)	69.8 (12.03)	0.30	4.60	0.40	-15.23	6.03

M: mean; SD: standard deviation
Note: higher scores indicate lower functioning on the ACC; higher scores indicate higher levels of strengths/positive behaviour on the ACC+.
Average period between baseline and follow-up was 5.6 months.

In the children's sample, there were fairly substantial mean differences between pre-test and post-test scores on both the ACC-SF (d=.54) and ACC+ (d= .40). However, the obtained *p*-values (p = .34, p= .30) indicate that the results were not statistically significant ($p < 0.05$). The effect size on the ACC-SF (d=0.54) was moderate, and small to moderate (d=0.40) on the ACC+.

The data is also presented individually due to the small sample size of this study. As can be seen in (Figure 11), participants two and four had a large reduction in trauma symptoms as reported by their foster parent; participant five showed a non-significant reduction. In contrast, participants one and three exhibited a minor increase in trauma symptoms. At follow-up, only three out of the five children had scores in the clinically elevated range, with two children scoring in the sub-clinical range (10-13). The data presented in Figure 12, indicate the change in scores on the ACC+. An increase in scores indicates a positive change. For four out of the five participants there was an increase in their scores on the ACC+; for participant five there was a slight decrease in their score.

Figure 11

ACC-SF Individual Pre- and Post-Test Scores

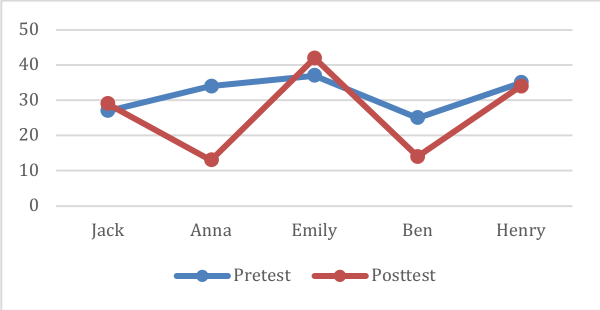
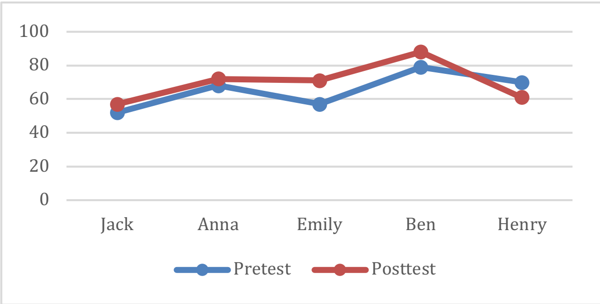


Figure 12

ACC+ Individual Pre- and Post-Test Scores



Chapter Six: Discussion

This chapter reviews the main findings of the present research and considers their implications for clinical practice. The findings are discussed under three headings: (1) the organisational evaluation needs as identified in Phase 1, as well as the needs of the wider system, in particular foster parents; (2) the critical processes involved in the implementation of the NMT; (3) and, lastly, the outcomes associated with the implementation of the NMT as a model to guide TIC practices. The findings are considered in the context of existing literature, with a focus on the contribution this present study makes to knowledge and practices in the field. The discussion then considers the wider clinical implications of this present study on the implementation of the NMT and TIC practices within the foster care context, followed by a discussion of study limitations and areas for future research.

Purpose of the Study

The aim of the study was to explore an example of a community-based implementation of TIC in foster care settings, involving: (a) the assessing of children's functioning and trauma symptoms; (2) establishing outcome targets and identifying the needs of the family through the integration of assessment information into therapeutic plans; (3) providing a family support package which included the implementation of interventions across various levels of the system; (4) ongoing reviews and monitoring outcomes. The study was exploratory, aimed at comprehending the first-hand experiences of frontline staff and foster parents regarding the initial implementation of a trauma-informed assessment and intervention planning approach. It was designed in a responsive manner to the real-world context of a social service organisation within Aotearoa NZ. The results contribute valuable insights to the existing literature on evidence-supported interventions within this specific context.

Research questions.

1. Is the NMT a feasible and useful clinical tool in delivering trauma-informed foster care within the NZ context, based on the priorities of OHF?
2. What are the experiences of frontline stakeholders involved in implementing trauma-informed foster care practices guided by the NMT?

Key Findings

Identifying stakeholder evaluation needs and wider system needs.

Organisational needs. The goal of Phase 1 of this present study was to ascertain the organisational information needs of OHF, as determined by staff in management positions, in order to effectively design Phase 2 of the study. Phase 1 sought to understand the ways in which programme success is defined by OHF staff in management, with this knowledge then used to interpret findings and consider the utility of the programme, and the subjective success of programme implementation. During this phase, selected OHF management personnel discussed the information needed to formalise and improve service delivery.

OHF staff identified the following information needs: (1) how to effectively use the NMT within the service, both at a clinical practice level, and embedding it at an organisational level; (2) ascertaining the capacity of the foster parents to engage in the implementation of therapeutic practices in the home; (3) exploring whether the manner of implementation of the NMT meets foster parents' need for support; (4) establishing whether the programme activities are effective in enabling foster parents to remain focused and intentional on therapeutic goals and practices, thus TIC; (5) establishing best practice for implementing the NMT recommendations, to enable the formalisation of the NMT implementation processes and procedures; and (6) determining preliminary outcomes in child and foster parent well-being when resources are put towards the implementation and follow-through of recommendations.

Frontline stakeholder needs. In addition to the data derived from the scoping meeting regarding the organisational needs associated with the implementation of the NMT and TIC, data from the participant interviews in Phase 2 expanded on the complex needs and challenges encountered by foster parents and frontline staff, in particular social workers and trauma advisors, in the foster care environment. These insights highlighted the need to implement a trauma-informed model in the first place, aiming to address the complexities foster parents and frontline staff face. The challenges identified encompass the need for foster parents to address the demanding behavioural and emotional needs of children in their care, where challenges in doing so often result in feelings of helplessness, confusion, exhaustion, anxiety, and a lack of confidence among foster parents.

As a result, foster parents identified a set of practical needs, including comprehensive support structures, advanced knowledge of the effects of developmental and complex trauma on children's functioning, as well as related practical strategies in supporting the children in their care. These findings are consistent with research that has articulated foster parents' need for emotional support from social workers and other professionals, access to crisis support, availability of specialist services, as well as adequate training on the impact of trauma and neglect on children's development and presentations (Harding et al., 2018; MacGregor et al., 2006; McKeough et al., 2017).

Identifying critical processes involved in the implementation of the NMT. Based on the needs and evaluation priorities of OHF management identified in Phase 1, Phase 2 was designed to provide an opportunity for the stakeholders directly interacting with the programme (foster parents, frontline social workers, and trauma advisors) to provide feedback on their experiences of the initial implementation of the programme. The purpose of this phase was to uncover the programme's scope and critical processes, that is, mechanisms and mediators of change, and gain a deeper understanding of the practicalities associated with the implementation process.

Generally, the NMT model and its implementation within OHF's service delivery were well received by foster parents and social workers, who found it practical, feasible, and valuable. This is reflective of other research that found an NMT-based practice framework successful in guiding service provision, with service users and facilitators commenting on its feasibility and clinical utility (de Nooyer & Lingard, 2017; Topitzes et al., 2019; Vandivere et al., 2020; Zarnegar et al., 2016).

The NMT as a model was considered by OHF staff and foster parents to be effective in facilitating a flexible and idiosyncratic approach in designing a therapeutic support package and being responsive to the environment and needs of the system. This responsivity enabled ease of implementation and ensured the relevance of the support and therapeutic interventions, consistent with other research that explored the experiences of stakeholders in implementing the NMT in child welfare settings (e.g., Vandivere et al., 2020). One of the key NMT processes identified was the importance of building a relational and collaborative therapeutic web around the child that has a shared understanding and language of TIC, with NMT being considered an effective tool in facilitating this process. This finding aligns with other NZ research that explored the experiences of parents and

children in trauma-responsive residential care and highlighted the importance of connected and secure relationships when engaging with children who have undergone traumatic experiences (Greer, 2021). The NMT focuses on equipping foster parents to step into the role of primary therapeutic agent. Placing the foster parents in the centre of the therapeutic milieu was reported by OHF staff and foster parents in this present study to lead to a sense of purpose and increased foster parent agency. The NMT programme was also found to be useful in bridging the gap between TIC theory and practice, which was identified as a need by both frontline social workers and foster parents.

Foster parents regarded the assessment process of the NMT as a valuable learning experience. It offered foster parents deep insight into the relational background and trauma-informed needs of the children in their care, with the assessment information enhancing a sense of hope for foster parents. Similar findings emerged during other NMT implementation studies (Topitzes et al., 2019; Vandivere et al., 2020). Information sharing between OHF and foster carers was identified as a challenge within the foster care context. Foster parents conveyed a strong desire to gain a deeper understanding of the child in their care, which sometimes conflicted with OHF's obligation to protect the child's privacy. The NMT assessment report was found to be a mediator in this tension as it provided the clarity the foster parents sought, whilst protecting the details of the child's history. However, it was noted that the NMT assessment metric lacked standardisation, which resulted in limitations regarding how the information could be utilised and presented.

In order to ascertain whether the NMT is an appropriate model within the specific Aotearoa NZ context, it is critical to consider its compatibility with the bicultural context of NZ and whether it has the potential to be adapted in a culturally responsive manner to meet the needs of Māori. Due to the absence of Māori participants in Phase 2, there are considerable limitations to the findings and the ability to conclude whether the NMT is compatible with Māori-focussed approaches. The NMT was considered by some staff and foster parents to be compatible with Māori tikanga and Kaupapa Māori approaches, in particular staff who have received advanced training in the model. Examples included adapting interventions to include Māori practices such as kapa haka or poi as regulating activities. The focus on strong relational connections within the wider therapeutic web was also considered to be in line with Māori values, in particular whanaungatanga. Whanaungatanga can be described as active

participation in, and a sense of belonging to a social group and collective relationships, marked by kinship and familial relationships (Greaves et al., 2021). Whanaungatanga is central to Māori well-being and identity formation (Hamley et al., 2023; Krakouer et al., 2018). Importantly, the effectiveness of that alignment was considered to be dependent on practitioner skill, creativity, initiative, and the cultural knowledge of the professional team. In addition, a commitment from the therapeutic team and foster family to engage in Māori-culturally responsive practice and training is important in this process. Therefore, although it was thought that the potential exists to apply the NMT in a culturally-responsive manner due to its flexibility, the extent to which this is done successfully appears to depend largely on the wider organisational and family context the tool is used within. The NMT model and OHF's clinical framework were also reported to place a focus on the importance of facilitating the development of a strong cultural identity for children in care, which is considered essential to their healing and positive mental health and well-being (Durie, 2001). A strong and connected cultural identity is considered to be a significant protective factor that contributes to the intricate web of factors that has the potential to buffer against adverse and traumatic experiences (Gaskill & Perry, 2014; Ungar et al., 2007).

The focus of the present study was on identifying key processes involved in the implementation and maintenance of the NMT programme within this context, as well as TIC in a more general sense. Findings suggest that the degree to which a TIC approach was adopted by the system in which the child is embedded (that is, by foster parents, family, school, etc.) is dependent on the receptivity and capacity of the system, that is, time capacity, openness in attitudes, and perceived belief as to whether the approach can be effective in responding to the foster families' challenges. This receptivity and capacity of the system is a predictor of how readily the programme is adopted. Interviews revealed that the onboarding process to a shared trauma-informed understanding of the therapeutic web is not simple or straightforward, and is at times met with resistance and scepticism. This finding is consistent with existing research that found challenges in family engagement when adopting the NMT in a foster care context, highlighting the need for continued effort in working alongside families to understand their capacities, hesitations, and optimise their engagement with therapeutic practices (Vandivere et al., 2020). It is therefore essential that the focus remains on a

collaborative, tailored, and flexible approach when working with families in the foster care context (Vandivere et al., 2020).

Although some foster parents' identified room for improvement in accessing adequate support in crisis situations, the support provided to foster parents by OHF staff (social workers and trauma advisors), including regular sessions and crisis support, were generally found to be sufficient and effective, with some foster parents commenting that it exceeded their expectations. Understanding foster parents' experiences of support and identifying other support needs were one of the information needs identified OHF in Phase 1. Foster parents also reflected on the idea of "support being a text away", which has been identified as a key theme in other research studies, with Dunkerley et al. (2021) referring to participants' desire for having 'go-to people' who can provide support. This need forms part of the wider focus on strong collaborative relationships between an organisation and the families or foster parents. As described by Frederico et al. (2019), a proactive, persistent, purposeful, and creative approach is necessary to establish meaningful therapeutic connections with children and young people, as well as foster or kin carers. In addition, a strong relational base between the social workers and trauma advisors and the foster parents was also identified by staff as a key moderating factor to ensure successful programme implementation. Existing research has also highlighted the importance of a strong working relationship between the foster parents and agency staff in a therapeutic foster care setting (Farmer, 2009). As previously mentioned, building meaningful relationships between members of the system is a critical element of a culturally responsive trauma-informed approach (Meléndez Guevara et al., 2021).

Foster parents and social workers thought that the recommended interventions were in general a good match with the child's needs, interests, and day-to-day functioning, as well as the family's resources and lifestyle, which enabled easy implementation. This view is consistent with research that found that both trauma advisors and parents considered the NMT plans to be well-tailored to the needs of the family and that it could be easily integrated into the family's daily routines (Vandivere et al., 2020). The majority of foster parents were unable to identify significant barriers to implementation of the NMT at a family level. This is likely due to the idiosyncratic nature of the individualised therapeutic plans, which tailor recommendations based on the family context. Other practical

challenges and barriers to implementation were identified by social workers and trauma advisors however, in particular the time-intensive nature of this approach and the prioritisation of the longitudinal impact of TIC rather than 'quick fixes'. These requirements can lead to challenges in sustainability, as wraparound services are time-intensive and necessitate stakeholders' persistent commitment to adhering to a programme in the long-run. Maintaining stakeholder commitment has been identified in other studies as a potential barrier to service integration (Whiteford et al., 2014). Other practical challenges included the accessibility of external therapeutic services due to geographical locations which impacted on the ease of implementation, as well as on an organisational level, the sustainability of social workers to provide wraparound support.

Participants from all groups considered adequate training opportunities a key ingredient of TIC. The majority of foster parents found OHF's in-house foster parent training course, CREATE, based on the NMT, to be comprehensive and valuable. Nonetheless, some OHF staff members identified some gaps in training opportunities in regards to offering training refreshers. Frequent training opportunities was also considered by foster parents and staff, to be linked with increasing treatment fidelity, that is, the extent to which treatment and care is implemented as intended (Duppong Hurley et al., 2017). Ongoing training was considered to play a key role in ensuring therapeutic plans and trauma-informed parenting approaches are put in practice consistently and in a way that closely aligns with NMT and TIC principles. Ascertaining the capacity of foster parents to remain intentional in implementing therapeutic practices and adhering to trauma-informed parenting, was another evaluation question posed by OHF management in Phase 1. Participants from all groups reported that fidelity to TIC was cultivated by robust support structures, including frequent, consistent and regular contact between staff (trauma advisors and social workers) and foster parents, with these sessions being critical in keeping foster parents intentional and motivated.

At an organisational level, ensuring fidelity to TIC remains a challenge. The lack of prescriptiveness of this approach, with the NMT relying heavily on practitioner skill, knowledge, experience, creativity, and initiative, holds challenges in ensuring consistency and fidelity in service provision. Other research has also identified implementation fidelity as one of the key areas of difficulty which has an effect on outcomes, for example, the NMT metric not being completed

accurately, and/or treatment plans not being carried out consistently (Evans et al., 2023; Lotty et al., 2020; Vandivere et al., 2020). Research has identified that the absence of detailed and robust data on treatment implementation, specifically fidelity to the prescribed approach, is a notable limitation to outcome research, as it is difficult to identify core components of treatment and the consistency of interventions across therapists and clients (Dauber et al., 2015). Trauma advisors in this present study believed that providing adequate training for frontline social workers to increase their knowledge, competence, and confidence will increase the fidelity of programme delivery, as well as regular contact and ongoing collaboration with families. Research by Evans et al. (2023) suggested a number of service improvements in order to increase implementation fidelity of the NMT, including increasing clinicians' understanding of how treatment adherence is linked to positive client outcomes, ongoing supervision and consultation related to treatment recommendation adherence, as well as organisational structures to monitor adherence to NMT treatment recommendations.

Covid-19 and the associated lockdowns were not considered to be a significant barrier to programme implementation and provision of therapeutic support by the majority of the foster parents, trauma advisors, and social workers. Interestingly, it was considered a catalyst for positive change by some foster parents and social workers. For foster parents with capacity, lockdowns were an opportunity to provide the child with an ideal and stable therapeutic environment, marked by consistency, predictability and safety, highlighting the importance of these elements when designing system-level therapeutic interventions for children in this context.

Other wider organisational-level considerations of programme implementation and maintenance included a lack of time for social workers with high caseloads, high staff turnover, significant financial costs involved in the implementation of therapeutic services and limited resources, an inadequate number of staff trained in the NMT, and a lack of streamlined implementation systems and processes. These findings are in line with research that found the implementation of a TIC programme to introduce an additional time strain on a job that was already demanding in nature for social workers (Topitzes et al., 2019). One trauma advisor was of the opinion that the programme was not implemented as intended due to a number of barriers to systemic

implementation, such as being a small non-for-profit organisation with limited resources, as well as rigidity in delivery methods of training that reduce accessibility for staff and foster parents.

Outcomes associated with the implementation of the NMT to guide trauma-informed care. The outcomes of using the NMT in this service context have been distinctly positive, reflecting other research that indicates that TIC and TFC approaches are associated with clinical improvements in ameliorating trauma symptoms and behavioural difficulties (Browne et al., 2019; Hambrick et al., 2016; Lotty et al., 2020; Turner & Macdonald, 2011). Participants from all groups reported some positive changes in the children's behaviour and trauma-related symptoms, though the effects were mostly modest and tended to fluctuate. This was an expected finding due to the short-term nature of the intervention period, with the longitudinal impact of a therapeutic environment not explored in this study. Changes that were noted among children were mostly around the development of a capacity for self-regulation, which has been identified as critical target of TIC practices in the foster care context (Bath, 2008). Examples included a decrease in the frequency and severity of emotional outbursts, a decrease in anxiety and disruptive behaviour, and an increase in academic performance.

The majority of positive outcomes were located with the foster parents. In line with previous research studies exploring the implementation of trauma-informed programmes, foster parents reported that they have gained a deeper understanding of the child in their care during the course of the programme. Consequently, this led to a shift in perspective regarding the children's challenging behaviours, which was approached from a more trauma-informed lens (Lotty et al., 2020; Vandivere et al., 2020). Other outcomes reported included an increase in parental skills and strategies to respond to challenging behaviours and needs, an increased sense of agency and confidence as a member of the therapeutic team, a reduction in parental stress, as well as an increase in perseverance with, and commitment to, the fostering journey. Previous research has also found a reduction in parental stress when implementing an NMT-based approach with families of children with FASD (Zarnegar et al., 2016), as well as an increase in foster parents' parenting skills and sense of confidence (Vandivere et al., 2020).

Foster parents further reported that their engagement with this programme led to transformations in the parental unit, with foster parents working together in greater cohesion, and from

the same knowledge and frameworks. Outcomes observed also included the stabilisation of the family system and the stabilisation of the risk of placement breakdown for one family. This is congruent with existing research that suggest trauma-responsive child protection case management can potentially affect placement stability and permanency outcomes (Topitzes et al., 2019). Foster parents and some OHF staff also reported a greater sense of support from other family members as a result of the family systems approach that was adopted throughout programme implementation. Lastly, changes noted among the frontline social workers who were involved with this programme included an increase in knowledge and skill in delivering TIC, as well as an increase in confidence in their professional practice. This is consistent with research that found an increase in staff competence and confidence as a result of their involvement in the implementation of a trauma-responsive programme (Topitzes et al., 2019).

Phase 2 also explored quantitative outcomes related to this programme's impact on children's trauma symptoms and functioning. As discussed earlier (see Chapter 3), less weight is given to these outcomes for a number of reasons. Firstly, the programme was not necessarily ready for an outcome evaluation as it was in the early stages of developing structure in its implementation, which limits the ability of true impacts to be measured. In addition, the small sample limits drawing definitive conclusions or generalisations from findings. Extraneous variables (e.g., placement transitions) also limit the validity and generalisability of findings, as there were a range of external factors that could have acted as confounding variables on the outcomes. In addition, it is also likely that the impact of therapeutic care on children's functioning is more accurately observed and reflected when assessed over an extended period of time (Tarren-Sweeney, 2014).

Statistical analysis concluded that although there were observable mean differences between pre-test and post-test scores on both the ACC-SF and ACC+, these results were not statistically significant. The effect size was moderate on the ACC-SF, and small to moderate on the ACC+. While parents did not report significant changes in the children's behaviour, they did observe changes in the desired direction. Although limited definitive inferences can be made from the quantitative findings, the preliminary outcomes suggest that when resources are put towards the implementation and follow-through of recommendations of the NMT, the outcomes are positive and promising. This includes a

reduction in trauma-related mental health and behavioural difficulties, as well as an increase in psychosocial strengths and resilience factors. Research conducted by Browne et al. (2019) that explored clinical outcomes for children involved in a community implementation of TFC, found that children improved by nearly four points on the ACC per year, suggesting that more significant improvement can be expected over a longer period of time. Due to the insufficiency in both the state and strength of the quantitative evidence, the qualitative data on outcomes observed by trauma advisors, social workers, and foster parents have been given more weight in this present study.

The programme vision and goal as identified by OHF management in Phase 1 of the present study was for the implementation of the NMT to establish a shared understanding between social workers, trauma advisors, and foster parents of the effects of trauma on the child, as well as their corresponding therapeutic needs. The goal was to enhance the well-being of the children in their care, increase placement longevity, increase foster parent resiliency and well-being, as well as increase staff expertise and knowledge. Based on these self-defined measures of success, it was found that the implementation of the NMT has met the majority of these goals according to the subjective experiences of foster parents, social workers, and trauma advisors. It is too early to determine whether this programme leads to an increase in placement longevity, but preliminary findings suggest it is a step in the right direction. Another outcome target identified by OHF management was facilitating the fostering of a strong cultural identity for Māori and Pasifika children. Due to the limited number of Māori tamariki involved in this study and the absence of a dedicated measure specifically designed to assess measures relating to cultural identity, the outcomes regarding this impact remains unclear.

By highlighting the needs and perspectives of service providers and service users, the findings provide a practical map of critical considerations to ensure effective implementation of the NMT at a clinical and organisational level. The results also illustrated preliminary outcomes that could be expected with long-term and consistent integration of this model within a streamlined practice framework.

Clinical Implications

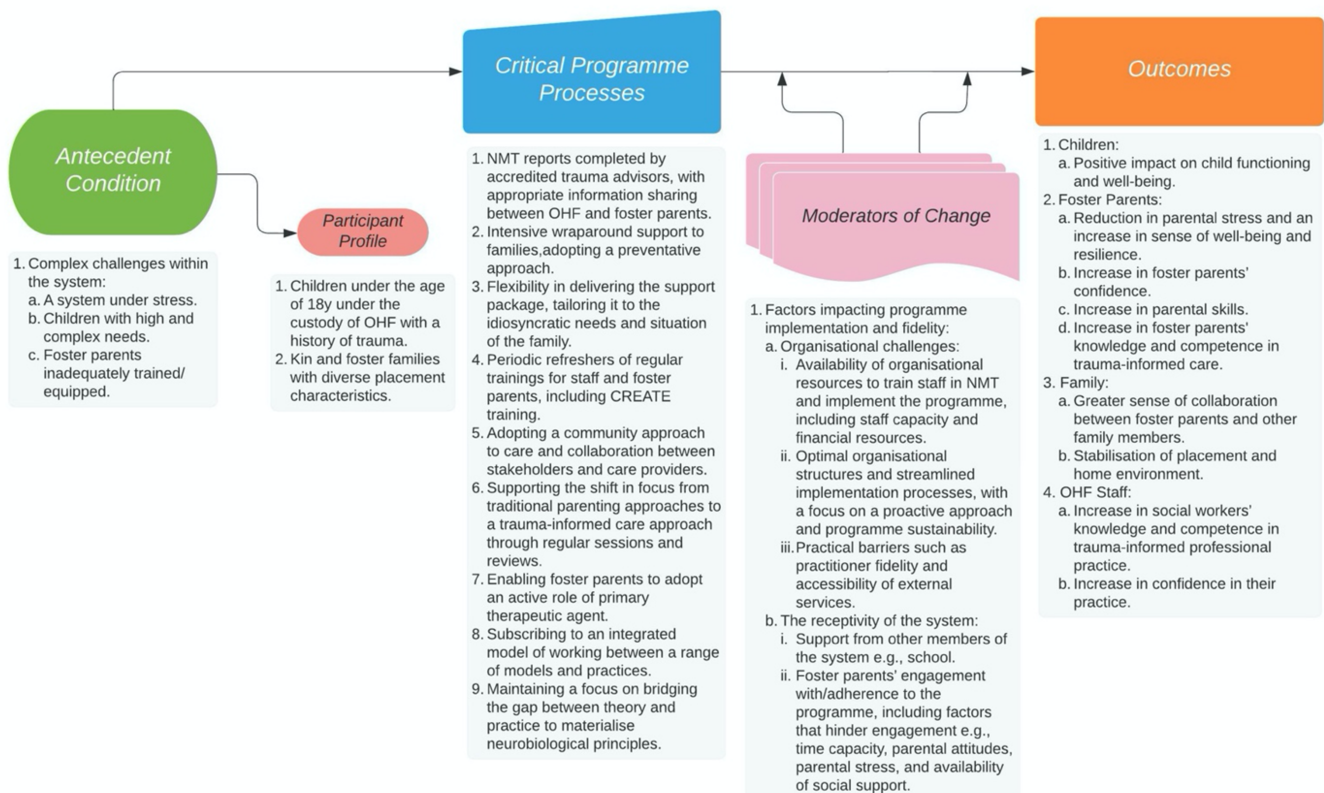
A central focus of this present study was to uncover the critical processes involved in the implementation of the NMT as experienced by frontline staff and service users within this specific

context. This focus entailed understanding how to effectively use the NMT within this service, and how the programme is considered to produce targeted outputs. These findings have broader implications for clinical practice, particularly in the adoption of the NMT and the implementation of TIC within the foster care environment. As described by Mildon and Shlonsky (2011), the expansion of empirically supported interventions in their intended context and community settings is vital in order to develop appropriate recommendations to aid the implementation of interventions.

Theory of change. Considering the findings, a theory of change was developed (see Figure 13) based on qualitative and quantitative information gathered in the present study. This revised theory of change built upon the preliminary theory of change components that were outlined following Phase 1. Understanding the critical processes and moderators influencing service delivery is critical for organisations that seek to implement trauma-informed foster care practices in order to increase the likelihood of achieving programme success. The theory of change is intended to be revisited frequently by programme developers and facilitators, with the current model being a reflection of the findings and stage of NMT programme implementation within OHF at this point in time.

Figure 13

Revised Theory of Change



Implications for practice. As a result of the findings presented in this study, several inferences can be made about important elements of TIC practice within the foster care context.

The importance of the therapeutic milieu in the change process. At a clinical practice level, it is deemed essential to involve a range of stakeholders in the child's life in the therapeutic milieu, including teachers, social workers, and mentors, through a process of knowledge acquisition and skill-building (Frederico et al., 2019). This principle is built into the framework of the NMT with therapeutic interventions and recommendations automatically operating in a range of spaces, including the family, school, and other community settings. A fundamental aspect of the onboarding process and capacity-building component of the NMT involves aiding stakeholders in gaining a deeper comprehension of the pervasive impact of developmental trauma on various domains of functioning, which may lead to severe emotional dysregulation and other behavioural difficulties (Perry, 2014). As Steenbakkers et al. (2017) argued, there is a need for adults in the child's life to understand what is happening for them from a trauma-informed perspective. As the manner in which parents interpret their children's behaviours affects their responses toward the child (Cargo, 2016), greater trauma-informed understanding leads to an increase in empathy towards the child, which contributes to creating effective relational healing environments.

This process of training and equipping stakeholders, as structured by the NMT, allows for a transformative process of learning to occur within the system, during which unhelpful frames of reference about children's experiences are shifted to a trauma-informed perspective. This results in foster carers and other adults engaging with the children in more trauma-informed ways, which has been linked with a reduction in the children's emotional and behavioural difficulties (Lotty et al., 2020). There is a need for this change process to occur on all levels of the ecological system surrounding the child (foster parents, immediate and extended family, school, social service organisation) (Frederico et al., 2019), as well-coordinated care is considered a key component of effective TIC (Ko et al., 2008). Thus, the integration of community partners into the trauma-informed therapeutic programme can improve inputs and outcomes (Topitzes et al., 2019). The NMT facilitates the creation of a holding web that provides consistent input and communication to the child, reflective of a communal understanding of TIC. Nevertheless, as the findings of this present study suggest, the

receptivity and capacity of the system is a predictor of how readily the programme is adopted and the extent to which this shift to a trauma-informed lens is attained. Effort should therefore be made by service providers to understand potential barriers to the capacity and openness of adults in the system, in order to work towards addressing these impediments. Identifying barriers and enablers to programme implementation may include incorporating effective communication channels between foster families and service providers to gather regular feedback, as well as frequent internal programme review and evaluation.

Foster parents as primary therapeutic agents. Equipping foster parents to adopt the active role of primary therapeutic agent or agent of change is another critical component in the theory of change process of trauma-informed or therapeutic foster care (Robst et al., 2011). During the programme implementation process it became evident that the well-being of children and foster parents is intricately linked. The family system is dynamic and indissociable, operating not as individual elements, but as an interconnected whole. Interventions that directly target the child, affect the family system, and increasing the caregivers' trauma-awareness have a direct therapeutic effect on the child. Important implications for clinical practice are that interventions that seek to improve clinical outcomes for children in foster care need to be active in identifying and being responsive to the needs of foster parents, as foster parents can experience high levels of stress and burnout due to the complex challenges of children in their care (Murray et al., 2011). Studies have previously outlined major unmet needs of foster parents, including lack of support from professionals, the availability of specialist services, as well as training on the aetiology of children's behaviour and the developmental impact of maltreatment (Murray et al., 2011). The feedback from service providers and foster parents in this present study suggests that the way in which the NMT was implemented was effective in meeting these needs, which led to an observable reduction in parental stress. A primary focus of TIC in the foster care context is on promoting trusting carer-child relationships (Bath, 2008), which inevitably involves ensuring foster parents are supported and equipped in their role as primary therapeutic agent.

Remaining flexible and responsive to the context when delivering support and therapeutic services. Due to the complexity and dynamic nature of foster care, using a therapeutic model to

structure TIC needs to be flexible and responsive to the environment in which it operates. This finding is in line with other implementation research that emphasises the importance of flexibility in service delivery of mental health programmes (Beere et al., 2019). The context in which the child functions remains central to guide the application of TIC, taking into account the capacity of the parents or carers and the availability of resources. The findings from this present study indicated that the NMT is adaptable and responsive to systemic resources, working with the context it is used within, instead of viewing suboptimal circumstances as barriers to implementation. Rigidity in programme implementation can be considered a threat to TIC as it may reduce its relevance and applicability and thus the likelihood of members of the system staying consistent in a TIC approach. This consideration links back to the principle of evidence-informed practice, which has been identified as a foundational approach to working with complex clinical groups (Brandt et al., 2012; Frederico et al., 2019). EIP asserts that the child's and family's values, preferences, and needs, as well as the context in which they are situated, are critical factors that inform practice.

Flexibility is critical at every step of the programme's implementation, including the assessment process. Another finding from the research has been the nebulous relationship between assessment and intervention. In clinical psychology, assessment and intervention are often considered as two distinct phases in the therapeutic process. However, this notion was challenged during the programme's implementation. One family was in a critical period of crisis (with the risk of placement breakdown imminent) when the assessment phase commenced. This resulted in a delay in the completion of the NMT report, and a transition to crisis intervention with the family. The relationship between assessment and intervention within this context can be argued to be less rigid, and regarded as a circular process and recursive feedback loop; reflecting the understanding of the assessment process as a series of continuous interventions and can thus be therapeutic in itself (Tomm, 1987). The NMT assessment process was dynamic, with the assessment becoming part of the intervention in a constantly evolving process. It is therefore important that any therapeutic model or clinical intervention programme that works with traumatised children, in particular children in foster care, is responsive to the dynamic family system and clinical needs of a traumatised child. Findings suggest that a flexible approach is paramount to allow for clinical 'pivoting' when a family or child is in crisis.

Another implication for clinical practice involves the structuring of therapeutic interventions in a way that is manageable and does not overwhelm the foster parents who are primarily responsible for the implementation of practical activities. Interventions should not only consider a child's developmental readiness but also the capacity of parents or caregivers to engage in therapeutic activities and provide consistent and relationally-based care (Frederico, 2019).

Culturally-responsive practice. Within the bicultural context of Aotearoa NZ, it is critical that therapeutic programmes and care practices are responsive to the needs of tamariki and rangatahi Māori, due to the overrepresentation of Māori in the care and protection system, which threatens the loss of tikanga and cultural connectedness (Fitzmaurice, 2020). It is therefore the responsibility of care providers to ensure therapeutic efforts targeted at children in foster care not only address clinical and mental health needs, but also their cultural needs through supporting the facilitation of cultural connectedness and whanaungatanga. Due to the lack of Māori participants throughout every layer of the research project, the usefulness of the NMT within the bicultural context of Aotearoa is difficult to ascertain from this study. Some participants of the present study thought that the NMT as a model of TIC has potential to facilitate opportunities for children to develop a secure cultural identity, however the extent to which this is possible is based on practitioner skill, confidence, and commitment to culturally safe practice. This highlights a potential area for improvement in current service delivery practices. There is thus a need for social service organisations to employ Māori clinicians and invest in training frontline staff in culturally safe and responsive practice for Māori and Pasifika. In addition, ongoing work needs to be done in adapting the implementation of the NMT to the NZ context in a streamlined and practical manner. Refinements might include combining the NMT with more indigenous models of practice that include cultural assessments, engaging in social network mapping that supports the development of indigenous relationships and networks within the child's local cultural community (e.g., iwi and hapū), developing developmentally appropriate cultural support plans that emphasises identity development and cultural connection, and facilitating community and cultural participation (Victorian Aboriginal Child Care Agency, 2008).

Implications for organisational implementation of trauma-informed foster care practices. Understanding and addressing contextual issues is critical in embedding a trauma-informed

model at an organisational level, and to support sustainable implementation practices (Lotty et al., 2020). The literature refers to mezzo and macro level barriers that can impede an organisation's staff capacity to adopt new practices, including initiative fatigue, conflicting priorities, and inadequate funding to ensure long-term sustainability (Garcia et al., 2015; Hoffman et al., 2016). Consistent with the literature, these barriers were raised during participant interviews, with social workers reflecting on the difficulty of including additional therapeutic programme activities, including training, on top of high caseloads. Time constraints therefore acted as barriers to knowledge acquisition and utilisation (Topitzes et al., 2019). McCafferty and Taylor (2020) also described the difficulties associated with implementing new programmes within organisations as staff are often limited in their capacity to acquire new knowledge and adopt research findings and evidence-based practice due to large caseloads. In such a pressured environment, practitioners taking on additional responsibilities alongside their regular workloads may find it challenging to thoroughly explore the individualised issues of each child and family, and subsequent avenues for intervention, at the depth that is needed for quality service delivery (Ferguson, 2016; Topitzes et al., 2019). It is important to note that none of the social worker participants in Phase 2 of this present study had completed the NMT certification training and thus were unable to speak to the NMT training process and the ease at which this could be completed on top of their usual workload.

Therefore, creating robust organisational structures that have dedicated resources allocated to specific roles, in addition to regular social worker positions or responsibilities, may contribute towards the fidelity and sustainability of a TIC approach at a service level. For example, at OHF there are a number of trauma advisors whose roles are focused on conducting NMT assessments and creating therapeutic plans for the children in their care, rather than it being an additional task on top of their normal work responsibilities. In addition, embedding streamlined systems processes that involve screening and assessing children and establishing therapeutic plans early in their foster care placements will lead to a more proactive model of practice. This may lead to timely interventions and support which can reduce the risk of challenges escalating and becoming more complex over time, leading in turn to better permanency outcomes (Akin et al., 2021).

Implications for the field of clinical psychology. When considering the applicability of the findings to the field of clinical psychology and the practice of clinical psychologists in NZ, several reflections are made. Although further research is required to assess the effectiveness of the NMT in various clinical contexts in NZ, the findings suggest that the NMT is a useful tool which can be utilised by clinicians and services to guide the accurate assessment and treatment of children with trauma-related difficulties. The present research study also draws attention to the significant challenges faced by caregivers of children with histories of maltreatment, and the need for clinicians to work in close collaboration with these caregivers to ascertain their needs and provide effective support that enables them to adopt the role of a therapeutic agent. Additionally, the findings speak to the importance of carefully considering the wider context in which children operate, and the opportunity for the relational system to be orientated to become more therapeutic and trauma-informed. Clinical psychologists therefore have a role in equipping various members of the relational system around the child to adopt a trauma-informed lens when supporting and caring for the child.

Reflections on the Research Approach

The dynamic context of a community organisation, in particular within a space as complex as social services or foster care, required a flexible research approach that was responsive to the unique needs of the environment. As outlined in Chapter 3, the evaluation design approach that provided the structural framework of the study therefore needed to be adapted to respond to the local needs of the organisation. As a researcher, there were limits to the organisational access I was given to engage in evaluation activities and to track implementation processes. Applying a rigid evaluation model that demanded a large time commitment and level of input from a range of organisational stakeholders was not feasible. The evaluation context required a fluid research approach in order to uncover the nuances of the setting and of programme implementation.

Within this context, as an inexperienced researcher that was engaging with evaluation methods for the first time, I experienced significant tension at times between responding to the research context and needs of the organisation, and my understanding of established evaluation methods. This continuous tension between the needs and constraints of the organisation, the nature of the programme, and the demands of the method were negotiated and navigated to the best of my

ability in collaboration with my research supervisors, with a flexible and ethical approach underpinning my decisions. Ultimately, the priority was to craft a methodology and research approach that was exploratory, investigating critical processes and outcomes as subjectively experienced by frontline staff and foster parents, to enable further evaluation activities and outcome research to occur.

My positionality in relation to OHF and the NMT, and its potential impact on research processes, including data collection and analysis, also required a continuous engagement in reflexive practice and supervision throughout the project.

Limitations to the Findings

This body of work was exploratory in nature, with a small sample size, investigating the implementation of a TIC programme guided by the NMT in one organisation. The small number of foster families involved in the study limits the generalisability of findings to other contexts, TIC programmes, or to children of different age groups. Due to the small sample size, the findings are not representative of all foster parents and staff involved in trauma-informed foster care programmes or in the implementation of the NMT. In addition, none of the social workers involved in this study had completed the NMT certification training and thus were unable to speak to the certain specifics of the NMT, for example the training process.

Furthermore, the NMT implementation process varied among trauma advisors and social workers. As implementation fidelity was not analysed, definitive conclusions about the true impact of various components of the programme or the NMT is limited. Due to the flexibility of OHF's approach, the implementation of the programme was responsive to the needs of the family and the capacity of the trauma advisor, which resulted in support being different for each family. This lack of consistency in service delivery somewhat limits the confidence in which moderators of change and critical processes can be established.

In regards to the quantitative component of the research, the small sample size resulted in the study having limited statistical power to detect changes in children's functioning over time. The lack of a comparison group further weakens findings, leaving uncertainties as to whether the changes over time could be attributed to other extraneous variables. The absence of a non-TIC control condition, such as services-as-usual, to provide a comparison to the active treatment conditions, results in

limitations regarding internal validity. Consequently, this limitation hinders the ability to draw definitive conclusions regarding causality, that is, whether the NMT alone caused the observed reductions in children, as well as limiting the generalisability of findings. The results on the psychometric measures may also have been influenced by the non-blind nature of the respondents. In addition, child outcomes were tracked using the ACC and ACC+ which rely solely on caregiver reports. Thus, the perspectives of other informants (e.g., teachers, the children), as well as more specific outcome indicators, were not captured in this present study.

The absence of Māori participants also limits the generalisability of the findings, as the cultural impact of this programme and the potential of the NMT to be adapted to be responsive to Māori cultural needs could not be explored in depth. The demographics of the children involved were not reflective of the wider population of children in care, with about 50% of children in care being of Māori decent, but only 20% of child participants being Māori.

In addition, while effort was made throughout the project to design a rigorous study and engage in reflexivity, due to the nature of the project and the context within which the research occurred, potential unconscious biases on behalf of myself as the researcher, as well as the organisation, may have impacted various aspects of the research project. For instance, participants were selected by OHF staff based on geographical location and other practical considerations, which may have led to sampling bias and the exclusion of caregivers with less time or capacity to engage with the programme. It is therefore likely that the findings are not reflective of the experiences and opinions of all OHF caregivers that are engaged in OHF's therapeutic practices. OHF's investment in the NMT may also have impacted the experiences and opinions of staff interviewed in Phase 2. Due to my prior involvement with OHF and having received some NMT training, it is also possible that unconscious biases impacted the way in which interviews were conducted, data was analysed, and conclusions were drawn. Although care was taken to mitigate the influence of researcher bias, this is an important limitation when considering the research findings.

The present study is considered a pilot study that is exploratory in nature, paving the way for further research that addresses some of these limitations.

Future Directions

Several future directions lead from this present study. An important component of community programme implementation is a continuing strategy within an organisation for evaluation, for example, the regular monitoring of programme outputs, as well as clinical outcomes for all children receiving therapeutic services, to more effectively determine moderators of change and mechanisms of outcomes (Brown et al., 2019). This process necessitates organisational decision-makers to strategically plan programme activities, incorporate best practices, and regularly review and evaluate outcomes across multiple domains of programme activity (Mildon & Shlonsky, 2011). This process may reflect further developing and refining a practice framework, including a service model and clinical strategy. This refinement will also enable the advancement of robust theory testing, with the theory of change being compared and verified against scientific evidence. Due to the programme being in the initial stages of roll-out within the organisation, which can undermine an evaluation's feasibility and utility (Wholey, 1987), further evaluation activities will be critical to further assess the effectiveness of using the NMT in this particular context. Robust evaluation activities remain a challenge however, as the system-wide approach of the NMT makes isolating key moderators of change difficult.

As the practice framework of using the NMT within OHF is further defined and refined, the relative contributions of various intervention components and programme activities captured in the theory of change can be considered for more focused evaluation. In terms of OHF's programme vision and goals, further research into the impact of the implementation of the NMT on placement stabilisation and other targeted outcomes can be a focus of future research. Longitudinal data obtained over longer intervention periods may also reveal further critical considerations of the practicalities and sustainability of programme implementation. There is also a need for fidelity research to monitor and enhance the consistency of programme implementation.

Future research supporting these implementation endeavours will benefit from enhanced methodological rigour, in light of the above-mentioned limitations. Future TIC research within the foster care context may consider more comprehensive assessment protocols that utilise multiple informants and examine a wide range of clinical domains (Browne et al., 2019). Larger trials (RCTs)

will also be important to evaluate the efficacy of the NMT and TIC in the foster care context, in terms of children's functioning. Given the growing interest in trauma-responsive foster care practices, implementing and evaluating community-based TIC programmes are critical in developing best practice guidelines to enhance the development and well-being of children in foster care. My role as the researcher from this point on will be to work with OHF to explore how to best disseminate and present findings to OHF stakeholders, in order to inform future practice.

Conclusion

This study sought to contribute to the existing literature on trauma-informed foster care practices by evaluating the feasibility and utility of using the NMT as a tool to guide family-based trauma-informed foster care in the Aotearoa NZ context. A specific focus was placed on elucidating the challenges involved in the effective implementation of trauma-informed assessment, interventions, and approaches to care, as well as facilitators of successful initial implementation, as perceived by frontline staff and foster parents. As described in detail throughout this study, children who present in foster care commonly have significant histories of maltreatment. Such traumatic experiences often lead to serious emotional and behavioural difficulties that require intensive and intentional responses from the system in which they are embedded. Systematic reviews indicate that there is currently insufficient evidence to support the exclusive reliance on any single intervention for this population group and specific context. This lack of conclusive data presents a challenge for services seeking to implement evidence-informed interventions. The findings from this study are therefore promising, though preliminary, and add empirical support to the trauma-responsive foster care movement. Contributing to existing international research, the findings suggest that the use of the NMT to guide trauma-informed foster care practices in an Aotearoa NZ context can equip the system surrounding the child with tools and knowledge to make sense of children's behavioural and emotional challenges. In doing so, adults in the system are empowered to respond in trauma-informed ways, which alongside the implementation of targeted, neurodevelopmentally informed interventions, can facilitate children's healing. This study also contributes to addressing the research gap within the Aotearoa NZ foster care context, concluding that implementing a TIC model in this milieu, specifically family-based foster care, facilitates promising positive outcomes.

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Appendix A: Example NMT Report

The Neurosequential Network
www.neurosequential.com

Neurosequential Model of Therapeutics : Clinical Practice Tools

A Brief Introduction:

The Neurosequential Model of Therapeutics (NMT) is an approach to clinical work that incorporates key principles of neurodevelopment into the clinical problem-solving process. The NMT Metrics are tools which provide a semi-structured assessment of important developmental experiences, good and bad, and a current "picture" of brain organization and functioning. From these tools estimates of relative risk, reslience and brain-mediated strengths and weaknesses can be derived. This information can aid the clinician in the ongoing therapeutic process.

The results from the NMT Metrics should not be viewed as a stand-alone psychological, neuropsychological, psychiatric or psychoeducational evaluation. These reports are intended to supplement the clinical problem solving process and provide broad direction for the selection and sequencing of developmentally appropriate enrichment, therapeutic and educational activities.

Client Data

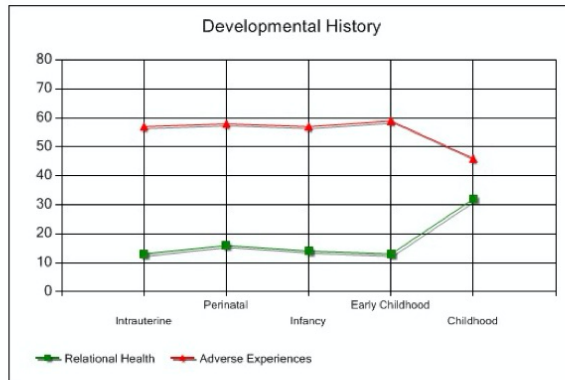
Client: Fidelity 16: J
Age: 9 years, 0 months
Gender: Female
Case ID: Fidelity 16

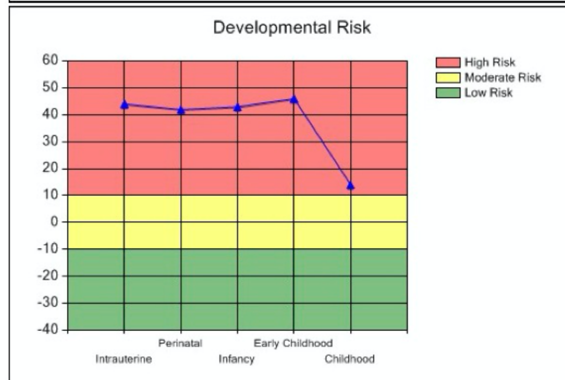
Report Data

Clinician: Bruce Perry
Report Date: 3/2/2022
Time: 1
Site: NMN

Developmental History

This section illustrates estimates of the degree and timing of risk (AE: red) and resilience (RH: green) related experiences. The balance between risk and resilience factors provides the developmental risk curve (blue line in bottom graph).





Developmental History Values

	Adverse Events	Relational Health	Developmental Risk
Intrauterine	57	13	44
Perinatal	58	16	42
Infancy	57	14	43
Early Childhood	59	13	46
Childhood	46	32	14

Adverse Experience Confidence: Moderate
Relational Health Confidence: Moderate

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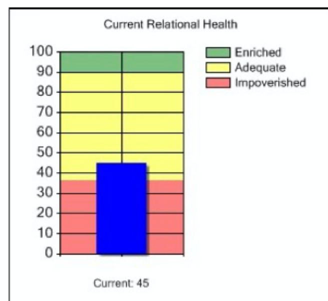
Current CNS Functionality

#	Brainstem	Client	Typical
1	Cardiovascular/ANS	10	12
2	Autonomic Regulation	10	12
3	Temperature regulation/Metabolism	9	12
4	Extraocular Eye Movements	9	12
5	Suck/Swallow/Gag	11	12
6	Attention/Tracking	4	11
	DE/Cerebellum		
7	Feeding/Appetite	6	11
8	Sleep	4	11
9	Fine Motor Skills	6	10
10	Coordination/Large Motor Functioning	6	9
11	Dissociative Continuum	3	10
12	Arousal Continuum	4	10
13	Neuroendocrine/Hypothalamic	7	10
14	Primary Sensory Integration	8	11
	Limbic		
15	Reward	4	11
16	Affect Regulation/Mood	5	10
17	Attunement/Empathy	4	10
18	Psychosexual	7	9
19	Relational/Attachment	4	9
20	Short-term memory/Learning	7	11
	Cortex		
21	Somato/Motorsensory Integration	6	10
22	Sense Time/Delay Gratification	5	8
23	Communication Expressive/Receptive	8	11
24	Self Awareness/Self Image	6	8
25	Speech/Articulation	10	10
26	Concrete Cognition	8	9
	Frontal Cortex		
27	Non-verbal Cognition	7	8
28	Modulate Reactivity/Impulsivity	4	8
29	Math/Symbolic Cognition	5	8
30	Reading/Verbal	6	8
31	Abstract/Reflective Cognition	5	8
32	Values/Beliefs	6	8
	Total	204	317

Current CNS Confidence Level: High



Current Relational Health Confidence Level: High

Functional Brain Map(s) and Key

Client (9 years, 0 months) Report Date: 3/2/2022

5	5	7	4	6	6
10	8	6	5	6	8
4	4	4	5	7	7
	7	3	4	8	
	6	6	4	6	
		11	4		
		9	9		
		10	10		

Age Typical - 8 to 10

8	8	8	8	8	8
10	11	10	8	8	9
9	10	11	10	9	11
	10	10	10	11	
	10	11	11	9	
		12	11		
		12	12		
		12	12		

Functional Item Key

ABST (31)	MATH (29)	PERF (27)	MOD (28)	VERB (30)	VAL (32)
SPEECH (25)	COMM (23)	SSI (21)	TIME (22)	SELF (24)	CCOG (26)
REL (19)	ATTU (17)	REW (15)	AFF (16)	SEX (18)	MEM (20)
	NE (13)	DISS (11)	ARS (12)	PSI (14)	
	FMS (9)	FEED (7)	SLP (8)	LMF (10)	
		SSG (5)	ATTN (6)		
		MET (3)	EEOM (4)		
		CV (1)	ANS (2)		

Functional Brain Map Value Key
DEVELOPMENTAL
Functional

Value	Description
12	DEVELOPED
11	TYPICAL RANGE
10	
9	EPISODIC/EMERGING
8	MILD Comprimise
7	
6	PRECURSOR CAPACITY
5	MODERATE Dysfunction
4	
3	UNDEVELOPED
2	SEVERE Dysfunction
1	

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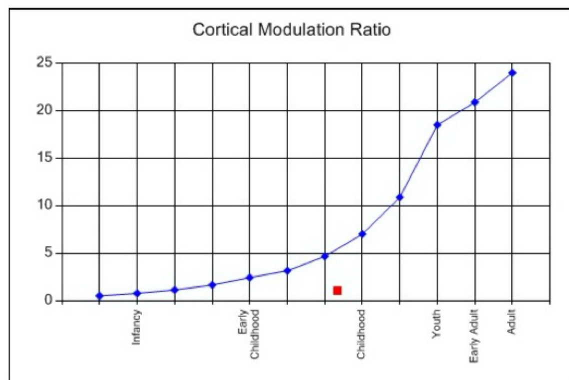
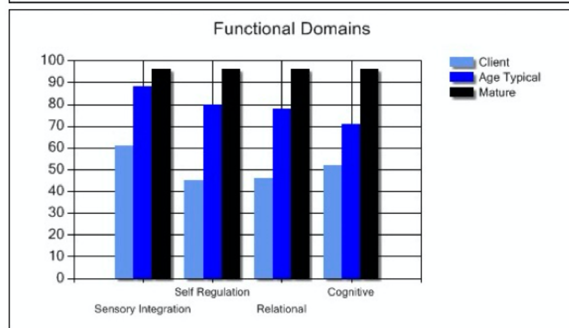
Cortical Modulation Ratio



	"Typical"	Client	
Infancy	0.76		
Early Childhood	2.42	1.04	Time 1
Childhood	7.00		
Youth	18.50		
Early Adult	20.89		
Adult	24.00		



Functional Domains Values

	Client Age	Age Typical	Mature	% Age Typical
Sensory Integration	61	88	96	69.32
Self Regulation	45	80	96	56.25
Relational	46	78	96	58.97
Cognitive	52	71	96	73.24
Cortical Modulation Ratio	1.04	4.66	24.00	22.39

General Summary

FOUR DOMAINS of FUNCTIONING

Sensory Integration (SI): SI refers to a set of functions that integrate, process, store and act on sensory input from outside (i.e., visual, tactile, olfactory, auditory, gustatory) and inside (e.g., proprioceptive, metabolic, enteroceptive) the body. Many of the neural networks involved in SI originate in, or engage, lower areas of the brain.

Self Regulation (SR): SR refers to a broad set of functions that modulate and regulate the activity of other key systems in other parts of the body and brain. This includes the three main forms of SR: bottom-up somatosensory regulation, top-down cerebro-modulation and dissociation. The neural networks involved in SR originate in many areas of the brain but all ultimately influence activity in lower and middle areas of the brain.

Relational (REL): REL refers to the complex set of relationship related functions such as bonding, attachment, attunement, reward, empathy and related emotional functions. Neural networks that influence these functions arise in all areas of the brain, however, the primary mediating networks are concentrated in cortico-limbic areas.

Cognitive (COG): COG refers to the myriad functions involved in complex sensory processing, speech, language, abstract cognition, reading, future planning, perspective-taking, moral reasoning and similar cognitive capabilities. The neural networks primarily responsible for these functions appear to be located in the cortex, although neural networks from other areas can influence and modify these functions (e.g., such as is seen with threat or stress-related changes in COG functions).

RECOMMENDATIONS

Recommendations are based upon data provided by the clinician when completing the NMT online metrics. Based upon the data provided, cut off scores are used to indicate whether activities in each of the 4 areas are considered essential, therapeutic or enrichment. Activities selected for each category should be age appropriate, positive and provided in the context of nurturing, safe relationships.

Essential refers to those activities that are crucial to the child's future growth in this particular area. In order to fall into the essential category the child's score must be below 65% of the age typical score. It is our belief that unless functioning in the essential area is increased the child will lack the foundation for future growth and development in this and other areas.

Therapeutic refers to those activities aimed at building in strength and growth in the particular area. Scores that fall within 65 to 85 percent of those typical for the child's age are considered appropriate for more focused treatment. Therapeutic activities are viewed as important for the child's continued growth and improvement in the area.

Enrichment refers to activities that provide positive, valuable experiences that continue to build capacity in the given area. Children who fall into the enrichment category are at or above 85 percent of age typical functioning. Activities recommended in this category are designed to enhance and reinforce strengths previously built into the particular area of focus.

The information below is designed to provide the clinician with broad recommendations based upon the NMT approach. These recommendations should be used as guidelines for the treating clinician when considering particular therapeutic activities. Final treatment decisions must be based upon the clinical judgement of the treatment provider. The CTA cannot be held responsible for any of the treatment decisions made by the clinician based upon their own interpretation of NMT principles or recommendations.

Sensory Integration

Client Score: 61 Age Typical: 88 Percentage: 69.32

Therapeutic: (65% - 85%) – Scores between 65% and 85% suggest that the child has some difficulty in somatosensory functioning. Building in patterned,

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repetitive somatosensory activities across settings in which child spends time (home, school, etc.) are required for necessary reorganization to take place. Somatosensory activities such as music, movement, yoga, drumming or massage woven throughout the child's day will have the greatest impact.

Self Regulation

Client Score: 45 Age Typical: 80 Percentage: 56.25

Essential: (below 65%) – Scores below 65% of age typical functioning suggest the child has poor self-regulatory capabilities. These children may have stress-response systems that are poorly organized and hyper-reactive. They are likely impulsive, have difficulties transitioning from one activity to another, and may overreact to even minor stressors or challenges. Children in this category require structure and predictability provided consistently by safe, nurturing adults across settings. Examples of essential activities in this category include: developing transitioning activity (using a song, words or other cues to help prepare the child for the change in activity), patterned, repetitive proprioceptive OT activities such as isometric exercises (chair push-ups, bear hugs while child tries to pull the adults arms away, applying deep pressure), using weighted vests, blankets, ankle weights, various deep breathing techniques, building structure into bedtime rituals, music and movement activities, animal assisted therapy and EMDR.

Relational

Client Score: 46 Age Typical: 78 Percentage: 58.97

Essential: (below 65%) - Scores below 65% of age typical functioning suggest the child has poor relational functioning. Children who have a history of disrupted early caregiving, whose earliest experiences were characterized as chaotic, neglectful, and/or unpredictable often have difficulties forming and maintaining relationships. In order to make sufficient gains in relational functioning, essential activities must include interactions with multiple positive healthy adults who are invested in the child's life and in their treatment. Examples of essential relational activities include: art therapy, individual play therapy, Parent-Child Interaction Therapy (PCIT), dyadic parallel play with an adult, and when mastered, dyadic parallel play with a peer. Once dyadic relationships have been mastered supervised small group activities may be added. Other examples of essential activities include animal assisted therapy and targeted psychotherapy.

Cognitive

Client Score: 52 Age Typical: 71 Percentage: 73.24

Therapeutic: (65% - 85%) – Scores between 65 and 85 percent suggest that the child has some difficulty with cognitive functioning. Once fundamental dyadic relational skills have improved, therapeutic techniques can focus on more verbal and insight oriented or cortical activities. Examples of therapeutic activities include: insight oriented treatment, cognitive behavioral therapy, reading enhancements, and structured storytelling.

CORTICAL MODULATION

Cortical Modulation refers to the capacity of important cortical networks to regulate and modulate the activity and reactivity of some of the lower neural systems. As the brain organizes and matures, this capacity increases and the Cortical Modulation Ratio (CMR) increases. The CMR reflects both cortical "strength" and over-reactivity in lower neural systems involved in the stress response: CMR is related to two commonly used concepts - self-regulation (SR) and executive functioning (EF). Any Cortical Modulation Ratio below 1.0 suggests that the individual has poor or undeveloped SR and EF. Ratios between 1.0 and 2.0 indicate emerging but episodic SR and EF capacity. This item can provide useful when determining whether a client is "ready" to benefit from traditional cognitive interventions.

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Appendix B: OHF's CREATE Planning Tool for Therapeutic Recommendations

Trauma Interventions

CULTURE	Cultural, historical and intergenerational trauma; healing through building cultural identity; connection to family and whanau; therapeutic use of music and movement
RELATIONSHIPS	Intimacy barrier; reward neurobiology and reward based behaviours; attachment; therapeutic touch
EXPERIENCE	Memory and learning; effects of neglect, sexual abuse, violence; neuroplasticity; use of formal therapy and medication; breath work for regulation
ATTUNEMENT	Behaviour support; stress response – hyperarousal and dissociation; self-regulation and co-regulation; regulate/relate/reason; connection before correction; compliance vs engagement; TCI principles; CPS principles;
TRAUMA	NMT principles – sequential devt., first 1000 days, social brain, neuroplasticity; types of trauma esp. complex trauma ad secondary; brain organisation – 4 major areas and their functions; ANS and how trauma affects the body; state-dependent functioning
ENVIRONMENT	Sensory processing, SPD and ASD; sensory preferences and use of checklists; use of visuals, schedules, sensory spaces, sensory diet, social stories, memory boxes, 3 Rs

Appendix C: Organisation Information Sheet

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

ORGANISATION INFORMATION SHEET

Project Description and Invitation

Open Home Foundation (OHF) is invited to partner with Marike de Wet, the researcher, and Massey University to conduct research into the use of the Neurosequential Model of Therapeutics within OHF.

This information sheet will give an overview about what the study is about and what it may involve for you. Please take time to read the sheet carefully. Please ask us questions if anything seems unclear, or if you wish to know more details.

The purpose of this study is to investigate whether using a trauma-focused, neurodevelopmental clinical problem-solving tool, the Neurosequential Model of Therapeutics (NMT), is effective and viable to guide therapeutic foster care in the New Zealand context. The research will occur within the setting of OHF. The aim of the research is to evaluate the efficacy of using NMT in the home setting as well as to gain a deeper understanding of the experiences of foster parents and social workers using and implementing this model.

If you do agree to the information laid out in this sheet, you will be asked to sign a Consent Form. You will be given a copy of both the Organisation Information Sheet and the Consent Form to keep. A Memorandum of Understanding will also be signed between both parties to clarify any uncertainties.

Researcher Introduction

This research project is led by doctoral student, Marike de Wet, supervised by Dr Matthew Shepherd and Dr Clifford van Ommen. Dr Shepherd and Dr van Ommen are both Senior Lecturers at the Massey University's School of Psychology. Dr Shepherd is a Registered Clinical Psychologist with experience working in child and family research and support services. Dr van Ommen is a Registered Clinical and Neuropsychologist.

Project Procedures

The research process is designed in collaboration with (*Principal Advisor, Therapeutic Practice)*, an OHF senior staff member, in consultation with Senior Management and can be adapted to meet the organisational needs. The first phase of the study will involve a stakeholder focus group based at the OHF offices in Wellington. Permission is needed to conduct a focus group on organisational premises with OHF staff, within work hours.

During the focus group we will invite identified stakeholders to answer questions about their understanding of NMT, the needs of OHF in relation to therapeutic support services, and what the organisation is hoping to get out of this research study. This will take approximately 60 minutes of your staff's time.

After the focus group a summary document will be sent out to all attendees with an invitation to make any changes or add information that might have been withheld in the group context.

The second phase of the study will involve OHF staff and foster parents that have a child/children/foster parents on their case load/in their care involved in the OHF NMT-directed therapeutic programme. Over the next 5-7 months OHF will be responsible to offer NMT-directed therapeutic support to foster parent and child participants, with targeted therapeutic activities tailored to his/her/their needs. OHF might also choose to offer fortnightly check-ins from an NMT-accredited clinician to support the foster parents through this process.

After 5-7 months, we will schedule a time and location that is of convenience to conduct an interview with social workers and foster parents involved. This interview will last between 45 and 60 minutes. During this interview we will give the participants an opportunity to talk about their experiences of being involved in this NMT-led programme.

As per agreement from (*Principal Advisor, Therapeutic Practice)*, OHF will be responsible for seeking consent from parents of the children involved in the programme. Permission is also requested to release brief background information of the children/foster parents involved, at the discretion of OHF.

Any risks involved in this study are very minor. If you have any concerns during the study you may discuss these with any of the study team or with (*Principal Advisor, Therapeutic Practice)*. We will do our best to answer all of your questions fully. Any complaints you may make will be fully investigated.

Data Management

All the information collected during the focus group and about the social worker, foster child/children/foster parents, during the study will be kept strictly confidential. Participants' identities will be known to the other focus group participants and to the researcher and OHF clinical team, however no identifying details will be recorded. When the study results are presented, participants will not be named or recognised from any of the information given. Information collected will be kept strictly confidential and secure in a locked filing cabinet. Electronic files on computers will have passwords and restricted access. Only the named members of research team will have access to detailed personal information.

Massey University maintains a record of all research projects undertaken. This does not include personal information about those who take part. The data (without containing personal information) will be held for 10 years after the youngest person in the study has reached the age of consent or 16 years old.

Should you wish to receive a copy of the summary of research findings or final thesis, please let us know. OHF will also be entitled to request a presentation on the research findings.

Project Contacts and Approvals

This first phase of the research project (focus group) has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Henryson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz.

All other phases of the research have been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application 20/62. If you have any concerns about the

conduct of this research, please contact Dr Fiona Te Momo, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 43347, email humanethicsnorth@massey.ac.nz.

If you have any further questions or if you have any concerns whilst taking part in the study then please contact:

Ms Marike de Wet, Lead Investigator/Doctoral Student
Email: marike.de.wet.1@uni.massey.ac.nz

Dr. Matthew Shepherd, Principle Supervisor/Senior Lecturer
Telephone: +64 (09) 414 0800 ext. 43094
Email: M.shepherd1@massey.ac.nz

Dr. Clifford van Ommen, Supervisor/Senior Lecturer
Telephone: +64 (09) 414 0800 ext. 43114
Email: C.VanOmmen@massey.ac.nz

Appendix D: Organisation Consent Form

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

ORGANISATION AND LOCATION CONSENT FORM

I have read, or have had read to me in my first language, and I understand the Information Sheet attached as Appendix I. I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study at any time.

1. I agree/do not agree to the research evaluating organisational practices as set out in the information sheet.
2. I agree/do not agree to interviews and the focus group involving staff to occur in work hours and on work premises.
3. I agree/do not agree to provide access to previous psychometric assessments for the children where these are relevant to the research.
4. As an organisation, we agree/do not agree to participate in this study under the conditions set out in the Information Sheet.

Declaration by Participant:

I ______________________________ [print full name] hereby consent to take part in this study on behalf of Open Home Foundation/Te Whare Kaupapa Āwhina of New Zealand

Signature: _______________________ Date: ________________

Appendix E: Scoping Meeting Participant Information Sheet

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

PARTICIPANT INFORMATION SHEET – Stakeholders

Project Description and Invitation

You are invited to take part in the research study: *An Evaluation of the Neurosequential Model of Therapeutics to Guide Therapeutic Foster Care in the New Zealand Context.* This information sheet will give an overview about what the study entail. Please take time to read the sheet carefully. Feel free to discuss it with other people, such as your whānau, friends, or *(Principal Advisor, Therapeutic Practice)* (Open Home Foundation). Please ask us questions if anything seems unclear, or if you wish to know more details.

The purpose of this study is to investigate whether using a neurodevelopmental clinical problem-solving tool, the Neurosequential Model of Therapeutics (NMT), is effective and viable in guiding therapeutic foster care in the New Zealand context. The research will occur within the setting of OHF. The aim of the research is to evaluate the efficacy of using NMT in the foster home setting as well as to gain a deeper understanding of the experiences of foster parents and social workers using and implementing this model. You are invited to take part in a focus group that will assist in the design of the evaluation study. The information gathered during the focus group will be used to determine the information needs of OHF and how outcomes of the NMT implementation programme should be tracked. A number of foster parents and social workers will then be invited to participate in this study where the children in their care will receive 5-7 months of intensive therapeutic support from OHF, guided by their NMT assessment results, before a follow-up assessment will be carried out. Interviews will be conducted after 5-7 months with the foster parents and social workers involved.

You do not have to take part in this study. If you do agree, you will be asked to sign a Consent Form. You will be given a copy of both the Participant Information Sheet and the Consent Form to keep. Should you change your mind about being in the study, you are free to withdraw at any time without giving a reason.

Researcher Introduction

This research project is led by doctoral student, Marike de Wet, supervised by Dr Matthew Shepherd (Ngāti Tama) and Dr Clifford van Ommen. Dr Shepherd and Dr van Ommen are both Senior Lecturers at the Massey University's School of Psychology, and registered Clinical Psychologists. Dr Shepherd has experience working in child and family research and support services, and Dr van Ommen is also a Neuropsychologist.

Project Procedures

If you wish to take part in this study, please email us to confirm your involvement, or let *(Principal Advisor, Therapeutic Practice)* know. You will then be invited to a stakeholder focus group based at the OHF Wellington office.

During the focus group we will invite you to answer questions about your understanding of NMT, the needs of OHF in relation to therapeutic support services, and what you are hoping

to get out of this research study. This will take approximately 60 minutes and will occur within work hours. After the focus group you will receive a summary document with an invitation to make any changes or add information you might have withheld in the group context.

Any risks involved in this study are very minor. If you have any concerns during the study you may discuss these with any of the study team or with (*Principal Advisor, Therapeutic Practice)*. They will do their best to answer all of your questions fully. Any complaints you may make will be fully investigated.

Data Management

The information collected during the focus group will be anonymised. Your identities will be known to the other focus group participants, however no identifying details will be recorded. When the study results are presented, you will not be named or recognised from any of the information given. Information collected will be kept secured in a locked filing cabinet. Electronic files on computers will have passwords and restricted access. Only the named members of research team will have access to detailed personal information.

Massey University maintains a record of all research projects undertaken. This does not include personal information about those who take part. The data (without containing personal information) will be held for 10 years after the youngest person in the study has reached the age of consent or 16 years old.

Should you wish to receive a copy of the summary of research findings or final thesis, please let us know. You will also be invited to a presentation on the research findings.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded

Project Contacts and Approvals

This phase of the research project (Stakeholder Focus Group) has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named below are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Henryson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz.

If you have any further questions or concerns, please contact:

Ms Marike de Wet, Lead Investigator/Doctoral Student

Email: marike.de.wet.1@uni.massey.ac.nz

Dr Matthew Shepherd, Principle Supervisor/Senior Lecturer
Telephone: +64 (09) 414 0800 ext. 43094
Email: M.shepherd1@massey.ac.nz

Dr Clifford van Ommen, Supervisor/Senior Lecturer
Telephone: +64 (09) 414 0800 ext. 43114
Email: c.vanommen@massey.ac.nz

Appendix F: Scoping Meeting Participant Consent Form

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

FOCUS GROUP PARTICIPANT CONSENT FORM

I have read, or have had read to me in my first language, and I understand the Information Sheet attached as Appendix I. I have had the details of the 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 have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study at any time.

1. I understand that I have an obligation to respect the privacy of the other members of the group by not disclosing any personal information that they share during our discussion.
2. I understand that all the information I provide will be kept confidential to the extent permitted by law, and the names of all people in the study will be kept confidential by the researcher.

Note: There are limits on confidentiality as there are no formal sanctions on other group participants from disclosing your involvement, identity or what you say to others in the focus group. There are risks in taking part in focus group research and taking part assumes that you are willing to assume those risks.

3. I agree/do not agree to the interview being sound recorded.
4. I agree to participate in the focus group under the conditions set out in the Information Sheet attached.

Declaration by Participant:

I _________________________________ [print full name] hereby consent to take part in this study.

Signature: ________________________ **Date:** ________________

Appendix G: Children's Guardians Information Sheet

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

INFORMATION SHEET – Children's Guardians

Project Description and Invitation

Your child/children is/are invited to take part in the research study: An Evaluation of the Neurosequential Model of Therapeutics to Guide Therapeutic Foster Care in the New Zealand Context. This information sheet will tell you what NMT and the study is about. Please take time to read the sheet carefully. Feel free to discuss it with other people, such as your family, whānau, friends, or Open Home Foundation (OHF) staff. Please ask us questions if there is anything you need more information about.

The purpose of this study is to ask whether using a trauma-focused, neurodevelopmental clinical problem-solving tool, the Neurosequential Model of Therapeutics (NMT), is effective and practical to guide therapeutic foster care in the New Zealand context.

What this means is the aim of the research is to see how effective NMT is in the home setting. There is an explanation below about what NMT is. We also want to understand what it is like for foster parents and staff to use this planning tool. The research will occur within the setting of OHF.

Your child/ren do not have to take part in this study. If you do agree, you will be asked to sign a Consent Form. You will be given a copy of both the Participant Information Sheet and the Consent Form to keep. If you change your mind about the study, you are free to withdraw your child/ren from the study at any time without giving a reason. Your child will still be receiving the same support from OHF.

Researcher Introduction

This research project is led by Doctor of Clinical Psychology candidate, Marike de Wet, supervised by Dr Matthew Shepherd and Dr Clifford van Ommen. Dr Shepherd and Dr van Ommen are both Senior Lecturers at the Massey University's School of Psychology. Dr Shepherd is a Registered Clinical Psychologist with experience working in child and family research and support services. Dr van Ommen is a Registered Clinical and Neuropsychologist.

Project Procedures

If you wish for your child/ren to take part in this study, please sign the attached consent form.

OHF uses an NMT report to help social workers and foster parents understand children's experience of trauma and how this might have affected their development. This report is a summary of how the child is doing in lots of different areas, including relationships, learning and emotional wellbeing.

The NMT report helps social workers to plan what kind of activities or therapy will best suit children depending on their needs. An NMT report is not a psychological assessment. It is a tool social workers use for deciding what way to help children in foster care with anything that they are finding difficult, like learning or relationships.

Over the next 5-7 months your child/ren's foster parents will be receiving support from OHF, with both play and therapy based on his/her/their needs according to their NMT report. After

5-7 months, we will interview your child/ren's foster parent and social worker. During this interview we will ask the social worker/foster parent to talk about their experiences of being involved in this NMT-led programme. We will also do a second NMT report for your child/ren at this time.

The researcher will meet with your child/ren's foster parents and social to talk to them about the project. The researcher will *not* meet your child/ren or observe them.

Any risks involved in this study are very minor. If you have any worries or questions you may discuss these with any of the study team or with an OHF social worker. They will do their best to answer all of your questions fully. Any complaints you may make will be fully investigated.

Data Management
All the information collected about your child/children during the study will be kept strictly confidential. Their identities will be known to the researcher and OHF Clinical Team, however no identifying details will be recorded on the interview sheets or other records. When the study results are presented, they will not be named or recognised from any of the information given. Information collected about your child will be kept strictly confidential and secure in a locked filing cabinet. All electronic files on computers will have passwords and restricted access. Only the named members of the research team will have access to detailed personal information.

Massey University maintains a central record of all research projects undertaken. This does not include personal information about those who take part. The data (without containing personal information) will be held for 10 years after the youngest person in the study has reached the age of consent or 16 years old.

Participant's Rights
You are under no obligation to accept this invitation. If you decide your child may participate, you have the right to:
- *withdraw from the study;*
- *ask any questions about the study at any time during participation;*
- *be given access to a summary of the project findings when it is concluded*

Project Contacts and Approvals
This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 20/62. If you have any concerns about the conduct of this research, please contact Dr Fiona Te Momo, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 43347, email humanethicsnorth@massey.ac.nz.

If you have any further questions or if you have any concerns whilst taking part in the study then please contact:

Open Home Foundation:
Principal Advisor, Therapeutic Practice
Email:
Phone:

Massey University:
Ms Marike de Wet, Lead Investigator/Doctoral Student
Email: marike.de.wet.1@uni.massey.ac.nz

Dr Matthew Shepherd, Principle Supervisor/Senior Lecturer
Email: m.shepherd1@massey.ac.nz
Telephone: +64 (09) 414 0800 ext. 43094

Dr Clifford van Ommen, Supervisor/Senior Lecturer
Email: C.VanOmmen@massey.ac.nz
Telephone: +64 (09) 414 0800 ext. 43114

Appendix H: Children's Guardians Consent Form

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

CONSENT FORM

I have read or have had read to me in my first language, and I understand the Information Sheet attached. I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to allow my child to participate in this study and I understand participation is voluntary and that I may withdraw my child from the study at any time.

I agree for my child to participate in this study under the conditions set out in the Information Sheet.

Declaration by Guardian of Participant:

I __________________________________ [print full name] hereby consent for my child to take part in this study.

Signature: ________________________ Date: ________________

Appendix I: Participant Information Sheet – Foster Parents

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

PARTICIPANT INFORMATION SHEET – Foster Parents

Project Description and Invitation

You are invited to take part in the research study: *An Evaluation of the Neurosequential Model of Therapeutics to Guide Therapeutic Foster Care in the New Zealand Context*. This information sheet will give an overview about what the study is about and what it may involve for you. Please take time to read the sheet carefully. Feel free to discuss it with other people, such as your family, whānau, friends, or Open Home Foundation (OHF) staff. Please ask us questions if anything seems unclear, or if you wish to know more details.

The purpose of this study is to investigate whether using a trauma-focused, neurodevelopmental clinical problem-solving tool, the Neurosequential Model of Therapeutics (NMT), is effective and viable to guide therapeutic foster care in the New Zealand context. The research will occur within the setting of OHF. The aim of the research is to evaluate the efficacy of using NMT in the home setting as well as to gain a deeper understanding of the experiences of foster parents and social workers using and implementing this model.

This study seeks participants that 1) have a foster child under statutory care of OHF/TWKĀ; 2) are a OHF/TWKĀ approved-foster parent.

You do not have to take part in this study. If you do agree, you will be asked to sign a Consent Form. You will be given a copy of both the Participant Information Sheet and the Consent Form to keep. Should you change your mind about being in the study, you are free to withdraw from the study at any time without giving a reason. You will still be receiving therapeutic support for your foster child from OHF.

Researcher Introduction

This research project is led by doctoral student, Marike de Wet, supervised by Dr Matthew Shepherd (Ngāti Tama) and Dr Clifford van Ommen. Dr Shepherd and Dr van Ommen are both Senior Lecturers at the Massey University's School of Psychology. Dr Shepherd is a Registered Clinical Psychologist with experience working in child and family research and support services. Dr van Ommen is a Registered Clinical and Neuropsychologist.

Project Procedures

If you wish to take part in this study, please email or call us to confirm your involvement, or let your social worker know. I will then contact you to arrange a phone conversation during which we will explain the next steps.

After the phone conversation I will send out a brief assessment sheet via email that you are asked to fill out within 14 days and send back to me. This assessment will ask you questions about your foster child/children's current functioning. This will take you no more than 20 minutes.

Over the next 5-7 months you will be receiving intensive therapeutic support from OHF for your foster child, with targeted therapeutic activities tailored to his/her/their needs. You will also receive fortnightly check-ins from an NMT-accredited clinician to support you throughout this process.

After 5-7 months, we will schedule a time and location that is convenient for you to be interviewed. This interview will last between 45 and 60 minutes and will be audio recorded. The audio recording will be retained only until the recording has been transcribed. During this interview we will give you an opportunity to talk about your experiences of being involved in this NMT-led programme. We will also ask you to complete a second assessment about your child's functioning.

Any risks involved in this study are very minor. If you have any concerns during the study, you may discuss these with any of the study team or with your OHF social worker. They will do their best to answer all of your questions fully. Any complaints you may make will be fully investigated.

Data Management
All the information collected about you and your foster child/children during the study will be strictly anonymised. Your identities will be known to the researcher and OHF Clinical Team, however no identifying details will be recorded on the interview sheets or other records. When the study results are presented, you will not be named or recognised from any of the information given. Information collected about you and the child in your care will be kept strictly confidential and secure in a locked filing cabinet. All electronic files on computers will have passwords and restricted access. Only the named members of research team will have access to detailed personal information.

Massey University maintains a record of all research projects undertaken. This does not include personal information about those who take part. The data (without containing personal information) will be held for 10 years after the youngest person in the study has reached the age of consent or 16 years old. Should you wish to receive a copy of the summary of research findings or final thesis, please let us know.

Participant's Rights
You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded
- ask for the recorder to be turned off at any time during the interview.
- Completion and return of the questionnaire implies consent. You have the right to decline to answer any particular question.

Project Contacts and Approvals
This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 20/62. If you have any concerns about the conduct of this research, please contact Dr Fiona Te Momo, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800, x 43347, email humanethicsnorth@massey.ac.nz.

If you have any further questions or if you have any concerns whilst taking part in the study then please contact:

Ms Marike de Wet, Lead Investigator/Doctoral Student
Email: marike.de.wet.1@uni.massey.ac.nz

Dr. Matthew Shepherd, Principle Supervisor/Senior Lecturer

Telephone: +64 (09) 414 0800 ext. 43094
Email: M.shepherd1@massey.ac.nz

Dr. Clifford van Ommen, Supervisor/Senior Lecturer
Telephone: +64 (09) 414 0800 ext. 43114
Email: C.VanOmmen@massey.ac.nz

Appendix J: Participant Information Sheet – OHF Staff

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

PARTICIPANT INFORMATION SHEET – OHF Staff

Project Description and Invitation

You are invited to take part in the research study: *An Evaluation of the Neurosequential Model of Therapeutics to Guide Therapeutic Foster Care in the New Zealand Context*. This information sheet will give an overview about what the study is about and what it may involve for you. Please take time to read the sheet carefully. Feel free to discuss it with other people, such as your family, whānau, friends, or Open Home Foundation (OHF) colleagues. Please ask us questions if anything seems unclear, or if you wish to know more details.

The purpose of this study is to investigate whether using a trauma-focused, neurodevelopmental clinical problem-solving tool, the Neurosequential Model of Therapeutics (NMT), is effective and viable to guide therapeutic foster care in the New Zealand context. The research will occur within the setting of OHF. The aim of the research is to evaluate the efficacy of using NMT in the home setting as well as to gain a deeper understanding of the experiences of foster parents and social workers using and implementing this model.

This study seeks participants that 1) are a registered OHF/TWKĀ employed social worker; 2) have a basic understanding of NMT and trauma-informed care; 3) are the case worker for a child/children involved in the NMT programming implementation.

You do not have to take part in this study. If you do agree, you will be asked to sign a Consent Form. You will be given a copy of both the Participant Information Sheet and the Consent Form to keep. Should you change your mind about being in the study, you are free to withdraw from the study at any time without giving a reason.

Researcher Introduction

This research project is led by doctoral student, Marike de Wet, supervised by Dr Matthew Shepherd and Dr Clifford van Ommen. Dr Shepherd and Dr van Ommen are both Senior Lecturers at the Massey University's School of Psychology. Dr Shepherd is a Registered Clinical Psychologist with experience working in child and family research and support services. Dr van Ommen is a Registered Clinical and Neuropsychologist.

Project Procedures

If you wish to take part in this study, please email or call us to confirm your involvement, or let *(Principal Advisor, Therapeutic Practice)* know. We will then contact you to arrange a phone conversation during which we will explain the next steps. Social workers involved in this study will have a child/children/foster parents on their case load involved in the OHF NMT-directed therapeutic programme.

Over the next 5-7 months your child or the child of your foster parent will be receiving intensive therapeutic support from OHF, with targeted therapeutic activities tailored to his/her/their needs. They will also receive fortnightly check-ins from an NMT-accredited clinician to support them through this process.

After 5-7 months, we will schedule a time and location that is of convenience to conduct an interview with you. This interview will last between 45 and 60 minutes and will be audio recorded. The audio recording will be retained only until the recording has been transcribed. During this interview we will give you an opportunity to talk about your experiences of being involved in this NMT-led programme.

Any risks involved in this study are very minor. If you have any concerns during the study, you may discuss these with any of the study team or with your OHF social worker. They will do their best to answer all of your questions fully. Any complaints you may make will be fully investigated.

Data Management
All the information collected about you and your foster child/children/foster parent during the study will be kept strictly confidential. Your identities will be known to the researcher and OHF Clinical Team, however no identifying details will be recorded on the interview sheets or other records. When the study results are presented, you will not be named or recognised from any of the information given. Information collected about you and the child in your care will be kept strictly confidential and secure in a locked filing cabinet. All electronic files on computers will have passwords and restricted access. Only the named members of research team will have access to detailed personal information.

Massey University maintains a record of all research projects undertaken. This does not include personal information about those who take part. The data (without containing personal information) will be held for 10 years after the youngest person in the study has reached the age of consent or 16 years old.

Should you wish to receive a copy of the summary of research findings or final thesis, please let us know.

Participant's Rights
You are under no obligation to accept this invitation. If you decide to participate, you have the right to:
- decline to answer any particular question;
- withdraw from the study (specify timeframe);
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded
- ask for the recorder to be turned off at any time during the interview.

Project Contacts and Approvals
This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 20/62. If you have any concerns about the conduct of this research, please contact Dr Fiona Te Momo, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800, x 43347, email humanethicsnorth@massey.ac.nz.

If you have any further questions or if you have any concerns whilst taking part in the study then please contact:

Ms Marike de Wet, Lead Investigator/Doctoral Student
Email: marike.de.wet.1@uni.massey.ac.nz

Dr. Matthew Shepherd, Principle Supervisor/Senior Lecturer

Telephone: +64 (09) 414 0800 ext. 43094
Email: M.shepherd1@massey.ac.nz

Dr. Clifford van Ommen, Supervisor/Senior Lecturer
Telephone: +64 (09) 414 0800 ext. 43114
Email: C.VanOmmen@massey.ac.nz

Appendix K: Individual Participant Consent Form

An Evaluation of the Neurosequential Model of Therapeutics to Guide Trauma-Informed Foster Care in the New Zealand Context

PARTICIPANT CONSENT FORM - INDIVIDUAL

I have read, or have had read to me in my first language, and I understand the Information Sheet attached as Appendix I. I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study at any time.

1. I agree/do not agree to the interview being sound recorded.
2. I agree/do not agree to the interview being image recorded (in the case of Zoom interviews if face-to-face interviews are not permitted due to COVID-19 restrictions).
3. I agree to participate in this study under the conditions set out in the Information Sheet.

Declaration by Participant:

I ________________________________ [print full name] hereby consent to take part in this study.

Signature: ______________________ Date: _______________

Appendix L: Scoping Meeting Protocol

Structure

1. Welcome and introduction*
2. Whanaungatanga - introductions
3. Brief background information of study and researcher role induction*
4. Consent*
5. Main discussion
    a. Broad questions (How, why, can you tell me about it?)
    b. More specific questions relating to various topics (as outlined below).
6. Summarising and closing*

**Beginning and end will be scripted*

Topic	Questions**	Purpose
Roles of Stakeholders	What are your respective roles within the organisation?	To map and prioritise evaluation stakeholder relationships
Understanding/Familiarity with NMT	What are your understanding and familiarity of NMT and the NMT process?	
Stakeholders Information Needs	What are you hoping to get out of this evaluation study? What does OHF want to know about the mechanics of the programme's implementation?	Identify evaluation stakeholder needs Describing the program vision
Scope of the Programme	What is the use of NMT within OHF trying to address? What is our understanding in how the programme would produce change? What factors do we predict will influence its success?	To generate the programme theory of change components To establish the scope of the programme's reach in addressing the problem Identifying critical processes and outcomes
How Success is Measured	What will make using this tool successful or effective? How should progress and outcomes be tracked?	To identify outcome evaluation targets
Main Challenges in terms of Therapeutic Care	What are the current main challenges in meeting the therapeutic needs of children in OHF's care? What are the challenges in rolling out NMT within OHF?	Understanding of evaluation context
Support Required for Successful Implementation of NMT	How will quality insurance be determined? What support is required for social workers and foster parents?	To generate the programme theory of change components Identifying critical processes and outcomes
Role of Culture	What is NMT's role in meeting the cultural needs of children?	Identifying critical processes and outcomes

***Questions will be phrased to be of a more informal nature*

Appendix M: Scoping Meeting Summary

9 December 2020

Stakeholders

Present

- 2x OHF managers/advisors involved in overseeing OHF's national clinical practice framework and service delivery
- 1x OHF manager in a Māori cultural advisory role

Aims of Stakeholder Focus Group

1. Gain an understanding of the various stakeholders involved in the programme
2. Understanding the evaluation context with respect to stakeholder relationships and priorities
3. Discover the information needs of the stakeholders
4. Understanding the aims and scope that the implementation of NMT is trying to meet – establishing a unifying goal
5. Understanding the problem/gap the implementation of NMT is trying to address
6. Generating a preliminary theory of change and logic analysis– what factors obstruct or facilitate program success, the mechanisms that produce change, and benchmarks for programme success. This also includes the antecedent condition, and programme participant profile.

Background

- Started using NMT within Open Home Foundation in 2016 (5 years) – *NMT Site Certified*
- NMT has been used in 3 ways:
    1. NMT principles in drafting Foster Parent Training Programme – CREATE
    2. Training staff in Phase 1 – 15 staff and 130 reports (of which fifteen are completed with 'typically developed' children)
    3. Supporting staff and foster parents around the country – forming the basis for advice

Evaluation Context

- Implementing Therapeutic Foster Care within OHF in order to increase longevity of placements – this is based on research done by a staff member.
- Finding a TFC model that fits in with organisational values/beliefs:
    - Faith-based
    - Cultural Kaupapa
    - Idea of NMT
    - Offering hope – part of the culture of OHF and the care of children
- Currently the Child and Adolescent Strengths and Needs (CANS) Assessment (created by Henry Lyons) is being used to assess children
- Consulted several professionals and cultural advisors, as well as Māori foster parents regarding trauma-informed care models that would be appropriate in the OHF context
- Current gap in understanding the follow through of therapeutic recommendations; limited human resources – this is in the process of being addressed – now several Trauma Advisors in the Clinical Team

Stakeholder Needs

1. Is what is being recommended being implemented – and if so, what are then the results? Implementation follow-through.
2. How do we embed this at an organisational level?
3. Currently no formalised process in NMT implementation procedures

    a. This is identified as a gap
    b. Foster parent ability and *capacity* to engage?
4. What does it take to support Foster Parents to provide therapeutic-informed care? E.g., Auckland Group Home for sibling groups – support had to be extended longer than expected. How do we ensure foster parents remain focused on and intentional about therapeutic goals, practices, and nature of care?

**Theory – foster parents are the agents of change*

5. How do we (OHF) support FP adequately and help them implement therapeutic recommendations? What works and how can we ensure it continues?

Programme Vision/Goal *(gap/need it is trying to address)*
The application of NMT in the context of Open Home Foundation, a social service provider in New Zealand, seeks to address the gap that exist in the foster care space in terms of meeting the therapeutic needs of children in care. This includes establishing a shared understanding between social workers, clinicians, and foster parents of the effects of trauma on the child and their corresponding therapeutic needs. NMT was selected as a therapeutic foster care model on the back of research that suggested a TFC model was needed to increase placement longevity, that fits into the organisation's goals, kaupapa, and values. The hope is that it becomes part of the culture of how our staff, our foster parents, work in providing care for children. The vision of the programme is to meet the therapeutic needs of children, increase placement longevity and foster parent resiliency, as well as increasing staff expertise and knowledge.

Preliminary Theory of Change Components

- ***Antecedent Condition*****:** High and complex needs of children in care due to adverse experiences/trauma that led to their entry in state care, programme implementation not formalised, lack of outcome tracking.
- ***Participant Profile:*** Children in OHF custody, 0-18y, history of trauma/abuse/intergenerational trauma, based in family foster care, high needs due to effect of trauma on development/functioning.
- ***Critical Processes*****:** Conducting of NMT assessments by accredited staff members, recommendations given, intensive support (weekly/fortnightly) from staff – preventative approach.
- ***Moderators:*** Human resources, financial support, engagement from foster parents (linked with capacity and resilience factors), support from school, NMT certification process delayed due to staff time constraints.
- ***Outcomes (Benchmarks for Programme Success):*** Reduction in trauma-related negative behaviours; positive impact on parental stress, resilience, and well-being; increase in foster parent's sense of reward regarding fostering; reconnection to culture/cultural health for Māori/Pasifika children; increase in staff (social workers') and foster parents' knowledge and competence in trauma-informed professional practice; positive impact on child functioning and well-being as measured by ACC/ACA and qualitative data – strength-based approach important to the kaupapa of OHF.

Scope of the Programme's Reach

1. Children in OHF's custody at this point (additional guardianship) – receiving formalised NMT assessments and recommendations.
2. Other children in OHF's care – NMT principles guiding professional practice

Appendix N: Interview Protocol Example

Interview Schedule: Foster Parents/Caregivers

Area of Focus	Questions	Purpose (Deane et al., 2020)
Broad	▪ Can you tell me a little about your family/foster child and how you became a foster parent? ▪ Can you tell me a little about the support you received over the last few months? ▪ What are your first thoughts when you think about the Neurosequential Model of Therapeutics? ▪ Can you tell me of your experience of being introduced to his model over the last few months?	Valuing user-experience
Expectations	▪ What needs did you hope the therapeutic support would meet? What were your expectations? ▪ What are the essential components of therapeutic support in your opinion?	Valuing user-experience
Psychoeducation: Understanding of the Principles behind NMT	▪ How did using NMT assist your understanding of the child in your care and their challenges? Was knowledge of the concepts useful? Did they facilitate a deeper understanding of your child? ▪ Did they guide you in engaging with the child in particular useful ways? ▪ Was NMT effective in allowing you to remain focussed on providing trauma-informed therapeutic foster care? If so, how? ▪ Does the process involve enough clarity, so you know what to do?	Identifying critical outcomes
Assessment Process	▪ What was your experience of providing information for the assessment report?	Identifying critical processes and influencing factors
Interventions	▪ What therapeutic support did your child receive? ▪ Were the chosen interventions a good match in your opinion? Which activities, strategies, and practices were useful, which weren't? ▪ How did the child respond to the chosen interventions? ▪ What were the challenges in implementing the selected interventions at home or in the community?	Identifying critical processes and outcomes

	▪ Were the recommended interventions compatible with your lifestyle?	
Strengths of this Model	▪ What do you believe are the strengths of this approach? ▪ Did this model meet your needs as a foster parent and family? ▪ If using this model was successful in…. (well-being, stress, regulation, engagement), what would you ascribe it to?	Identifying critical processes and key moderating factors
Weaknesses of this Model	▪ What needs did this model fail to meet? ▪ What situation/behaviours did the model not help you understand/manage? ▪ What would you change to make the support work better for you and your family?	Identifying critical outcomes
Culture	▪ What does culture mean to you or to the child? ▪ Did NMT succeed in meeting the cultural needs of the child? And which didn't it? How did/didn't it meet these needs? ▪ Activities used, e.g., Kapa Haka, Reo, waiata, karakia?	Identifying critical outcomes
Changes Observed in Child	▪ Did you observe any noticeable changes in your child? (E.g., emotional, and physical regulation, overall sense of safety in the child, stability security and connectedness, increased family, and community support). If so, what were these changes?	Identifying critical outcomes
Changes Observed in Family/Wider System	▪ Did you observe any noticeable changes in the family dynamics? If so, what were they? ▪ How did engaging in TFC impact the wider systems surrounding the child e.g., school, family, community?	Identifying critical outcomes
Changes Observed as a Foster Carer	▪ What have your experiences been in relation to parental stress? ▪ Did using a structured therapeutic model reduce parental stress?	Identifying critical outcomes
Implementation	▪ What are the barriers to implementing some of the ideas and activities? E.g., systemic, or practical barriers. Any specific activities in particular? ▪ Did Covid have an impact on how you were able to implement the therapeutic inputs at home? ▪ Is the implementation of this therapeutic approach/lens/activities sustainable in your opinion?	Identifying critical processes and influencing factors
Support	▪ Did NMT meet your needs regarding support? ▪ Were the weekly/fortnightly check-ins useful? ▪ What other support have you experienced in your role as a foster carer from any source that you have found useful? ▪ Are there other areas in which you would appreciate further support in this role?	Identifying critical processes and influencing factors + outcomes

Training	▪ What training have you accessed around fostering and caring for children while you have been fostering? ▪ What other training topics would you like to have access to?	Identifying critical processes and influencing factors
Other	▪ Anything else I haven't asked or we haven't covered?	

Appendix O: Permission to Reprint Copyright Images

Marike de Bruin

25 July 2023

The Neurosequential Network

Dear Dr Perry

As discussed via email, my name is Marike de Bruin and I am a Doctoral student at Massey University. I am writing a thesis on the use of the Neurosequential Model of Therapeutics in the context of a New Zealand foster care organisation for the degree of a Doctorate of Clinical Psychology. A print copy of this thesis when completed will be deposited in the University Library, and a digital copy will also be made available online via the University's digital repository. This is a not-for-profit research repository for scholarly work which is intended to make research undertaken in the University available to as wide an audience as possible.

I am writing to request permission for the following work, for which I believe you hold the copyright, to be included in my thesis:

The following images of sample graphs contained in an NMT report:

Figure 1. Functional Brain Map and Functional Item Key
Figure 2. Functional Brain Map Developmental Function Colour Key
Figure 3. Cortical Modulation Ratio graph
Figure 4. Developmental History graph
Figure 5. Developmental Risk graph
Figure 6. Current Relational Health graph
Figure 7. Functional Domains graph

I am also requesting permission to include a sample NMT report as an Appendix in my thesis.

I am seeking from you a non-exclusive licence for an indefinite period to include these materials in the print and electronic copies of my thesis. The materials will be fully and correctly referenced.

If you agree, I should be very grateful if you would sign the form below and return a copy to me. If you do not agree, would you please notify me of this.

Thank you for your assistance. I look forward to hearing from you.

Yours sincerely,
Marike de Bruin

I Bruce D. Perry, M.D., Ph.D agree to grant you a non-exclusive licence for an indefinite period to include the above materials, for which I am the copyright owner, in the print and digital copies of your thesis.

Date: July 26, 2023

Appendix P: Access Granted to the ACC-SF and ACC+

On September 25, 2020, I was granted access by Dr Michael Tarren-Sweeney, developer of the Assessment Checklist Series, in order to use the ACC-SF and ACC+ in my research project. The email from Dr Tarren-Sweeney is included below.

Dear Marike,

I have attached a zip file containing the Assessment Checklist for Children (ACC), Assessment Checklist for Adolescents (ACA) and ACC+ checklists, as well as a publisher's flyer for the clinical manual. Please ensure that you read the limited licence document. The measures are free to use by registered clinicians, but I would encourage you to purchase the clinical manual. You may download score profile sheets and further information about these instruments at www.childpsych.org.uk. The Brief Assessment Checklists (BAC-C and BAC-A), which are mental health screening instruments that can be used by child welfare agencies and health services, can also be downloaded at www.childpsych.org.uk. Please visit this website from time to time to check if there are any updated forms or news of further developments. I hope these measures prove to be useful for your assessment of children and young people in care, and those adopted from care,

Kind Regards,

Michael Tarren-Sweeney, Ph.D
Professor of Child & Family Psychology
School of Health Sciences, University of Canterbury, New Zealand
Ph: +64 3 3693524 (Internal: 93524)
Room 209, Rehua Building

Appendix Q: Research Case Study

Abstract

Clinical Psychology training and practice both internationally and in Aotearoa New Zealand is based on a framework that integrates research and clinical practice to ethically achieve optimal outcomes. This is referred to as the scientist-practitioner framework. The purpose of this report is to reflect on the nexus between research and clinical practice as it applies to my professional training, including my internship and doctoral research project. During my internship year several challenges in the application of a scientist-practitioner model have become apparent as I navigated the complexities involved in working in a challenging environment, with whai i te ora with complicated presentations and histories. These include a mismatch between the context in which empirical evidence was obtained and the clinical context in which I work; the challenge of working with men who are under compulsory treatment orders and have limited choice in the care they receive; as well as the limited contextualised research evidence in New Zealand and the risk in generalising research findings to indigenous population groups. The second half of the case study includes a summary of my doctoral research followed by reflections on the skills I have obtained and the awareness I have developed during my research project, and the transferable nature of these skills to my clinical practice. This include reflecting on the overlap between an evaluation study and the scientist-practitioner model, the importance of trauma-informed practice, the development of skills to facilitate a collaborative approach to care, and the importance of culturally responsive research and clinical practice when working with Māori. At the time of the writing of this case study the data was in the process of being analysed, thus preliminary findings of my research study are not available.

Key words: Self-reflection, scientist-practitioner framework, evidence-based practice, trauma-informed care, forensic psychology

A Reflection on the Scientist-Practitioner Framework within Clinical Psychology and its Application to Practice

Clinical Psychology training and practice both internationally and in Aotearoa New Zealand is based on a framework that integrates research and clinical practice to ethically achieve optimal outcomes, referred to as the scientist-practitioner framework. As applied scientists, clinical psychologists are expected to have the knowledge and skills to effectively and meaningfully apply empirical knowledge to clinical practice, as well as contribute to the growing research base on which clinical interventions are based. This approach is also reflected in the Core Competencies framework outlined by the New Zealand Psychologist's Board which stipulates an expectation that clinical psychologists are required to be highly skilled in the scientific process, as well as possess a thorough understanding of its relationship to clinical practice. The purpose of this report is to reflect on the nexus between research and clinical practice as it applies to my professional training, including my internship and doctoral research project. The initial focus of this report is a reflection on the construct of the scientist-practitioner framework and evidence-based practice as it applies to my internship at the Auckland Regional Forensic Psychiatric Service (Mason Clinic). The second part of the report will focus on my doctoral research study and skills and insights I have developed as it applies to the clinical setting of adult forensics.

Core Competencies within the Scientist-Practitioner Framework

The scientist-practitioner framework within clinical psychology training programmes seek to train individuals to be clinicians that are proficient in the skills of a researcher and a therapist, within a single professional role (Haynes et al., 1999). The scientist-practitioner model propounds the notion that the aim of clinical inquiry is to incorporate scientifically grounded explanations of client's problems and presentations, and then select empirically supported interventions specifically designed to address them (Ward et al., 2022). Alongside the scientist-practitioner model (SPM) is the evidence-based practice (EBP) model that seek to guide clinical psychology practice. The EBP model is a normative practice model that is intended to guide and structure clinical decision-making of individual clinicians by incorporating information from multiple ecological domains and levels of analysis (Ward et al., 2022). It directs clinicians to integrate the best available research evidence, clinical expertise, client preferences and values, and social and cultural factors in the assessment and treatment of psychological problems (Ward et al., 2022). Moving beyond the scientist-practitioner model, the EBP model seeks to not only integrate the best available research evidence to guide therapy assessment and treatment, but explicitly incorporates client preferences and values, as well as social and cultural factors into the clinical decision-making process (Lilienfeld et al., 2013). Other contextual features that are taken into account alongside scientific research includes a client's mental state and characteristics, clinician competency, and institutional structure and dynamics. This competency of having knowledge

of scientific foundations and research, and integrating science and practice, is not based on a restricted and singular view of what constitutes 'evidence', but is responsive to new knowledge to achieve best-practice (Ward et al., 2022). This model has provided the framework in which I strive to operate in as a clinician-in-training; encouraging me to base my interventions on the best available research evidence, and to think critically during the assessment, formulation, and treatment phases.

Reflections on the Application of an Evidence-Based Model in the Context of my Internship

My internship began in February 2022 and is based at the Regional Forensic Psychiatry Service (Mason Clinic) in Auckland where I work across two services, the Forensic Prison Team, based at Auckland Maximum Security Prison, as well as the acute admission inpatient unit for males. I work with men who have committed serious and violent offences and present with severe mental health difficulties, most often psychotic-related disorders. During my internship year several challenges to applying a SPM and EBM have become apparent as I navigate the complexities involved in working in a challenging environment, with whai i te ora with complicated presentations and histories. Several factors have been identified that make the practical applications of these models challenging.

One challenging aspect of working within a EBP model is drawing from empirical research when structuring assessment and treatment protocols, whilst also considering the context during which empirical evidence was obtained. This challenge is reflected in a common critique found in the literature of the SPM regarding what constitutes 'research evidence' and how it is defined. The tane (males) that I work with not only present with complicated diagnostic presentations, but this interacts with complex and dynamic contextual factors, social and legal issues, serious and recent offending histories, as well as other nuance clinical considerations such as queries regarding "malingering" or the feigning of symptoms for secondary gain. The SPM of clinical psychology necessitates that agencies, services and programmes utilise treatment approaches that have been demonstrated to be effective in practice. However, the research is often based on randomised control trials (RCTs), resulting in interventions that is considered effective, but only for a particular cohort. What is regarded as 'knowledge' has received critique, with RCTs and systematic reviews carrying more weight than other methods of evidence e.g., clinical observations and mechanistic knowledge (Stegenga, 2014). However, Frederico et al. (2019) argued that people with complex presentations and/or circumstance are often excluded from RCTs. This is due to limited sample selection inclusion criteria in RCTs to reduce the number of variables that complicate interpretation of the results. Naturally, this gives rise to the questioning of the applicability of EBT's applicability to cohorts excluded from the studies (Frederico et al., 2019). For example, CBT-p is often cited as the treatment protocol with the best evidence when working with individuals who presents with perceptual disturbances/hearing voices (National Institute for Health and Care Excellence [NICE], 2014); however, at what point in the client's journey and the trajectory of the disorder is the most appropriate time to engage in this type of therapy? Is an acute unit where they will likely be admitted for a short to medium period the most appropriate context for applying this evidence-

based intervention? The evidence based on this is unclear. I also have had multiple clients/whai i te ora express their fatigue at *"always talking about my voices"* in the context of regular medical reviews and monitoring of their mental state in a multidisciplinary team (MDT) context, and the desire to steer away from this as the sole focus of psychological treatment. Applying 'gold-standard' treatments with clients presenting with perceptual disturbances therefore becomes clouded by the other components of the decision-making process in evidence-based practice: client characteristics, which includes client properties, states, needs, values, and preferences (Spring & Neville, 2011). As Tonelli and Shapiro (2020) argues, evidence-based practice should be centred around case-specific information rather than the other way around. Another example of challenges and additional considerations when applying 'gold-standard' treatment protocols is reflected when I engaged with a client incarcerated in a maximum security prison for the treatment of posttraumatic stress disorder (PTSD). Several challenges emerged when I applied an evidence-based trauma-focused CBT treatment modality, requiring further reflection and supervision. The issue of safety and stabilisation was contentious and whether prison is an appropriate setting to engage in trauma-focused therapy. It is here where the component of client characteristics and preferences in EBM is particular salient. For my client with a life sentence who has been incarcerated since his teenage years and reported that prison was the only place he has ever felt safe, prison was a stable and consistent environment; however for other whai i te ora prison could be a highly stressful and traumatising environment. Understanding my clients and their idiosyncratic preferences and situations is therefore critical when applying evidence-based treatment.

Another challenge has been that a large portion of my clients are subject to the *Mental Health (Compulsory Assessment and Treatment) Act 1992* and are admitted under compulsory treatment orders. Clients are not actively seeking treatment and support, and often have limited insight into their mental health difficulties and diagnoses, thus a large portion of psychological input is often focused on supporting the client to develop insight and to encourage them to engage in treatment – factors that are harder to identify, assess, and monitor. Diagnostic assessment as described in the research literature is typically implemented via symptom checklists, usually self-reported measures. These procedures fail to accommodate characterological or motivational factors that can, in subtle or obvious ways, influence clinical presentations, particularly relevant in the area of forensic clinical psychology (Green, 2021).

In addition, there continues to be limited research on the usability of clinical assessment tools and the application of psychological interventions with indigenous groups. Concerns about external validity when extrapolating and generalising findings from research settings to people from different cultural groups in everyday clinical practice is therefore culturally inappropriate, has a potential colonising effect on indigenous people, and is a major threat to EBP. However, limited alternative options often exists. There are significant cultural differences and considerations in the etiology and presentation of psychological problems which often fails to be incorporated in research about assessment and interventions. Research is commonly done in contexts where personal and cultural values and their inevitable, pervasive role in science and practice is minimised (Drisko & Grady, 2019).

When working with men from indigenous groups, in particular Māori, who present with apparent symptoms of psychosis, there is a risk of pathologising normative cultural experiences or minimising client understandings. Medical explanations and treatments are favoured and prioritised regardless of client preferences or alternative considerations. In my practice I have learned that taking a collaborative approach with clients and stating the fact that there multiple explanations for their presentation, is useful in bridging the gap between the medical framework and cultural conceptualisations of symptoms. It also ensures that the client's voice is heard and their understanding of their symptoms and distress is validated. This is reflective of the notion that other forms of knowledge, including whai i te ora perspectives and social and cultural knowledge, are essential for effective clinical work.

The lack of contextualised research evidence in New Zealand, reflects perhaps a larger challenge when it comes to the output of research by scientist-practitioners. When discussing the SPM in training programmes the focus is often on being consumers of research and literature rather than contributors thereof. Working within this system for the past year I have come to experience some of the factors that hinder research initiatives. This include time constraints and a lack of resources/funding; practical factors such as psychological treatment not being prioritised in the acute medico-legal context; difficulties with clients' capacity to consent and being subject to the Mental Health Act; as well as other institutional structures and dynamics. These challenges are significant barriers to conducting the research that is needed to ensure the evidence-base we draw from as practitioners are grounded within the contexts in which we are attempting to apply the research findings.

Reflection on my Doctoral Research Study and my Current Clinical Practice

Conducting my doctoral research has been a critical part of my development as a scientist-practitioner. Although my research investigates a topic that at face value appears removed and disconnected from my clinical practice in adult forensics, the manner in which concepts, reflections, and lessons have interwoven across these spaces has been prolific and enriching. I will provide a brief overview of my research project which will be followed by a reflection on the skills and awareness that I have developed that has been relevant to my clinical work.

Overview of my Doctoral Research Project

My doctoral research intended to evaluate the use of the Neurosequential Model of Therapeutics (NMT) developed by the ChildTrauma Academy, as an approach to trauma-informed care in the family foster care context within Aotearoa New Zealand. This has involved working with a social service organisation, Open Home Foundation/Te Whare Kaupapa Āwhina (OHF/TWKA), using a program theory-driven and utilisation-focused evaluation within an evaluability assessment framework. The research consisted of three phases, which included multiple stakeholders at various organisational levels. The following section will give an overview of my research project, including the aims of the study, methods used, and the data analysis process.

Context. This research project emerged from my interest in the way in which trauma, in particular complex trauma of an interpersonal nature, affects the developing brain, and moreover, how to best support and treat children who have experienced this type of trauma. OHF/TWKA, who I was employed with at the time, was in the process of adopting the NMT as an approach to trauma-informed care in their practice. My work as a Therapeutic Family Support Worker illuminated the immense challenges involved in family foster care, as well as the pressing need to create environments that are therapeutic, with teams that are trauma-informed and highly skilled. This project was therefore one of collaboration and ongoing partnership between myself and OHF in order to evaluate the effectiveness of NMT within this context and to better understand the experiences of key stakeholders involved in implementing trauma-informed foster care.

Rationale and aims. There are around 6000 children in the Care and Protection Custody of the Chief Executive of Oranga Tamariki, each with individual and/or family histories of trauma or maltreatment, including physical/sexual/emotional abuse, neglect, family violence, and parental addictions (Oranga Tamariki, 2020). The literature suggest that individuals exposed to trauma in their early life are at a significantly greater risk for developing behavioural, social, and mental health issues across the lifespan (Bellis et al., 2015; Hambrick et al., 2019). These children however, are not considered to be a clinical population and consequently do not necessarily receive the support they require. Based on the links between child maltreatment and adult psychopathology, as well as other social issues (Dunn et al., 2017; Felitti et al., 1998), it is imperative that ways in which children in foster care and their families can be supported are investigated, using evidence-based models that are trauma-informed, developmentally-sensitive, and operationally viable. There is a need to work towards creating therapeutic foster care environments that ensure children are consistently receiving the specialised care they require. There is currently a lack of evidence-based guidance on the provision of structured family-based trauma-informed care in the New Zealand context. Within this context, my goal was to gain insight regarding the feasibility and efficacy of implementing a neurodevelopmental clinical problem-solving model, the NMT, within a New Zealand social service organisation, to guide a trauma-informed approach to family foster care standards.

Research questions.

1. Is NMT an effective clinical tool in delivering trauma-informed foster care, based on the needs of Open Home Foundation/Te Whare Kaupapa Āwhina, within the New Zealand context?
2. What are the perspectives, experiences, challenges, and needs of stakeholders involved in implementing NMT as a tool to guide trauma-informed foster care?

Methodology. Based on the nature of the research questions, a mixed-method approach was used that calls for the collection, analysis, and mixture of both quantitative and qualitative data at different stages of the research process. Mixed methods take advantage of 'triangulation by methods' and has become a central approach to program evaluation (Royse et al., 2016). Results from all data sources

were triangulated to achieve a multi-perspective validation (Flick et al., 2004) and to strengthen the validity of findings.

This research project adopted a theoretically integrative evaluation design based of the work of Dean et al. (2020), involving the integration of program theory-driven and utilisation-focused evaluation within the context of evaluability assessment. This integrative approach values stakeholder experience, values, and perspectives when designing the evaluation, allowing for shared decision-making while simultaneously producing a robust evaluation design suited to the organisational needs and context. This framework will be explained in more detail below.

Participants. Three stakeholders at management level participated in an initial stakeholder focus group. Phase 2 and 3 then entailed a convenience/opportunistic sample consisting of nine adults that were interviewed (five foster parents, two social workers, two Trauma Advisors). The clinical outcomes of five children were also tracked. The participants resided in the South Island of NZ.

Procedure. In accordance with the utilisation-focused evaluation design and the ground-up approach of the project, there was a particular focus on involving stakeholders in the design of the project. As a result, the consultation process was collaborative and extensive with fortnightly meetings between OHF/TWKA and the myself as the researcher, as well as a joint meeting between the research team (including university supervisors) and OHF/TWKA in 2020. These included discussions about participant selections, planning therapeutic input, programme details, choosing psychometric measures, establishing programme goals, legal and consent matters, as well as a range of other discussion topics. These meetings and the additional regular communication between OHF and the myself ensured that local knowledge was utilised, the organisation/evaluation context was understood, and the stakeholders were involved in establishing evaluation priorities. This approach was also crucial in ensuring the project was set up in a bicultural-responsive way by involving Māori stakeholders in the consultation process. Pathways, challenges, and resolutions were constantly reviewed in this collaborative and community-oriented approach. Entering such a complex system with a large number of gatekeepers and stakeholders on various system levels, with their own set of agendas, policies and protocols meant it was a complex and challenging area to work in. Flexibility, responsiveness, and substantial communication between myself and OHF/TWKA was required to ensure effectiveness in this context.

Four distinct evaluation stages/aims formed the framework of the study. These phases were selected based on the formative evaluation approach that considers stakeholder needs, process evaluation and outcome evaluation (Royse et al., 2016), as well as the participatory Evaluation Stages as created by Deane et al. (2020). A step-by-step outline of the research process is outlined in Table 2, which incorporates the different evaluation stages and phases as outlined in Table 1.

Table 1

Evaluation Frameworks that Informed the Research Design

Evaluation Stage (Deane et al., 2020)	Evaluation Phases (Royse et al., 2016).
Stage 1: Stakeholder Selection and Identifying Information Needs	Phase 1: Needs Assessment
Stage 2: Establishing the Programme's Scope and Critical Processes	Phase 2: Process Evaluation
Stage 3: Producing a Theory of Change	Phase 3: Outcome Evaluation
Stage 4: Providing Direction for Future Evaluative Activities	

Table 2

Project Phases and Evaluation Priorities Within Each Phase

Project Phases	Evaluation Priorities
Phase 1: Stakeholder Focus Group	▪ Stage 1: Stakeholder Selection and Identifying Information Needs ▪ Stage 2: Establishing the Programme's Scope and Critical Processes ▪ Stage 3: Producing a Theory of Change ▪ Stage 4: Providing Direction for Future Evaluative Activities ▪ Needs Assessment
Phase 2: Participant Interviews	▪ Stage 2: Establishing the Programme's Scope and Critical Processes ▪ Stage 3: Producing a Theory of Change ▪ Process Evaluation ▪ Outcome Evaluation
Phase 3: Outcome Measure	▪ Stage 2: Establishing the Programme's Scope and Critical Processes ▪ Stage 3: Producing a Theory of Change ▪ Stage 4: Providing Direction for Future Evaluative Activities ▪ Outcome Evaluation

Ethics. Two separate ethics applications were made to the Massey University Human Ethics Committee that corresponded to different phases of the research project: a low risk application, and a full application. The ethics application process was a detailed and rigorous process to ensure a high ethical standard. It also including meeting with OHF's legal team to establish collaborative ethical standards.

Data Analysis.

Phase 1. Data from the stakeholder focus group was analysed by creating a summary document based on the evaluation study design described above, and answering specific programme evaluation

questions as outlined by Deane et al. (2020). This document was then used to design Phase 2 and Phase 3 of the research study.

Phase 2. The qualitative data in Phase 2 was approached inductively and from an exploratory perspective in order to minimise researcher preconceptions. However, in line with my epistemological orientation of critical realism, it is believed that the data cannot be coded in an epistemological vacuum and that researchers cannot free themselves entirely of their theoretical and epistemological perspectives (Braun & Clarke, 2019). The data was analysed using reflexive thematic analysis, in particular Braun and Clarke's (2019) six-step circular process of thematic analysis to identify and construct the main themes from the content of the interviews pertaining to the experiences of foster parents, social workers, and trauma advisors. A critical realist theoretical framework informed the thematic analysis process, which operates under the assumption that thematically analysing multiple participants' perspectives enable the uncovering of convergent perspectives of a common reality.

Phase 3. A paired sample t-test that compare means from the same group at different times was used in order to analyse the quantitative data gathered from the Assessment Checklist for Children – Short Form (ACC-SF) and the Assessment Checklist for Children – Plus (ACC+) (Tarren-Sweeney, 2014). Baseline data was summarised using standard descriptive statistics including means, medians, percentages, ranges and standard deviations as appropriate. Difference in t test scores and effect sizes (ES) was considered when determining if significant improvement occurred, with 0.2 being a small ES, 0.5 a medium, and 0.8 a large ES (Cohen, 1992). T-scores and other descriptive statistics was reported individually to gain a more meaningful understanding of effects and outcomes due to the small sample size of the study.

Results. At the time of the writing of this case study the data was in the process of being analysed, thus preliminary findings are not available.

Transferable Concepts between my Research Project and Clinical Practice

The following section will reflect on the skills I have obtained and the awareness I have developed during the research process and the transferable nature of these skills to my clinical practice. Reflections will cover the overlap between an evaluation study and the scientist-practitioner model, the importance of trauma-informed practice, the development of skills to facilitate an collaborative approach to care, and the importance of Māori-centric cultural competency and cultural safety in research and clinical practice.

Evaluation research as a reflection of the scientist-practitioner nexus. My research used a program theory-driven and utilisation-focused evaluation model within an evaluability assessment framework. Program theory-driven evaluation is concerned with examining *how* programmes produces outcomes (Astbury & Leeuw, 2010). Stakeholder views of how a programme produces changes, as opposed to social science theory and other forms of research evidence, is prioritised. Utilisation-focused evaluation focusses on increasing instrumental utility by involving primary intended users in the design

of the evaluation (Deane et al., 2020). It ensures the evaluation design is situationally responsive by working with stakeholders to understand the evaluation/organisational context. It is based on the idea that approaches which incorporate collaborative reflection, increase the likelihood for transformational organisational learning and process use to occur (Deane et al., 2020; Preskill & Torres, 2004).

Using this evaluation model in my research project has instilled in me an awareness to take into account contextual factors when using assessment and treatment approaches outlined in the literature. It directly links with the evidence-based model of practice and lies at the nexus of the scientist-practitioner model, consolidating research and clinical practice. As the research model prioritises stakeholder voices and experiences in research priorities, this approach can also be applied to clinical practice by prioritising client preferences and organisational resources when designing treatment plans and approaches. It creates space for complex settings, clients, and presentations, and considers whether our theories, models, and outcome research evidence is relevant to the practical 'real world' clinical setting.

The importance of trauma-informed practice. Perhaps the most critical overlap between my research study and daily clinical practice is an awareness of the significant and global long-term impact of trauma across the lifespan. Understanding the trauma histories of the clients I work with gives critical context to the trajectory of their lives which led to severe mental distress and violent offending. I am confronted daily with the colossal impact of complex childhood trauma which is the focus of my doctoral research project. A recent study by Bevan (2017) from the New Zealand Department of Corrections identified high rates of lifetime exposure to potentially traumatising events in the prison population, with 57% of prisoners having experienced sexual and/or family violence. Adopting a trauma-informed care (TIC) approach in my work is therefore critical when formulating, assessing, and treating clients. TIC can be defined *as "a strengths-based framework that is grounded in an understanding of and responsiveness to the impact of trauma, that emphasizes physical, psychological, and emotional safety for both providers and survivors, and that creates opportunities for survivors to rebuild a sense of control and empowerment"* (Hopper, Bassuk, & Olivet, 2010, p. 82). In practice, this means focusing on creating a sense of safety for whai i te ora during our engagement; being aware of my cultural positionality as a Pākeha and underlying structural power dynamics at play (cultural humility and safety); promoting choice, control, autonomy and self-determination by collaborating with my clients in conceptualising their presenting issues and determining their treatment targets, taking into account their cultural values and understandings (rangatira); remaining strengths-based with a focus on resilience (wairua); advocating for trauma-informed lens in MDTs; as well as valuing the principle of trustworthiness (manaaki) by being consistent with appointment times, and displaying compassion towards my clients, regardless of the severity of their offending.

Prioritising a collaborative approach to providing care. My research study adopted an action-orientated research approach in which knowledge was generated and practice principles established through the collaborative partnership between the community, the organisation

(OHF/TWKA) and the research team/university. This skill which I have developed throughout the research project, remains a focus in my daily clinical practice. Working within a complex medico-legal setting requires strong collaborative skills with other professionals to ensure a high ethical standard of care. A commitment to a multi-disciplinary approach and learning to add value to the team as an intern psychologist has been critical in my professional development. As during my research project, pathways, challenges, and resolutions are constantly reviewed in this collaborative and community-oriented approach. Engaging within a complex system with stakeholders on various system levels requires flexibility, responsiveness, and effective communication.

Māori-centric cultural competency and cultural safety. Lastly, the development of awareness, understanding, and skills to work effectively and safely with Māori is a central component of my clinical practice and research endeavours. This is in line with Te Tiriti o Waitangi that acknowledge Māori's status as tangata whenua and the Treaty responsibilities that have to be upheld working for the Crown. Throughout this year I have had the privilege to work closely with a cultural supervisor who have supported and challenged me to develop the awareness and skills to move beyond cultural competency and work towards the transformative concept of cultural safety. Cultural safety involves a critique of power imbalances and structural inequalities within healthcare and social services and requires critical self-reflection of my own positionality within these monocultural institutional systems (Curtis, 2019). In my daily practice and during my research project, my aim is to acknowledge the social and historical layers of adversity my clients might have been exposed to, and the impact it can have on our engagement (Meléndez Guevara et al., 2021). Practically, this means adopting a lens where I am actively striving to build a safe space for whai i te ora and families and grounding my interactions as a researcher and clinician in building authentic relationships and connections with clients and whānau within a culturally safe manner. This also means acknowledging the profound role cultural values and beliefs have on families' interpretations of trauma and mental health difficulties (Meléndez Guevara et al., 2021).

Conclusion

My internship to date has been a challenging but significantly enriching experience. There are multiple challenges involved in applying a scientist-framework and evidence-based practice model to my practice, which has been reflected on this case study. I have also developed skills during my doctoral research project that enhance and ground my clinical practice. The internship year is a unique opportunity to consolidate, integrate, and develop clinical skills within a evidence-based practice framework whilst having the privilege to be supervised and mentored by senior clinicians. My work with men both in prison and at the Mason Clinic has been a remarkable experience and I feel privileged to listen to their stories and support them as they work towards healing and recovery.

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