

WHAT IS THE CURRENT STATE OF OCCUPATIONAL THERAPY PRACTICE
WITH CHILDREN AND ADOLESCENTS WITH COMPLEX TRAUMA?

by

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ABSTRACT

There has been a recent increase in the understanding of the effects of complex trauma on children and adolescents. Occupational therapists are using their knowledge of sensory based interventions with this population.

A scoping review was conducted to determine the extent of use of sensory based interventions. It was found that evidence on their efficacy is promising but limited.

A qualitative study examined the current state of occupational therapy practice with complex trauma. Nine experienced occupational therapists were asked about their practice with this population.

Findings indicated a variety of assessments and interventions being used, with a focus on sensory based interventions to address issues with regulation impacting daily functioning. Additionally, the need to include the caregiver in treatment and address attachment concerns was identified.

Addressing barriers to treatment and more trauma education was highlighted together with the need to network with other occupational therapists and collaborate with other disciplines.

LIST OF ABBREVIATIONS USED

ADHD	Attention Deficit and Hyperactivity Disorder
ACES	Adverse Childhood Experiences
ARC	Attachment, Self-Regulation, and Competency Model
ASD	Autism Spectrum Disorder
ATTACH	Association for Training on Trauma and Attachment in Children
BASC	Behavior Assessment System for Children
BRIEF	Behavior Rating Inventory of Executive Functioning
BOT-2	Bruininks-Oseretsky Test of Motor Proficiency, Second Edition
CANS	Child and Adolescent Needs and Strengths
CMHS	Children’s Mental Health Services for Developmental Coordination Disorder
CPP	Child Parent Psychotherapy
DDP	Dyadic, Developmental Psychotherapy
DRI Floor Time model	Developmental Individual-difference and Relationship-based
DSM-V	Diagnostical and Statistical Manual of Mental Disorders
FEAS	Functional Emotional Assessment Scale
GAS	Goal Attainment Scaling
ICF	International Classification of Functioning, Disability and Health
n/a	Not Applicable
OT	Occupational Therapy
PCIT	Parent Child Interaction Therapy
PEO	Person Environment Occupation Model
PDMS-2	Peabody Developmental Motor Scale-2
PI	Principal Investigator
PIC-2	Personality Inventory for Children -2 nd ed
PRQ	Parenting Relationship Questionnaire
PTSD	Post Traumatic Stress Disorder
RCT	Randomized Control Trial
SDQ	Strength and Difficulties Questionnaire
SITCAP-ART	Structured Sensory Therapy
SMART	Sensory Motor Arousal Regulation Treatment
STEP	Sensation, Task, Environment, Predictability
TAU	Treatment as Usual
TBRI©	Trust Based Relational Intervention
TIC	Trauma Informed Care
T.I.M.E.	Toddler and Infant Motor Evaluation
Tx	Treatment
WHO	World Health Organization

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CHAPTER 1: INTRODUCTION

1.1 Occupational Therapy and Complex Trauma

It is estimated that as many as “one in seven to one in ten children” have been affected by trauma. (Snedden, 2012, p. 26). Due to the high number of individuals affected, it is likely that many mental health occupational therapists are working with these individuals and may not be aware they have trauma. Complex trauma, also known as developmental trauma, is defined as a traumatic event that is repetitive, such as physical, emotional, sexual abuse, witnessing family violence, and neglect, it often occurs over time and is not a single event (Kliethermes, Schacht, & Drewy, 2014; van der Kolk, 2003).

The importance of the role of occupational therapists working with children and adolescents who have experienced complex trauma is emerging in mental health practice (Lebel, Champagne, Stromberg, & Coyle, 2010; Lebel & Champagne, 2010). The concept of using a trauma informed lens and considering the unique needs of these children has just recently come to the forefront of practice (Petrenchik & Weiss, 2015). The impact of complex trauma on the daily functioning and occupational performance of these children is evident in their interactions with peers, family members and others. It can affect their participation in typical childhood activities such as play, community activities, and school (van der Kolk, 2005).

1.2 Complex Trauma

Due to the complexity of childhood trauma and the overall functional and neurobiological impact, ‘developmental trauma disorder’ was proposed as a diagnosis to extend a post-traumatic stress disorder (PTSD) diagnosis, which has been found to often

not adequately fit children's trauma-related symptoms (van der Kolk, 2005). However, developmental trauma disorder has not yet been accepted as a disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) though it is discussed throughout the trauma literature. The term complex trauma will therefore be used throughout this thesis (van der Kolk, 2014).

With complex trauma, the child typically experiences trauma from a caregiver or another close adult. (Lawson, & Quinn, 2013). Additionally, children and adolescents who have been exposed to complex trauma often have difficulty with aggression, emotional regulation, attachment, depression, and anxiety. They exhibit difficulty trusting others, show impairment in attachment to caregivers, increased behavioural dysregulation, and significant cognitive issues (van der Kolk, 2003); (Kliethermes et al., 2014). Ogden, Pain, and Fisher (2006) suggest that complex or developmental trauma is experienced on a somatosensory level which contributes to increased aggression, decreased ability to self-regulate and decreased ability to tolerate sensory input.

Felitti, Anda, Nordenberg, & Williamson (1998) found in their study on adverse childhood experiences (ACES), that those adults who had been exposed to events of abuse or household dysfunction as a child were more likely to experience significant health problems into adulthood and have long term functional impacts. The experience of trauma disrupts typical brain development affecting brain structures and is linked to when the trauma was experienced (Perry, 2009). Perry (2009) discusses the importance of how the brain develops from essential structures like the brain stem to more complex structures such as the limbic system and cortex. The effects of trauma on these systems at critical times can have a large impact on the developing brain and in turn affect areas

of the brain that rely on these “lower brain areas” (Perry, 2009, p.242). Children with complex trauma may be operating with very limited ability to manage their emotions and tolerate the body sensations that accompany the emotions which in turn affects a child’s ability to have success in the community, at school, and home (Knoverek, Briggs, Underwood, & Hartman, 2013). If a child who has experienced complex trauma is not treated, there could be considerable lifetime effects on function (Knoverek et al, 2013).

1.3 Trauma Informed Care

Trauma informed care is an approach to care that considers the experiences of individuals with trauma histories in a way that looks at behaviour, and daily functioning through a trauma lens (Poole, Talbot, & Nathoo, 2016; Petrenchik & Weiss, 2015). The approach can be incorporated into health care and other settings and informs policies, staff training, environmental designs, and staffing (Poole et al, 2016). The milieu of a treatment setting may use a trauma informed lens to look at space design, in addition to evidence-based programming (Knoverek et al., 2013). Caregivers, teachers, health professionals, day care teachers, and others who may be in contact with children who have a history of complex trauma can be provided information and education on the effects of trauma and how it may influence behaviours.

The importance of a trauma informed care approach in clinical settings is to not induce more harm from the client’s previous health care experience, not trigger trauma, and prevent more trauma from occurring (Petrenchik & Weiss, 2015). The best evidence informed approaches to practice are utilized as well as a consideration of the families and their needs, working in conjunction with community partners (Knoverek et al., 2013).

Occupational therapists' knowledge of how the environment can have an impact on a client's own experience as well their utilization of a client-centred approach aligns with a trauma informed perspective (Petrenchik & Weiss, 2015).

1.4 The Role of Occupational Therapy in Trauma Informed Care

Emerging research on trauma informed care identifies the importance of a multi modal type of treatment with a focus on the effects of trauma on the developing brain, as well as discussing the need for sensory interventions (Perry, 2009). Occupational therapists have historically had a role to identify strategies for increasing and decreasing arousal states utilizing sensory interventions with children with mental health issues, such as Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD) and disruptive behaviors disorders, all who experience difficulties with self-regulation (Champagne, Koomar, & Olson, 2010). These strategies fit within the framework of the developmental models of trauma such as the neuro sequential model of treatment (Perry & Hambrick, 2008) and therefore imply a role for occupational therapy as an important part of the treatment team.

1.5 Trauma Specific Care

As described earlier, trauma informed care has been described as an overall approach to prevent incurring more trauma (Poole, et al., 2016). This differs from trauma specific care, which is used to treat the trauma experience directly and requires extensive training. Trauma-focused Cognitive Behavioral Therapy, Parent Child Interaction Therapy (PCIT), Child-Parent Psychotherapy (CPP) are examples of therapies that utilize a top down approach to help the individual integrate the trauma experience, work on caregiver relationships to promote attachment, and increase his or her overall functioning.

These approaches have been traditionally used in the domains of social work and psychology (Schneider, Grilli & Schneider, 2013).

1.6 Sensory Based Interventions

From a review of the literature, occupational therapists are beginning to utilize their expertise with sensory processing techniques and sensory integration to work with children with complex trauma. Champagne et al. (2010) describe the importance of sensory approaches in trauma informed care and incorporating sensory modulation interventions such as sensorimotor activities, sensory based modalities, a sensory diet, and environmental approaches such as modifying the environment to help with regulation (Lebel et al., 2010). Koomar (2009) and Lebel et al., (2010) highlight the role of occupational therapists in the area of sensory intervention. Refer to table 2.1 for definitions of sensory terms.

Sensory based interventions are being utilized from various disciplines, such as psychotherapists, psychologists and social workers to work with children and adolescents. Interventions such as The Sensory Motor Arousal Regulation Treatment (SMART) (Warner, Koomar, Lary, & Cook, 2013), Structured Sensory Therapy or (SITCAP-ART) (Raider, Steele, Delillo-Storey, Jacobs, & Kuban, 2008), sensorimotor psychotherapy (Ogden, Pain, & Fisher, 2006), and sensory modulation techniques (Champagne et al., 2010) are designed to help improve self-regulation and emotional regulation show promise, though there is limited evidence of efficacy in children and adolescents with complex trauma. Occupational therapists are contributing to this emerging area, but it is unclear how or if sensory based interventions are being incorporated into everyday practice. Other professions such as psychology, neurology,

social work and psychotherapy are furthering this area of research, however, minimal research has been conducted directly with or by occupational therapists.

1.7 Thesis Overview

This thesis contains two studies and corresponding manuscripts. The first completed study, Chapter 2, includes the scoping review which examined the literature on sensory based interventions and complex trauma. Chapter 3 provides an overview of the methods for the interview-based descriptive qualitative research study to address research gaps identified by the scoping review. More details of the second research study are found in chapter 4 which examined this area of practice and what interventions are being utilized by experienced occupational therapists. Chapter 5 will discuss implications for occupational therapy practice, limitations of the study and ideas for future research.

CHAPTER 2: LITERATURE REVIEW

The following chapter is a pre-publication version of the publication – Scoping Review of Sensory-based Interventions in Children and Youth with Complex Trauma. This chapter was primarily written by Kerry Fraser with contribution from Dr. Diane MacKenzie and Dr. Joan Versnel.

Kerry Fraser, Diane MacKenzie & Joan Versnel (2017). Complex Trauma in Children and Youth: A Scoping Review of Sensory-Based Interventions, *Occupational Therapy in Mental Health*, 33:3, 199-216, DOI: 10.1080/0164212X.2016.1265475.

2.1 Abstract

Emerging evidence in neuroscience indicates exposure to complex trauma in children and youth affects brain development particularly with the ability to process sensory information. This sensory processing challenge has been shown to negatively impact emotions and self-regulation. A developing area of complex trauma treatment utilizes sensory-based interventions to target these concerns. A scoping review of the literature indicates there is limited, although promising, evidence for the use of these interventions when used as part of an integrated treatment approach. Occupational therapy is in a unique position to contribute to this area of practice due to a background in sensory-based approaches.

KEYWORDS Sensory-based interventions, complex trauma, children and youth; mental health, the person-environment-occupation model

2.2 Introduction

2.2.1 Complex Trauma and Sensory Processing

In recent years, there has been increased interest and research in understanding how complex trauma affects an individual's ability to participate and function in daily activities leading to a trauma informed care approach in health care settings. There is a role for occupational therapy in all aspects of trauma informed care. Snedden (2012) describes the unique lens of occupational therapy that looks at the impact of trauma on occupational performance - the ability of the individual to participate in leisure activities, school, and social interactions at home and in the community. With trauma informed care and trauma-based interventions becoming an emerging area of practice for occupational therapy, it is important that the effects of complex trauma in children and adolescents are understood in order to develop and provide useful interventions.

As stated earlier, children and adolescents who have experienced complex trauma require an approach to treatment that addresses the effect of trauma on their brain development and is sensitive to how they see and interact with the world (van der Kolk, 2003). Children and adolescents who have been exposed to complex trauma have difficulty with aggression, self-regulation, emotional regulation, attachment, depression, anxiety, trusting others, and often misinterpret or misperceive sensory information (van der Kolk, 2003; Ogden, Pain, & Fisher, 2006). Consequently, maladaptive or developmentally inconsistent ways of self-regulating may be used (Kinniburgh, Blaustein, & Spinazzola, 2005).

Adverse childhood experiences over time have been shown to influence brain development and structural changes in the brain have been observed in neuroimaging studies (Rinne-Albers, van der Wee, Lamers-Winkelman, & Vermeiren, 2013; Tomalski, & Johnson, 2010). Rinne-Albers et al. (2013) reviewed 27 neuroimaging studies of

children, adolescents and adults who had experienced various types of psychological trauma, including complex trauma and post-traumatic stress disorder (PTSD). Overall findings suggest a reduction in the cross-sectional area and connectivity of the corpus callosum, which may affect perception, comprehension and response. In five of the studies, a decrease in total brain volume was found in youth with PTSD or chronic trauma (Rinne-Albers et al., 2013). Children with early repeated exposure to trauma were found to have changes in the sensory cortex affecting visual and auditory cortices and the limbic system (Rinne-Albers et al., 2013). While adults who have experienced PTSD or trauma in childhood have shown a reduction in hippocampal volume, no decrease has been found in children or adolescents - possibly indicating changes are not apparent until adulthood (Rinne-Albers et al., 2013). Changes in these brain regions could be responsible for the reported difficulties in perception and emotional responses (Rinne-Albers et al., 2013).

Children who have experienced complex trauma may have difficulty managing their emotions and arousal levels. A person's ability to manage states of emotional arousal without having an impact on other areas of functioning is dependent on staying regulated. It is very difficult to regulate emotions if hypo or hyper aroused, and this has a negative impact on behaviour (Siegel, 2012). If a child has been neglected or is in a state of fear or high or low arousal for periods of time, the child misses the necessary sensory input required to make sense of the environment. If the child is not receiving these necessary sensory cues or input, everyday situations may be misinterpreted, potentially resulting in aggression, shutting down if overwhelmed, or running away. Without the required sensory input and the resultant positive effect on crucial developmental

experiences, the child's ability to integrate sensory information when participating in new experiences is negatively affected (Perry, 2009). Children with complex trauma may be operating with very limited ability to manage their emotions and tolerate the body sensations that accompany them. They may react with fight or flight or freeze responses to situations that may seem insignificant (Siegel, 2012). Being in a fight or flight state for a long period of time affects the child's ability to integrate sensory information to allow for adaptive responses to the environment and perceived stressors (van der Kolk, 2003).

The effects on long-term functioning are dependent upon the timeframe in which the trauma occurred. If trauma has occurred during critical periods of brain development, the child's ability to build on areas of functioning such as language, self-regulation and interactions with others can be affected (Perry, 2009; Tomalski & Johnson, 2010). Perry's (2009) work outlines the importance of the brain's development as a bottom-up process, from basic to complex starting at the brainstem and culminating with a fully developed cerebral cortex. Research into treatment of complex trauma shows that a phase-oriented approach is important to prepare the child for participation in trauma focused cognitive behavioural (CBT) interventions (Leenarts, Diehle, Dorelejiers, Jansma, & Lindauer, 2013). Models such as the Neurosequential Model of Therapeutics (Perry & Hambrick, 2008) and the Attachment, Self-Regulation, and Competency Model (ARC) (Kinniburgh et al., 2005) use a multi stage approach in the treatment of complex trauma. These models utilize some of the sensory-based interventions described in this paper to treat difficulties with self-regulation and sensory processing.

2.2.2 Sensory-based interventions

Because of the research describing the effect of complex trauma on children’s brain development, sensory-based interventions are being utilized in clinical settings. Due to the variety of interventions, it is important to define what is meant by “sensory” as the terminology related to sensory interventions can vary. For clarity in this review, Table 2.1 provides definitions of terms for sensory processing, sensory modulation, sensory diet, sensorimotor, sensory integration, somatosensory, Snoezelen and sensory-based interventions

Table 2.1 Definitions of Sensory Terms

Term	Definition
Sensory Processing	Methods by which sensory information is taken and processed through the nervous system (Purvis, Brooks, McKenzie, Cross, & Becker Razuri, 2013; Roley, Mailloux, Miller-Kuhaneck, & Glennon, 2007).
Sensory Modulation	The body’s ability to regulate the sensory information that is being processed to manage emotions, interact with the environment and participate with various activities (Atchison, 2007; Champagne, 2010; Seigel, 2012).
Sensory Diet	Sensory preferences based on an individual’s sensorimotor experiences to help manage sensory needs throughout the day. Once an assessment has occurred, activities or interventions can be incorporated throughout the day to modulate sensory needs for optimal occupational performance (Wilbarger as cited in Champagne & Stromberg, 2004).
Sensorimotor	Ability of the body to process information through movement, perception, and sensation to promote basic body or automatic functions (Ogden & Fisher, 2015; Warner, Cook, & Koomar, 2014).
Sensory Integration	Ability of nervous system to take information from the environment, organize the information and interact with the environment effectively (Ayres as cited in Crouch & Alers, 2014; Roley et al., 2007).
Somatosensory	Sensory “bottom up” process in the body that includes touch and proprioception (Ogden & Fisher, 2015; Perry 2009; Van der Kolk, 2003).
Sensory-based Interventions	Interventions that target the sensory system to remediate, or change through adaptation, including sensorimotor activities or techniques to promote sensory integration, sensory processing or sensory modulation. (Champagne, 2011; Roley, et al., 2007; Sutton, Wilson, Van Kessel, & Vanderpyl, 2013; Warner, Koomar, Lary, & Cook, 2013).
Snoezelen	A multisensory environment used to promote leisure experiences, relaxation and sensory stimulation. Often used with individuals with developmental disabilities, dementia, and mental illness (Harsimran, Swati & Zeenat, 2017).

The understanding of how complex trauma affects children and adolescents is starting to infiltrate occupational therapy practice. Other professionals working directly with this population are consulting occupational therapists in mental health settings to apply sensory integration therapy, sensorimotor interventions, and sensory modulation principles because of the increased understanding in the literature about how their bodies experience trauma on a somatosensory level (Ogden, & Fisher, 2015).

2.2.3 The Person-Environment-Occupation (PEO) model of occupational performance

In this review, the Person-Environment-Occupation (PEO) model of occupational performance is used to understand how sensory-based interventions are applied in treatment to help individuals achieve increased functioning in occupational performance. The PEO model (Law, Cooper, Strong, Stewart, Rigby & Letts, 1996) of occupational performance describes the importance of how the person, environment and occupation influence each other to contribute to a person's ability to function in their daily activities or "occupational performance".

Law et al. (1996) and Strong, Rigby, Stewart, Law, Letts & Cooper. (1999) define person as an individual, group or an organization. When considering the individual; cultural context, sensory, motor, cognitive abilities and other personal components are considered.

Occupation, as defined by Law et al. (1996), is a combination of tasks and activities the person engages in over their lifetime to achieve what is needed to function and to serve a variety of purposes. When considering how complex trauma can affect a child or adolescent, it is important to recognize that the demands of the occupation on the

individual may be developmentally inappropriate, too complex or not demanding enough to allow for optimal functioning and affect the individual's ability to perform their daily occupations (Law et al., 1996), (Strong et al., 1999). Law et al. (1996) describes the environment as not only the physical space but the social, cultural, socio-economic and institutional components of environment. Environmental demands that are overwhelming can affect an individual's ability to cope in the situation (van der Kolk, 2003).

The purpose of this scoping review is to determine the extent of research on the effectiveness of sensory-based interventions used with children and youth who have experienced complex trauma and describe these interventions in relation to occupational therapy practice. A scoping review attempts to determine the extent of literature in a topic area (Arksey & O'Malley, 2005).

This paper adds to this work by looking specifically at sensory-based interventions in complex trauma experienced by children and adolescents. It incorporates research from other disciplines such as social work, and psychology, utilizing sensory-based approaches. The Person-Environment-Occupation Model was used to help categorize the scoping review articles.

2.3 Method

A scoping review was chosen to systematically map the literature in the area of trauma and sensory interventions for children and adolescents. The use of grey and published literature is included to bring a more complete picture to emerging research (Levac, Colquhan, & O'Brien, 2010). Grey literature refers to materials such as government reports, theses, conference materials, technical reports and other non-conventional materials. (The New York Academy of Medicine). The five-stage approach

methodology developed by Arksey and O'Malley (2005) guides the scoping review in this paper, incorporating recommendations from Levac, Colquhan, and O'Brien (2010).

2.3.1 Stage 1: Identifying the research question

The main research question defined for this scoping review is "*What is the extent of the research as seen through the lens of occupational therapy on the effectiveness of sensory-based interventions used with children and youth who have experienced complex trauma?*" In the review of the research, other questions considered were "Does the evidence about these interventions warrant clinician confidence in using these interventions with this population?"; "Are these types of interventions too varied to draw conclusions about their overall effectiveness?"

2.3.2 Stage 2: Electronic search process and inclusion criteria

The five electronic databases used were CINAHL, ProQuest, PubMed, ERIC, and PsycINFO. Additionally, Google Scholar, trauma informed care websites, and University of Michigan's Grey Literature database were searched. Search terms used were ("Sensory integration" Or 'Sensory rooms" Or "Sensory processing" or "Sensory modulation" Or "Sensory motor" Or "Comfort room" Or "Snoezelen" or "Sensory room" AND "Trauma" Or "Developmental trauma" Or "Complex trauma" AND "Children" Or "Adolescents" Or "Youth").

Articles published in the years 2000-2015 were included. The time frame was chosen due to the recent surge of interventions and studies on the treatment of children and youth with trauma. Additionally, there is little information on sensory interventions, trauma, children and youth prior to 2000. Only studies written in English were included. Studies were excluded if they did not contain required terms and were not within the

timeframe. Studies completed with adults were also excluded from the review but may have been retained for overall discussion purposes. Studies that discussed general sensory-based interventions within a larger treatment model were also initially selected due to the incorporation of sensorimotor, sensory-based treatments within their overarching model. Sensory-based interventions that are incorporated into systematic models such as The Neurosequential Model of Therapeutics, Perry and Hambrick (2008) and The Attachment, Self-Regulation, and Competency Model, Kinniburgh et al. (2005) were not included as they did not meet inclusion criteria. However, these studies were used to support the introduction and discussion.

2.3.3 Stage 3: Study selection

An initial search within the databases yielded n=1009 references that contained part or all of the search terms. The search strategy was refined to include date range, language and age of participants, the remaining articles were scanned by title, abstract and key search terms. Quantitative and qualitative studies, editorials, and discussion papers were reviewed and included. Grey literature found within standard databases included two theses. A search of grey literature within the University of Michigan Grey literature databases did not yield any articles that met the study's parameters. Once all the inclusion and exclusion criteria were implemented, 16 articles that met the criteria were retained.

2.3.4 Stage 4: Charting the data

For the purposes of this paper, the articles were categorized according to the Person, Environment or Occupation components within the Person-Environment-Occupation (PEO) Model of Occupational Performance (Law et al., 1996). After

discussion of various models, consensus was reached and the use of the PEO was determined to be the best choice to frame the data.

Sixteen articles were reviewed and put into chart form. Table 2 charts the information collected from each study including the author, year, the type intervention, study design or type of article, participants, purpose of the study, delivery of care such as direct intervention, consultation, individual or group, outcomes of the study and the discipline, such as occupational therapy, psychotherapy, psychology or social work.

Table 2.2 Charting the Data

Author	Design	Participants	Purpose	Intervention	Delivery of Care	Outcome	Discipline	PEO* Model (Law et al, 1996)
Champagne & Stromberg (2004)	Exploratory Review of research	Inpatient Child, Adolescent, Adult	Reduce seclusion and restraint in psychiatric inpatient setting	Use of sensory approaches – multi sensory room, prevention activities Sensory diet, sensory strategies, sensorimotor activities	n/a	Suggests research and authors experience indicate that approaches and multisensory rooms are beneficial	Occupational Therapy	Person Environment
Peck (2004)	Qualitative evaluative participatory study. 5 focus groups conducted Key informant interviews Expert practitioner group	43 participants total (39 in six focus groups and 4 individual informants) Focus groups included: Teachers, teachers' aides, clinicians, Parents/caregivers and representatives from Pittsburgh Professional society for the Study of Trauma and Dissociation (PPSSTD) Individual informants included: medical director, psychiatric nurse, and specialists	Gain perspectives of the adults involved in the group	Developmental sensorimotor group trauma curriculum. Sensorimotor exercises - Brain Gym®, expressive arts Clients range in ages from 5-18 years. Various levels of functioning, with learning disabilities, ADHD, ODD and Conduct Disorder. History of neglect, maltreatment, high poverty levels. (Curriculum was developed by author)	Direct Intervention Group format	Results indicate that the group had a positive impact on the trauma program. Recommendations of how to improve the group were identified.	Education	Person
Atchison (2007)	Review of descriptive and evidence-based literature Assessment of Sensory	Literature related to both prenatal and post-natal trauma on sensory modulation Additional information form children with history of trauma with the Southwest Michigan	Describes sensory modulation, framework for assessment and intervention and review of research.	Assessments discussed: Sensory Profile, STEP=SI model discusses (Sensation, Task, Environment, Predictability, Self-Monitoring, Interaction)	n/a	n/a	Speech Language Pathology	Person Environment

Author	Design	Participants	Purpose	Intervention	Delivery of Care	Outcome	Discipline	PEO* Model (Law et al, 1996)
	Modulation Disorders	Children's Trauma Assessment Center	Intended audience: Speech Language Pathologists.					
Raider, Steele, Delillo-Storey, Jacobs & Kuban (2008)	RCT – Random selection to treatment group. Waitlist comparison	N= 23 youth average age 16-17years. Residential treatment – Multiple trauma experience 13 randomly assigned to tx group. 10 to waitlist. 5 drop outs Ages 15-18. Male and female.	Quantitative assessment of treatment model.	Structured Sensory Therapy (SITCAP-ART) Integrates cognitive strategies with “sensory” “implicit” strategies Group and individual sessions. Drawing is large component of “sensory” interventions	Group and Individual Therapy Must be trained in program Parent component	Statistically significant reduction in trauma symptoms in depression, rule breaking behaviors and aggressive behaviors in treatment group	Social Work	Person Occupation
Steele (2008)	Discussion	Children and adolescents. Case study example of 12-year-old girl in residential setting.	Discuss role of clinician	SITCAP (Structure Sensory Interventions for Traumatized Children, Adolescents and Parents)	n/a	n/a	Social Work	Person Occupation
Koomar (2009)	Descriptive, integrating literature	n/a	Reviews issues related to trauma, identifies overlapping characteristics of trauma and sensory modulation disorders. Discusses OT's role	Suggests OTs help to develop quiet/calming area – help decrease arousal to allow child to increase participation in class and social activities Sensory based recommendations – or sensory diets. Discusses development of SMART model	n/a	n/a	Occupational Therapy	Person

Author	Design	Participants	Purpose	Intervention	Delivery of Care	Outcome	Discipline	PEO* Model (Law et al, 1996)
Lebel Champagne, Stromberg & Coyle (2010)	Discussion, how to implement sensory and trauma informed approaches	n/a	Reduce seclusion and restraint in inpatient setting.	Sensory approaches Sensory modulation programs i.e. (Alert), and environment.	Massachusetts. State initiative	n/a	Occupational Therapy	Person Environment
Lebel & Champagne (2010)	Description of sensory based approaches in trauma Surveys were conducted	Initial implementation of initiative - child and adolescent programs, expanded to adults.	Reduce seclusion and restraint in inpatient setting.	Sensory approaches Sensory modulation programs Tools developed – Pictorial crisis prevention planning tool for youth Various sensory approaches Sensory rooms	Massachusetts. State initiative	Restraint and seclusion reduction by more than 87% in child and adolescent inpatient programs.	Occupational Therapy	Person Environment
Steele & Kuban (2010)	Description of program	Children ages 6-12	Describes structured sensory trauma program	Description of Sit Cap – ART intervention Bottom up, sensory intervention stressed, arousal level	3 levels of certification, training required	n/a	Social Work	Person Occupation
Champagne (2011)	Description of program	n/a	Discusses trauma and the role of occupational therapy Overview of terms attachment, trauma and sensory processing disorder	Discussion of sensory-based interventions: Sensory modulation program SAFE/PLACE -systems models that incorporate sensorimotor strategies; ARC and Neurosequential Model of Therapeutics	n/a	n/a	Occupational Therapy	Person Environment

Author	Design	Participants	Purpose	Intervention	Delivery of Care	Outcome	Discipline	PEO* Model (Law et al, 1996)
Da Silva (2011)	Exploratory, qualitative Study Interviews	4 social workers from a small agency in Rhode Island that uses the sensory treatment approach in dealing with children with trauma Male and female		Use of sensory treatment approach with children with trauma. SW training in the approach (day long training by OT) All 4 used differently in different settings in combination with other modalities. Examples of use of sensory diet, calming techniques	Direct Individual Intervention	Rated by participants to be effective	Social Work Perspective Social workers in study were trained by an occupational therapist	Person
Purvis, McKenzie, Cross, & Becker Razuri (2013)	Measures: pre and post camp Parent reporting, children's drawings OT screenings. Child behavior checklist (CBCL), Beech Brook Attachment Disorder Checklist, Sensorimotor History Questionnaire for Parents. OTS – professional sensory screening	N=19 (one omitted from analysis) Female=9 Male=9 3-14 years Complex developmental trauma -adopted	Determine if multimodal therapies could reduce effects of complex trauma	Two-day camps 1 st session - ages 3-9 2 nd session – ages 10-14 Multi modal therapies in camp – Attachment ritual, Crash n bump activity course (OTs), small group activities that focused on nurture group, group that focused on structured activity to promote self-monitoring and self-regulation. Other camp activities, such as music, games, swimming occurred.	Direct Intervention	Positive correlation between negative and attachment behaviors and deficits in sensory processing, such as vestibular sensory system. 20% increase in expressive language Increase in pro-attachment behaviors.	Multi-disciplinary Nursing Perspective	Person Occupation
Warner, Koomar & Lary, & Cook (2013)	Exploratory, descriptive, various examples, conceptual paper	Adolescents in a residential setting who have experienced complex trauma	Reduce use of restraints, improve emotional and behavioral regulation	Ayres SI concepts Sensory motor interventions -Sensory diet -Sensory Room (sensory modulation, changes to environment)	n/a	Reduction in restraint use Recommendations for research, suggestions for tools, strategies based on information presented.	Psychotherapy Occupational Therapy Psychology	Person

Author	Design	Participants	Purpose	Intervention	Delivery of Care	Outcome	Discipline	PEO* Model (Law et al, 1996)
				-Sensory skills/items to address 5 senses - SMART model. SMART therapy room				
Steele & Kuban (2014)	Description of program - 2 case examples	2 Adolescents 1. Female-16 years 2. Female-17 years	Describe/process traumatic events without utilizing talk therapy or cognitive interventions	SITCAP – describes intervention as strengths based and resilience focused Utilizes drawing to access emotional experience and change self-image	Direct Intervention	Both participants were able to express/tell story using drawing.	Social Work	Person Occupation
Warner, Spinazzola, Wescott, Gunn & Hodgen (2014)	Quasi-experimental Pilot Study Matched Control design Compare SMART (additive) to treatment as usual (TAU)	Adolescents with history of trauma and severe emotional and behavioral problems Ages 13-20 M=16 SMART n=10 TAU n=21 90% female 2 adolescent residential treatment sites	Answer hypothesis – Adolescents receiving SMART intervention would exhibit great reduction in somatic symptoms, behavior problems and symptoms of posttraumatic stress	Sensory Motor Arousal Regulation Treatment (SMART)	Direct Intervention	Statistically significant decrease in domains of internalizing symptoms on the Child Behavior Checklist, as well as somatic complaints and anxious/depressed subscales.	Psychotherapy Psychology	Person

Author	Design	Participants	Purpose	Intervention	Delivery of Care	Outcome	Discipline	PEO* Model (Law et al, 1996)
Wolan, Delaney, & Weller (2015)	<p>“Brief Report” Experiential – used of psychometric measures pre-post group with qualitative feedback from participants.</p> <p>Group size – 5-6 children, 2 staff, 2 hours a week for 10 weeks.</p> <p>Use of BASC II and PRQ</p>	Ages 7-12 years, mixed gender Experienced abuse related trauma and family violence	Assess efficacy of group	<p>Group work – Sensory motor framework with goal to improve sensory processing and integration based on P. Ogden’s work</p> <p>“Cool Moves for Kids” group At Victoria Child Trauma Service</p>	Direct Intervention /Group	<p>Changes in different areas, some externalizing, some internalizing some social skills or adaptability</p> <p>-positive feedback by children in managing emotions and triggers.</p>	Unsure of discipline	Person Environment

Notes: *Person Environment Occupation Model of Occupational Performance (Law et al, 1996)

2.3.5 Stage 5: Collating, summarizing and reporting the results of the scoping review

Sixteen studies were included for analysis. The studies were grouped according to similarities in intervention types, treatment models, identified themes, and outcomes of interventions. Key elements and commonalities of the studies were organized using the Person-Environment-Occupation Model of Occupational Performance (Law et al., 1996).

2.4 Results of the scoping review

Articles that were included had a publication date range from 2004-2015. The types of articles chosen were from a variety of sensory-based interventions used for this population. Included are quantitative, qualitative, mixed methods as well as discussion and review articles. The mode of service delivery included direct intervention, (group, and/or individual treatment) and indirect intervention (consultation or the use of environmental supports or adaptations). Of the 16 articles, six articles that use an occupational therapy lens or framework or mentioned occupational therapy were found and three of these addressed interventions in collaboration with other disciplines.

Many of the interventions discussed in this review are based on Ayres Sensory Integration theory and incorporated into manualized curricula, group therapy, and individual interventions. A variety of disciplines, in addition to occupational therapy, were found to utilize sensory-based interventions to help children and/or youth increase emotional regulation, self-regulation, promote attachment behaviours and increase participation in daily activities (Da Silva, 2001; Peck, 2004; Raider, Steele, Delillo-Storey, Jacobs & Kuban, 2008). Sensorimotor psychotherapy was developed based on research showing that children and adolescents experience complex trauma as

somatosensory or sensory-based phenomenon (Ogden et al., 2006; Perry, 2009; van de Kolk, 2003).

Several of the interventions addressed the person directly to improve sensory processing to enable optimal occupational performance. Warner, Koomar, Lary & Cook, (2013) examined the Sensory Motor Arousal Regulation Treatment (SMART) model, which incorporates the use of Ayres Sensory Integration bottom up principles to change the child's ability to tolerate and process sensory information and incorporate self-regulation and emotional regulation strategies

In addition to Ayres Sensory Integration approach, the SMART model incorporates principles from Ogden's work in sensorimotor psychotherapy (Warner, Cook, & Koomar, 2014) (Ogden, Pain, & Fisher, 2006). Wolan, Delaney, and Weller (2015) also utilized the work of Ogden et al. (2006) to develop a sensorimotor psychotherapy treatment approach with children ages 7-12 who have experienced trauma. The researchers emphasized the importance of using an approach that is less cognitive based and more sensory-based to help the child increase their ability to regulate their emotions. When the child becomes dysregulated, the child is unable to problem solve or access higher cortical functions required for effective problem solving (Warner et al., 2013).

In reviewing the evidence, sensory interventions do suggest promise for children and adolescents with complex trauma. However, the variety of sensory-based interventions used, and the limited number of research studies conducted in this area make it difficult to determine overall effectiveness.

2.5 Discussion

It is now generally accepted that children and adolescents with complex trauma process trauma on a sensory level (Ogden et al., 2006; Perry, 2009; van de Kolk, 2003). The children also are thought to experience difficulty with emotional regulation and maintaining optimal arousal which in turn affects their overall occupational performance (Siegel, 2012). Due to an increase in understanding of how complex trauma affects a child's overall development, there has been a growth of sensory-based interventions based on these findings (Lebel, Champagne, Stromberg & Coyle, 2010). The interventions included in the articles found in this review addressed the person directly, focused on changing the environment, or utilized occupation or activity to address concerns with sensory modulation or sensory processing.

2.5.1 Person

These approaches operate on the hypothesis that once the children and adolescents achieve greater self-regulation, they should be better able to participate in top down or cognitive approaches. These interventions use a sensorimotor framework, incorporating movement and sensory activities to help the child process the trauma at a sensory level to eventually prepare them for further cognitive or language-based therapy. Occupational therapists can also develop sensory diets for these children with thorough assessment and an understanding of their trauma history.

Some of the articles outlined the sensory equipment, forms of movement, and postures used to self-regulate which promoted a positive interaction with the therapist (Warner et al., 2013). Wolan et al. (2015) utilized a mindful approach to help the children become aware of their emotions and arousal states. The children learned strategies to help regulate the body such as breathing techniques, relaxation, developing safe spaces, and

movement activities. The parent or caregiver was also involved in the process. Additionally, Peck (2004) developed and evaluated a sensorimotor curriculum for children ages 5-13 who experienced trauma. The program utilized sensorimotor exercises and expressive arts activities.

In general, approaches using a sensorimotor framework suggested positive change, whether it was decreased aggressive behaviours or increased emotional awareness and self-regulation, and perceived improvement in relationships and improved self-regulation (Warner et al., 2013; Warner, Spinazzola, Westcott, Gunn, & Hodgson, 2014; Peck, 2004; Wolan, Delaney, & Weller, 2015). These interventions support change in the person level to support occupational performance allowing these children and adolescents improved functioning in their daily occupations.

2.5.2 Occupation

The occupation of play is suggested to have an impact on the person's ability to self-regulate and process traumatic experiences. The term sensorimotor indicates that the person must interact using both their sensory and motor process components with a task or occupation to achieve a change in occupational performance. Many of the interventions described above also utilized activities that the child or adolescent considered engaging in play such as art, and movement activities. The use of occupation such as play or drawing effects change through bottom up processes relating to their sensory experience of that occupation. Raider et al., (2008), Steele (2008), Steele and Kuban (2010), Steele and Kuban (2014), describe the importance of sensory-based interventions as a way for the child or adolescent to process implicit traumatic memories. They used drawing as a sensorimotor task to achieve this, also known as Structured

Sensory Therapy (SITCAP-ART). Questions were asked about the sensory experience of the drawing. After this process, then cognitive reframing of the experience occurred.

Positive outcomes using this therapy indicated that there was a reduction in symptoms of depression, aggression and other disruptive behaviours (Raider et al., 2008).

2.5.3 Environment

An individual's environment can affect their ability to achieve optimal occupational performance. The environment can be triggering or overwhelming to a child or adolescent with complex trauma. Several studies discussed the importance of utilizing the environment as a tool to achieve change in self-regulation and sensory modulation. Several studies discussed the use of sensory rooms or calming rooms with children and adolescents with complex trauma (Champagne & Stromberg 2004; Lebel & Champagne, 2010; Lebel et al., 2010; Koomar, 2009; Warner & al., 2013). Koomar (2009) discussed the role of the occupational therapist when working with children with complex trauma in developing safe or calming spaces in classrooms. In addition to adapting the environment to promote a sensory safe place, the sensory room was used to learn sensory strategies to promote self-regulation and to transfer skills to other settings. The skills and strategies learned in spaces such as sensory rooms, increased self-awareness of sensory responses and facilitated regulation of those intense reactions from sensory input that can be overwhelming and impact overall occupational performance (Champagne & Stromberg 2004; Lebel & Champagne, 2010; Lebel et al., 2010). Studies suggested there is a benefit in the use of sensory rooms to help decrease seclusion and restraint in inpatient and residential settings (Lebel & Champagne, 2010; Lebel et al., 2010; Champagne & Stromberg, 2004; Warner & al., 2013). Other researchers used: an approach that

incorporates the environment (Champagne, 2011; Atchison, 2007), bottom up sensory approaches (Atchison, 2007), and various play-based activities (Purvis, McKenzie, Cross, Razuri, & Becker, 2013). Treatment settings designed to provide a space that is more play based were found to assist clinicians to work with the child and help them to co-regulate and participate in psychotherapy (Koomar, 2009).

2.6 Limitations

When examining the results of the articles included in this scoping review, many did not look at the overall occupational performance of the child or adolescent. Performance components such as affect regulation, aggression, internalizing symptoms and caregiver's perceptions were evaluated. The child's ability to participate in daily occupations and increase occupational performance in these occupations at home, school and the community was not assessed. Most studies have not examined the importance of the child's overall functioning, and typically focused on symptomology. An occupational therapy lens could help to determine and assess if these sensory-based interventions are also contributing to their overall occupational performance in their daily life or if the results of treatment are situation/setting specific.

2.7 Conclusion

The results of the scoping review show there is limited empirical evidence but indicates that sensory-based interventions are promising and potentially an important component for treatment with children and adolescents with complex trauma. The literature does suggest that sensory-based interventions are only one type of treatment and should be part of an overall treatment program incorporating a multidisciplinary

focus. Further research is needed to determine if these types of interventions are effective.

Trauma informed care is a relatively new area of practice for occupational therapists and more education in trauma interventions and the unique needs of children and adolescents with complex trauma is required. The literature on complex trauma indicates that children and adolescents process trauma on a somatosensory level and bottom up approaches are needed before top down cognitive based approaches can be used. A sound background in sensory-based interventions is important for the occupational therapist, but advanced training is required to ensure that the impact of trauma and the unique triggers and sensory issues of this population is understood (Champagne, Koomar, & Olson 2010; Petrenchik, & Weiss, 2015). In addition to occupational therapy other disciplines are also developing sensory-based interventions such as sensorimotor psychotherapy (Ogden et al., 2006) and SITCAP-ART (Raider et al., 2008) to target the somatosensory effects of complex trauma.

Occupational therapy has already made significant contributions to sensory-based approaches such as the SMART model (Warner et al., 2014). Additionally, occupational therapy's work in sensory modulation has also contributed to the reduction of seclusion and restraint in residential settings where many children and adolescents with complex trauma are being treated (Champagne, 2011; Lebel & Champagne, 2010; Lebel et al., 2010). However, though there have been important influences by occupational therapy into this area of practice, there is currently limited research being conducted by occupational therapists. As trauma informed care is within occupational therapy's scope

of practice, the profession has a vested interest in contributing and developing evidence informed interventions to this important, emerging area of mental health practice.

CHAPTER 3: METHODOLOGY

3.1 Rationale

In the scoping review completed by Fraser, MacKenzie and Versnel (2017), it was found sensory based interventions are being used with children and adolescents with complex trauma in a variety of ways. The review highlighted that bottom up approaches, such as sensory based interventions, are showing promise when working with this population. Despite this, there are several questions that remain unanswered which will be addressed in the second study outlined in chapter 4.

3.2 Purpose

This descriptive study aimed to describe the state of occupational therapy practice as it relates to working with children and adolescents with complex trauma.

Trauma informed care is a new area of practice for occupational therapists requiring more education in trauma interventions and the unique needs of these children. Though there is an indication in the research that there is a unique developing area of practice by experienced occupational therapists in this area, the information is limited regarding best and innovative practice with children and adolescents with complex trauma.

3.3 Research Questions

The planned study described in chapter 4 aims to investigate occupational therapy practice with children and youth, ages 5-18, who have experienced complex trauma. Given the results from the scoping review in chapter 2, the present study was designed to further investigate: 1) if occupational therapists are using sensory-based interventions with children and adolescents with complex trauma; and 2) the knowledge and process of

practice they are utilizing with this population. This study was approved by the Dalhousie Health Sciences Research Ethics Board. (Refer to Appendix A to see approval letter)

3.4 Participants and Recruitment

Occupational therapists working in mental health with children ages 5-18 who have complex trauma were targeted for recruitment. Two groups of participants were targeted, experienced and novice occupational therapists. Potential participants were contacted through email with a description of the study to determine their interest and their appropriateness for the study. (Refer to Appendix B and C)

Five or six key informants who are practicing occupational therapists and experienced in the field of complex trauma with children ages 5-18 and five or six novice occupational therapists who work with children and adolescents aged 5-18 with complex trauma were targeted for recruitment. Ultimately, the principal investigator recruited and interviewed nine experienced pediatric occupational therapists. No novice occupational therapists were interviewed due to lack of response to recruitment efforts.

3.5 Data Collection Method

Once the participants met the inclusion criteria for the study and provided informed consent via written consent or verbal consent. (Refer to Appendix D and E) An ethics amendment was requested and granted to change wording in the informed consent form from use of the word “experiment” to “study” and from “focus group” to “interview”. (Refer to Appendix F)

Once informed consent was obtained, the participants were interviewed by writer and asked to answer demographic and practice specific questions from an interview guide. (Refer to Appendix G for questions) The questions are open ended and

include probe questions to elicit more information. Each interview ranged in time from 30-45 minutes. The information was collected by the principal investigator asking the interview questions over the phone and through web-based face time. The answers were recorded using a digital recorder for both the phone and web-based face time. The data from the first three interviews was transcribed by the principal investigator and completed by a professional transcriptionist. An ethics amendment was obtained for approval of the use of a professional transcriptionist. (Refer to Appendix H)

3.6 Data Analysis

A two-step analysis of the data was used with a content analysis to describe, categorize, and code the data related to functional concerns, type of assessments, and intervention data and an interpretive description analysis was used for a more in depth thematic analysis and will be described in more detail in chapter 4. (Thorne, Reimer Kirkham, & O' Flynn-Magee, 2004).

CHAPTER 4: QUALITATIVE STUDY

The following chapter is prepared as a manuscript that will be submitted for publication. This chapter was primarily written by Kerry Fraser with contribution from Dr. Diane MacKenzie and Dr. Joan Versnel.

4.1 Abstract

Objective: To explore and identify current practice in occupational therapy with children and adolescents who have experienced complex trauma.

Method: A qualitative semi-structured interview was used. Analysis of the data consisted of a twostep process of content analysis and interpretive description.

Results: Participants included nine experienced occupational therapists. Participants identified significant functional concerns resulting in the need to use a variety of assessments and interventions. Participants indicated the significance of caregiver involvement in treatment. The need to utilize sensory based interventions to address bottom-up processes was highlighted. The importance for advanced training and connection with others working in this area was emphasized.

Conclusion: The occupational therapists interviewed are developing expertise and a practice role in trauma treatment. Given the range of interventions this complex population requires, from person-based factors through to environmental adaptations, occupational therapists have a unique opportunity to contribute their expertise to this emerging area of practice.

4.2 Introduction

Occupational therapists have been working in mental health since early in the inception of the profession (Bream, 2013). The role of the occupational therapist has changed and evolved in mental health practice and an understanding of the impact these illnesses have on daily functioning has developed (Bailliard, & Whigham, 2017). One example of an emergent area of practice with a recent growth in research literature is with children and adolescents who have experienced complex trauma. Of interest for occupational therapy practice is how the experience of complex trauma affects the developing brain and how this subsequently effects occupational performance. Children who have experienced complex trauma have been exposed to prolonged forms of trauma during early development, such as neglect, caregiver interpersonal violence, sexual and physical violence (Zilberstein, 2014).

Complex trauma has been shown to significantly affect the developing brain, impacting all areas of development in different ways (Ryan, Lane, & Powers, 2017). Due to the young age of these children, experiences of trauma are often processed on a preverbal, sensory level with minimal cognitive awareness of the trauma (Finn, Warner, Price, & Spinazzola, 2018). Due to this, researchers Ogden and Fisher (2015) and van der Kolk, (2014) have suggested that bottom-up approaches are needed. Bottom-up processing is defined as the body processing information through its sensorimotor experience, where top-down processing is taking information through higher up brain functions such as cognitive processes (Ogden, 2006). Ogden, 2006 suggests that in childhood trauma, since the brain is not fully developed at the time of trauma, the body processes the trauma via sensorimotor means and therefore approaches that target bottom

up processes are needed (Ogden, 2006). Even in adolescents and adults, this approach in conjunction with top-down therapies, is needed to help integrate the trauma experience (Ogden, 2006). The impact of complex trauma can cause the child or adolescent to have significant difficulties with dysregulation and behavioral difficulties making it difficult to engage in top down cognitive approaches such as Trauma- Focused Cognitive Behavioral Therapy to treat the effects of complex trauma (Schneider, Grilli & Schneider, 2013).

When discussing bottom up processes, the terms regulation and self-regulation are often used, however, the definitions found in the literature vary depending on the discipline describing these concepts. Martini, Cramm, Egan, & Sikora, (2016) discuss the importance of understanding and defining self-regulation in occupational therapy, especially when using it as a focal area in practice and research. The definition of self-regulation that appears to be what occupational therapists are describing when working with children and adolescents with complex trauma is explained in the work of the ALERT Program (Williams, & Shellenberger, 1996 as cited by Martini et, 2016) and is described as having two levels by Martini et al, 2016. The first level are strategies that are used to help a child or adolescent to change a sensory issue or influence their emotions. The second level of self-regulation is helping the child or adolescent become more aware of their state of arousal and implement strategies to help change it to meet the demands of the situation (Martini, et al., 2016).

Occupational therapists may utilize a variety of sensory based approaches and strategies to promote self-regulation in their practice targeting bottom up processes with children and adolescents experiencing complex trauma. What is considered best

occupational therapy practice with this population is beginning to be defined (Petrenchik & Weiss 2015).

Occupational therapists have a strong knowledge of child development, and a unique understanding of sensory processing and how challenges in sensory processing may affect the child's ability to function (Petrenchik & Weiss, 2015). The use of sensory based interventions with this population was reviewed and found to be promising as a treatment, though sensory based interventions are broadly defined and varied (Fraser et al., 2017). Occupational therapists have made contributions to the development of these sensory based treatments with children and adolescents with complex trauma (Lebel & Champagne, 2010; Warner, Koomar, Lary, & Cook, 2013).

When working with individuals who have experienced complex trauma, the literature has indicated that it is important use a trauma informed care (TIC) approach (Poole, Talbot, & Nathoo, 2016). Trauma informed care is an approach used in healthcare to ensure no harm will occur as to not retraumatize or induce trauma through care and to have culturally, environmentally and systemic processes in place that are sensitive to those who have experienced trauma (Poole et al., 2016). It can be used in various settings, acute to long term care, community, and in school settings. It is not a method of treatment, but an approach that is used when working with vulnerable populations (Poole et al., 2016). Trauma specific care is using specific evidence base interventions that are implemented to treat the effects of complex trauma on an individual. Therapists such as social workers, and psychologists that have traditionally used these types of interventions are specialists and have specific training (Poole et al., 2016). Occupational therapists are

advancing their training to work with children and youth who have experienced complex trauma (Petrenchik, & Weiss, 2015).

The purpose of this study is to outline and define what is currently happening in occupational therapy practice with a consideration of which assessments and interventions are used when working with children and adolescents with complex trauma. The research questions for the study were as follows:

1. What is the current state of occupational therapy practice with children and youth, ages 5-18, who have experienced complex trauma? What is considered best practice when working with this population?
2. What are the most common interventions used by occupational therapists practicing in mental health who work with children and youth who have experienced complex trauma?

4.3 Method

4.3.1 Participants

Two groups of participants (experienced and novice occupational therapy practitioners) were targeted for recruitment through nonrandomized purposive sampling. An online web search was conducted for potential participants, as well as networking with practicing therapists. Snow ball sampling was used by asking other health care professionals if they worked with or knew occupational therapists who fit the criteria (Depoy & Gitlin, 2011). Inclusion criteria for the key informant ‘experienced’ group targeted licensed occupational therapists with a minimum of two years’ experience working with children ages 5-18 who have been subjected to complex trauma. The novice group inclusion criteria were the same as the experienced group with the exception that

no practice experience was required. Recruitment of novice and experienced occupational therapists was targeted across both Canada and the United States through snowball and purposive sampling. Interest in the study did occur from both groups, however it did not result in participation from any novice or Canadian therapists of each type in this study.

All participants received an informed consent letter by email and provided written or recorded verbal consent prior to study participation. Participants consented to the recording of their interview answers and use of anonymized quotations. The study's design was approved by Dalhousie University's Human Research Ethics Board.

4.3.2 Procedure

The interviews were conducted over the phone and/or by web-based face time by the principal investigator. A semi structured interview guide was used and consisted of 12 questions with prompts regarding type of occupational therapy practice with this population, type of training received in trauma informed care, and/or trauma specific practice. Participants were asked to identify and discuss their experiences related to use of assessments, interventions, outcome measures with this population, as well as describe any barriers or facilitators encountered when working with children and adolescents with complex trauma. A digital recorder was used to record all interviews which were subsequently transcribed verbatim by the principal investigator and a professional transcriptionist.

4.3.3 Analysis

The principal investigator utilized a two-step analysis of the data. A content analysis was used to analyze the types of functional concerns, assessments, and interventions used by therapists. The International Classification of Functioning,

Disability and Health (ICF) (WHO, 2013) was used to categorize the data in a framework that is both familiar and utilized by a variety of disciplines. The ICF framework and tool is used to identify the impact of a health condition on functioning. ICF framework considers different elements that contribute to overall functioning such as impairment in body function and structure, the impact or limitation in activities, how the health condition affects restriction in participation, and the interplay with environmental and personal factors (WHO, 2013). When analyzing the use of interventions, codes were identified and are described in the findings.

An interpretive description technique was used to further analyze the findings (Thorne, 2016). The interpretive description allows the researcher to not only describe the phenomena they are studying but interpret the findings in a way that looks at meaning, relationships and a deeper understanding within the practice setting (Thorne, 2016). This method was chosen as it is used in allied health disciplines and provides a way to identify commonalities and variations on the experience of clinical practice (Hunt, 2009). This method acknowledges that each participant comes with a unique perspective regarding the way they practice.

The principal investigator reviewed each interview transcript several times, looking for emerging themes, groupings, and patterns to identify relationships and insights. Data was organized into like categories and then analyzed for common themes and patterns. An audit trail was used to track the process of data analysis.

4.4 Findings

All nine participants interviewed in this study identified as female and met the inclusion criteria of an experienced therapist. Eight were from the United States and one

participant was from the United Kingdom. At closing of each interview, an overview of the data collected was reviewed with the participant. All data was discussed with the supervisory committee as analysis progressed with consideration for themes and patterns in the data.

Participants' experience working with children ages 5-18 with complex trauma ranged from 4-38 years with a mean of 11.5 years and median of 6.5 years. Participants worked in one or more of the following types of services: outpatient, inpatient or a community setting such as a school. Eight out of the nine participants worked in an outpatient setting, four worked in a community setting, with one therapist working in both an inpatient and community setting. Participants indicated they were funded either publicly, privately or a combination of both, and worked in conjunction with other disciplines to varying degrees. Psychologists, educators, speech therapists, social workers and physicians were the most common allied professions identified. Additionally, nursing, case managers, youth workers and family support workers were consulted.

All therapists worked with children who had experienced complex trauma. Trauma experiences included neglect, to physical and sexual abuse. Participants identified working with children who had experienced attachment disruptions, post adoptive situations, and international adoptions. Experiences of prenatal trauma were also identified.

4.4.1 Functional concerns impacting activity and participation in occupations

Participants were asked about typical functional concerns they observed when working with children and adolescents with complex trauma. Table 4.1 categorizes the functional concerns raised by participants into a framework informed by ICF (WHO,

2013). Although complex trauma is not yet labelled as a specific disorder or diagnostic label in the DSM V (van der Kolk, 2014), the ICF is a useful framework to help conceptualize the impact of complex trauma on an individual's functioning.

Table 4.1 ICF Health Condition: Complex Trauma

International Classification of Functioning, Disability and Health (WHO, 2013)		Health Condition: Complex Trauma (Functional concerns observed by participants)
Body Function and Structure (Impairment)	Mental Functions	Cognitive rigidity, need for control Executive functioning difficulties; decreased organization, planning, Hypervigilance, hyperactivity Dissociative qualities; shut down, tune out. Difficulty with emotional regulation Decreased understanding non-verbal communication and social cues
	Sensory Functions	Sensory balance disorders; tactile defensiveness, Decreased body awareness; insatiable; difficulties with interoception, Difficulties with self-regulation: self-timing; self-soothing Difficulties with sensory modulation: hyper/hypo responsiveness; sensory seeking; movement seeking
	Motor Function	Difficulty with gross motor skills; praxis skills; motor planning
Activities (Limitations)	Difficulties with communication Activities of daily living are impacted: <ul style="list-style-type: none"> • sleeping • eating • medication refusal • dressing • hygiene is affected such as not showering, not cleaning clothes • Difficulties with toileting: wetting; soiling; smearing; Challenges with transitions from one activity to another Lack of leisure experiences Difficulties with handwriting	
Participation (Restrictions)	Difficulties participating in school; interacting with friends, negatively affects family relationships and social situations	
Environmental Factors	Decreased social and family support; challenges having a stable caregiver; decreased understanding of issues in school environment, Individuals in environment has limited knowledge of complex trauma	
Personal Factors	Not reported by participants	

Body Structure and Function

Participants identified that a primary functional concern was the child’s inability to regulate themselves in an age appropriate way, due to a lack of emotional regulation and sensory difficulties impacting all areas of their lives. Hypervigilance, difficulty with self-soothing in adaptive ways and disengagement was identified. Additionally, participants discussed how complex trauma affected cognitive function, such as the need to control play and interactions. The participants reported that attention, organization,

planning and transitioning from one activity to another was challenging for these children and youth.

Activities

Difficulty with activities of daily living, such as feeding, toileting and sleeping were common challenges among the children treated due to the limited ability of the children to read their own body cues and understand when they are hungry, or tired. As described by one participant:

“I see a lot of kids who have trauma during sleep because they have poor object permanence. So, when they’re bed and they’re sleeping, they don’t realize that their parents are in the next room because if they can’t see them, they’ve disappeared”.

Another participant described the difficulty these children have with understanding their own needs:

“The other thing that happens is they’re insatiable. Nothing can fill them. They’re like empty vessels. And you can’t ever give them enough to make them happy. So, you can’t really”.

Participation

When discussing a child’s participation with family and peers, participants indicated that a child’s attachment style impacts their relationships with caregivers and other supports they may have in their life. It can lead to maladaptive coping, which in turn leads to an impact on their overall functioning. As one participant described,

attachment work via emotional and sensory work is an important component of working with children/youth with complex trauma:

“A big piece of attachment that’s different from others is the fact the we work the emotional and sensory at the same time, we don’t wait for one or the other.”

Environmental Factors

Friendships are an essential component of a child’s environment. Development of friendships can be challenging for children who have experienced complex trauma. Participants observed significant difficulty with family and social relationships among this population. Engaging in relationships in a positive way is challenging due to trust, attachment disruptions and impairment in reading social cues. This affects their ability to maintain same age peer relationships. As one participant described their client’s relationships:

“I think their little systems are so often dysregulated which creates problems for them functionally with friendship and interaction with peers, and probably within the family unit in terms of their ability to be part of the family unit and the sibling interactions that take place.”

4.4.2 Use of Assessments

Participants were asked about what types of assessments were used when working with children and adolescents with complex trauma. A variety of cognitive, psychological, motor and sensory assessments, focusing on body structure and functioning, were utilized by participants when assessing this population. Table 4.2 lists the types of assessments identified by participants and categorize them according to the

ICF framework. In general, there was less focus on using assessments of activity and participation of the child's current level of functioning.

Participants identified difficulty in finding one comprehensive assessment tool that was useful overall and therefore used a variety of different ones depending on the needs of the children and families. One participant described the importance of using a sensory assessment as a tool for engagement with the child:

“By giving them a sensory profile if they have the insight and the awareness level to say, I can say to them, [...] It is not bad that you get so angry when things happen, it is just the way your body is. So, by saying that I am giving them a little more power in creating a world that works for them. So how often do kids feel like they have been stripped of control to be able to say that OK I can do something about where I am right now. Ooh that light is bright I can turn the light down, or I can make this space. Instead of thinking the world is making me angry it allows them to have a little bit more ownership. So, by doing this profile, it allows me to connect to the individual by saying here is how it works for me, this is how I use it.”

The participants also discussed the difficulty of finding the right assessment tool and explained that there was not any one assessment that addressed the complexity of the impact of trauma on functioning. One participant found the need to develop their own tool to ensure all concerns were covered. The frequency of types of assessments used was not ascertainable.

Motor concerns were also assessed and identified in this population, but most participants did not prioritize these issues in therapy due to more challenging concerns such as emotional dysregulation and behavioural issues.

Table 4.2 Assessments Reported by Participants

International Classification of Functioning (WHO, 2013)		Assessments Reported by Participants
Body Function and Structure	Mental Function	Behavior Rating Inventory of Executive Functioning (BRIEF) Beck Depression Inventory Strength and Difficulties Questionnaire (SDQ) Behavior Assessment System for Children-3 (BASC-3) Adolescent Dissociative Scale Personality Inventory for Children -2 nd ed. (PIC-2) Functional Emotional Assessment Scale (FEAS), Post-Traumatic Stress Disorder CHECKLIST Heart Drawing Life Incidence to Trauma Measure
	Sensory Function	Sensory Preferences Checklist Sensory Integration and Praxis Test Sensory Preferences Measure Sensory Profile Ayres Clinical observations Sensory Smart Check List
	Motor Function	Bruininks-Oseretsky Test of Motor Proficiency, Second Edition (BOT-2) Beery Visual Motor Inventory Movement ABC CMHS for Developmental Coordination Disorder Peabody Developmental Motor Scale-2 (PDMS-2) Toddler and Infant Motor Evaluation (T.I.M.E.)
	Integrated	Medical Developmental History checklist Extensive Sensory Motor History
Activities	Kitchen Task Assessment Canadian Occupational Performance Measure	
Participation	Canadian Occupational Performance Measure Screening Performance Based Measure	
Environmental Factors	Attachment Evaluation Collaborate with psychotherapist regarding attachment assessments	
Personal Factors	Child and Adolescent Needs and Strengths (CANS)	
Integrated	Neurosequential Model of Treatment Three Phase Road Map (developed own tool)	

4.4.3 Use of Interventions

Participants identified various types of interventions used with this population. The ICF was used to categorize and highlight the various interventions used by participants and what areas of functioning they addressed (refer to Table 4.3). Descriptive codes were used to further describe the variety of sensory based interventions which included; sensory modulation, Ayres Sensory Integration, sensory specific modality,

sensorimotor and integrated. Integrated is defined as an intervention that used a mix of the previous outlined codes.

When choosing interventions to work with children and adolescents with complex trauma, participants discussed utilizing three primary types of intervention: 1) sensory integrative frames of reference; 2) a sensory modulation framework and; 3) occupational therapy frames of reference with a strong focus on a developmental framework. One participant described the uneven development of this population as “swiss cheese” or that the children have areas of development on par with peers such as motor or cognitive but may have challenges in social and emotional or is varied in other ways, which added to the complexity of treating these children.

Most participants discussed how emotional and sensory issues resulted in a significant need for caregivers to participate directly in treatment. The importance of working on these issues at the same time was identified, and participants stressed that one could not be done without the other. These therapists would work with the caregiver on relationships, and connection with the child. As such, when doing interventions, participants highlighted the importance of building trust and rapport with the child and family as well as having a focus on consistency and predictability.

“Creating the links with the parents, I feel that that’s improved. It used to just be, well, they’re that way because their parents are that way. And I think there’s more understanding of the societal problems that underlie it, the marginalization and isolation and oppression. These families who are very often outside the

systems, and don't really understand or trust them, are asked to just jump in and do what we say."

Regulation was identified by participants as an important target for intervention. This was stressed by participants as essential to prepare the child for top down or cognitive therapy to enable this work with other professionals such as psychologists or psychotherapists. The importance of working on regulation with a focus on functional goals was emphasized.

To treat regulation and sensory issues, some participants utilized interventions that targeted specific sensory systems such as the Astronaut Training Protocol for Vestibular Dysfunction (Kawar, Frick & Frick, 2005). or Tomatis® auditory integration intervention (www.tomatis.com). Sensory modulation as a framework and intervention was utilized by all participants when working with this population (Lebel & Champagne, 2010).

Table 4.3 Interventions Reported by Participants

International Classification of Functioning, Disability and Health (WHO, 2013)		Interventions Reported by Participants		
Body Function and Structure	Mental Function	Cognitive Behavioral Therapy; Dialectical Behavioral Therapy; DDP (Dyadic, Developmental Psychotherapy)		
	Sensory Function	Sensory Modulation	<p>Sensory Diet - Use of sensory diets, coping and safety plans</p> <p>Comfort/Sensory Rooms</p> <p>Sensory modulation sessions in their Sensory room; tranquility room, Power break room, chill spot, cozy corners in classroom, cave space, hideaways</p> <p>Modifications and use of the environment</p> <p>Alternative seating, lighting, textures,</p> <p>Swing set, climbing structures and other accessible tools,</p> <p>Sensory Strategies/Tool kits</p> <p>Explaining how to provide sensory input in acceptable ways, Sensory skill focused toolkits, tactile and sensory in house sensory kits, (explaining different tools, try to have ones they would have access to)</p> <p>Use of Sensory Modalities</p> <p>Weighted Blankets, Lyrca,</p>	
		Ayres Sensory Integration	Sensory Integration; SI Purist, SI training	
		Sensory Specific Modality	Auditory therapies; Tomatis® auditory integration training Vestibular: Astronaut protocol, proprioceptive deep pressure, Wilbarger’s tactile integration massage Delemetrix, Therapeutic listening	
		Sensorimotor	Sensory Motor; gross motor space; sensory motor play	
		Integrated	Self-regulation ALERT program Craniosacral work Safe Place Model	
	Motor Function	Participants identified unable to address motor concerns due to time constraints in practice		
Activities	<p>Life Skills group - cooking, vocational, creative arts movement based, music groups, hygiene</p> <p>Self-regulation groups -mindful meditation</p>			
Participation	Social skills group			
Environmental Factors	<p>Family Groups/Interventions</p> <p>parent groups as needed, sibling dyads, Caregiver training Caregiver self-regulation work on non-verbals with parent, with psychotherapist and parent</p> <p>Relationship/Attachment focus</p> <p>Trust Based Relational Intervention (TBRI)© DRI Floor time (Developmental Individual-difference and Relationship-based model)</p>			
Personal Factors	Not identified as a target of intervention			

4.4.4 Use of Outcome Measures

Six of the nine participants use outcome measures in their practice. The most common way to measure outcomes was to use Goal Attainment Scaling (GAS). Other ways to measure outcomes included setting goals and utilizing test retest of any measures they used for assessment.

4.5 Thematic Analysis

Data analysis revealed 4 overall themes: 1. Barriers and facilitators to occupational therapy complex trauma practice; 2. Trauma education and training in occupational therapy; 3. Building a strong OT trauma practice such as: the use of bottom up interventions and family/caregiver participation in treatment; and 4. The importance of professional collaboration in practice: (i.e., reduce isolation of practice and increase inter professional collaboration). These themes summarize the key issues, identified by participants, in assessing and treating youth with complex trauma in the discipline of occupational therapy.

4.5.1 Barriers and facilitators to occupational therapy complex trauma practice

Systemic Barriers

Systemic barriers were identified by participants and varied depending on their practice. These barriers had an impact on the participants ability to provide interventions and practice in a client centred way. There was concern of a lack of recognition from funding sources of what occupational therapists can provide to this population.

Participants working in residential settings identified concerns regarding challenges in scheduling such as finding times within work hours to see clients.

Participants explained that it was difficult to see the clients regularly, and that their length

of stay in residential care was never certain. This impacted their ability to develop a consistent treatment schedule.

One participant identified how environmental factors such as the safety of a neighborhood was also considered a barrier to treatment as it can affect when and where a therapist can visit which in turn affects their ability to be client and family centered.

Participants also identified unrealistic system expectations around how quickly the children and adolescents should get better and move on, without understanding the supports needed:

“I can't see the kids regularly, in that, I can't see them 2 times a week, or even necessarily regularly weekly. So, for some of the interventions I do and some of the suggestions I provide may not be followed through. It's tough to be starting over every week when you engage with them.”

Participants discussed how differences in program approaches, philosophies, and culture meant that trauma-specific work and/or trauma informed care in general, were not always an easy fit. Traditionally, a behaviour management approach was used in these settings and moving to a trauma informed approach has been slow, affecting clinicians' ability to provide trauma informed interventions within these settings.

“A behaviour approach has been the one that I feel like our society has embraced with both arms and jumped right into. And I think people have a harder time understanding a trauma-informed care model. So the shift is hard. That's the barrier. That's an attitudinal one. Mostly an internal in the facility.”

Lack of Funding/Resources

Lack of funding and/or resources was identified by all participants as a challenge and impacted the amount of treatment a client received. Having to continually justify the need for services for clients and families as well as the importance and need for parent education and engagement, was challenging. Not all families had access to funding which impacts who is able to receive care, dependent on whether they had private or public funding sources. Often therapists had lack of equipment or no space to complete sensory integrative interventions, which were identified as an important area of treatment. Participants discussed how children with complex trauma require more time to treat and change is slow, however, often insurance or other funding sources would not fund the request for more sessions.

Facilitators

Participants did recognize that there were ways that trauma informed care and treatment were moving forward through various facilitators. Participants discussed that there was recognition that trauma informed care is now a well-known phrase in government health care systems in the US, which helps to advance treatment for these children. Participants identified trying to create collaborations with government workers, as well as schools, so that there is more consistent care which has become somewhat less challenging due to trauma informed care initiatives in public school systems.

Some participants were hopeful that there was movement towards a greater acceptance of trauma informed care and services and attributed it the influx of research and education in the area of complex trauma. There is more understanding of the societal problems underlying complex trauma which in turn brings more incentive to provide

earlier services. As a result, there is more willingness for mental health services located in the community to fund occupational therapy. A culture shift in many areas has been observed identifying the importance of using trauma informed care.

4.5.2 Trauma education and training in occupational therapy

The importance of advance training and education in complex trauma, child development, attachment and sensory based strategies was highlighted by all participants. As it is an emerging field in occupational therapy, there are few therapists that have the training required. Subthemes that have emerged are differentiating trauma informed care and trauma specific interventions, developmental considerations, and modes of trauma education for occupational therapists.

Differentiating between trauma informed care and trauma specific interventions

The participants were asked to describe the type of education they have received on trauma informed care (TIC) and trauma specific interventions. In discussing their awareness of trauma, all participants identified that they practiced in a trauma informed way, however, they did not differentiate between trauma informed care and trauma specific interventions, demonstrating a lack of understanding of the differentiation:

“So, trauma informed care is the absolute foundation in all of the work that I do. It has also been tough to delineate is this training that I received or is this part of being an OT, because this is the way we look at things or is this just the natural, or what I think should be a natural human regard for other individuals should be trauma informed but I have had specific training.”

Participants discussed various levels of training regarding trauma education. Many of the participants reported that they had been working with these children for a

long time and the needs of an evolving practice have led to many different education requirements and opportunities. Participants' experiences with training varied from workshops on complex trauma, attending conferences, to having completed graduate and post graduate studies in complex trauma.

Developmental Considerations

Participants identified that not all occupational therapists working with this population understand the root of complex trauma, and how it affects the brain developmentally. They do not always incorporate a developmental approach which many participants identified as important when providing treatment:

“one of the things I’m trying to do is just educate people to think more developmentally and what did they miss during that period of trauma.”

Modes of trauma education for occupational therapists

Participants discussed that there is a need for more education for occupational therapists in the area of complex trauma. There is a need for opportunities delivered by occupational therapists such as having an OT stream at an interprofessional national conference on attachment and trauma conference on topics such as sensory based complex trauma interventions.

They identified that there has been an increase in networking and learning from other experienced therapists in this area to share knowledge through social media, internet forums, and webinars. There are more workshops on complex trauma and its impact on functioning with this population. In addition, there has been an increase in professional study groups such as the OT ATTACH Network.

4.5.3 Building a strong OT Trauma Practice

Considerations for intervention in care

More than ever before, we now have access to more research on how the brain functions and is affected by trauma at a young age (Rinne-Albers, van der Wee, Lamers-Winkelmann, & Vermeiren, 2013; Tomalski, & Johnson, 2010). Participants identified developments in neuroscience showing the importance for trauma recovery to use sensory based interventions and work on attachment with the child and their caregiver.

This new knowledge on brain function and trauma confirms the importance of utilizing a bottom up approach with various sensory based therapies to lay the foundation for later top down approaches. The importance of working on regulation through sensory strategies and the attachment relationship was identified as essential before the child or adolescent could engage in a more cognitive type therapeutic processes. Engagement and trust in the therapeutic relationship was emphasized by one participant who identified the importance of being a consistent service provider for the children and adolescents:

“I have had kids who three months straight, in not so nice words, will tell me to get lost, I continue to approach them with the same consistent affect and you're really welcoming, and eventually those kids will finally come around. It is like, this is the greatest thing ever. It is the greatest thing ever. I don't care that it took 3 months to get here, the fact that you finally engaged says so much about your life experience and how awesome you are doing in this moment”

Importance of family in care

The importance of including the caregiver into the therapy process was also emphasized by participants as an important part of therapy. This was described by

participants in three different ways; it builds relationships with the child and adolescent, helps to build strong attachments, and helps lay the foundation for regulation work.

Having a therapist understand what might be missing in the child's social, emotional and cognitive development as a result of complex trauma helps occupational therapists teach caregivers the significance of being attuned to the child's needs. Involving the families and helping them to understand the process of intervention and having them see a change in the children was considered important. One participant also discussed that being of the same culture as the family helped to build rapport and relationship in the therapeutic process.

One participant identified that early intervention with families and children was important but does not occur. The importance of getting to families before they were "broken", such as attachment disruptions, and/or entry into foster care, was highlighted. Another participant discussed that the courts did not always rule in the best interest of the child as to who was considered to be their most stable caregiver. Participants noted that often, there was a lack of investment by foster parents in the treatment of the children and adolescents as well as a decreased understanding of the effects of trauma which could inhibit therapy.

How the day to day practice was structured was also a significant factor when working with clients and families. Participants discussed that it was important to have flexibility in their position which allowed for more family/client centered care such as being able to drive with kids to facilitate connections with community supports or to offer variability in appointment times.

Additionally, family availability, and missed appointments due to family stressors were a challenge to implementing therapy. Access to service impacted the families and they often had to travel significant distances for therapy. Some participants discussed how could not offer enough sessions in a week. Often it was difficult to develop rapport, due to mistrust, and past negative experiences with previous encounters with systems which affected engagement in therapeutic relationship.

4.5.4 Importance of Professional Collaboration in Practice

All participants identified the importance of collaboration between occupational therapy and other professions, such as psychology, and social work. Participants indicated that due to the complexity of the care that these children and families need requires an inter professional collaborative approach to ensure positive change and outcomes.

Many of the participants identified that the strong knowledge that occupational therapists possess regarding development and sensory and motor systems is starting to be recognized by other professionals as important in working with children with complex trauma. They emphasized that occupational therapists are recognizing their own role when working with this population and health care organizations are interested in what occupational therapy has to offer in treatment for this population. Participants also discussed the importance of needing seasoned therapists to do this type of work because of its complex nature.

One participant identified the isolation that occurs being the only occupational therapist working with children and adolescents with complex trauma:

“I am feel pretty isolated, I am the only OT that I know of that is doing community-based work that is only working on trauma, so like in this kind of weird little subset, where I don’t do a lot of motor stuff, I am not doing psychotherapy, but I am supporting kid’s participation in psychotherapy”

Additionally, some participants discussed the utility of professional collaboration and/or peer support to manage feelings of isolation in this work. They talked about the desire and need to learn from other therapists. Some participants discussed the importance of using social media platforms and other online resources to achieve this connection.

4.6 Discussion

Overall, this current study examined occupational therapy practice with children and adolescents with complex trauma utilized a twostep analysis. The use of the International Classification of Functioning, Disability and Health to frame the practice as outlined by participants, showed that occupational therapists are attempting to target the impairment caused by complex trauma in the body structures and function and the impact on activities and participation (WHO, 2013). Participants’ assessments targeted primarily mental, sensory and motor function, however, the interventions used targeted primarily concerns with sensory function. Finding assessments tools that target these issues in children and adolescents with complex trauma was identified as important to help guide interventions and practice. The importance of knowing where the child was developmentally, was integral to interventions with this population. The variation in interventions and assessments used speaks to the complexity of the children and

adolescents being treated and as the practice continues to evolve, better tools will likely be developed.

The study also stressed the need to utilize a bottom up approach with various sensory based therapies (Warner, Spinazzola, Westcott, Gunn, & Hodgon, 2014; Ogden & Fisher, 2015). The importance of working on regulation through sensory strategies and attachment relationship was identified as essential before the child or adolescent could engage in a more cognitive type therapeutic processes (Warner, et al ,2014). Ensuring that self-regulation is defined consistently by occupational therapists is necessary when providing treatment (Martini, et al 2016). Much of the previous research with complex trauma has focused on the importance of sensory based interventions which could account for the concentration in this area by the participants in this study (Champagne, Koomar, & Olson 2010; Warner, et al ,2014).

The findings from the interpretive descriptive analysis led to four main themes and many opportunities for how to develop additional competencies in assessing and treating children and youth with complex trauma.

Systemic barriers such as lack of funding and resources and lack of understanding in trauma informed care by others could have a negative impact on client centred practice and occupational therapy treatment with children and adolescents with complex trauma. Basic occupational therapy practice considerations such as decreased flexibility in scheduling and allotted number of sessions could also impact the overall treatment received. As there is an increase knowledge in trauma informed care occurs it will hopefully have an eventual impact in facilitating client centred occupational therapy practice with this population.

All participants emphasized the importance of including the caregiver and/or family into the therapy process when working with children and adolescents with complex trauma. Occupational therapists who focus on building relationships with the child or adolescent and their family helps to build strong attachments and helps with the foundation of regulation. Finding ways to include the family and caregiver in therapy will help to ensure the child or adolescent can achieve their functional goals. Considering the challenges the family may have in participating in occupational therapy treatment, and advocating to remove those challenges, will only strengthen the therapeutic process.

Children and adolescents who have experienced complex trauma require a different approach to treatment due to the effects of the trauma on brain development (van der Kolk, 2003). Research into treatment of complex trauma, shows that a systematic approach is needed. Many of the models that are being developed use a multi stage and multi modal approach. For example, two commonly used models, The Neurosequential Model of Treatment (Perry & Hambrick, 2008), and The Attachment, Self-Regulation, and Competency Model (Blaustein & Kinniburgh, 2010), approach the treatment of trauma as complex, and incorporate, along with other methods, the use of sensory based, bottom up processes to treat difficulties with self-regulation. Ensuring that occupational therapists understand their role in the treatment of complex trauma as one part of a larger therapeutic team is important and emphasizes the need for inter professional collaboration with other disciplines.

The importance of advance training and education for occupational therapists (and other allied professions) in complex trauma, trauma informed care, child development, attachment and sensory based strategies was highlighted by all participants. As it is an

emerging field in occupational therapy, there are few therapists that have the training required.

The need for a consistent understanding and education that is based in evidence was apparent in the variation of approaches used. The feeling of isolation as a therapist working in this field could be an important motivator to advance knowledge in practice and to connect with other therapists. Several social media platforms have been developed to address these concerns and to move the practice forward.

4.7 Implications for Occupational Therapy Practice

The findings from this study support the importance of working with children and adolescents with complex trauma as an area of advanced practice. A strong role for occupational therapy was emphasized due to the knowledge and education occupational therapists possess, their training and understanding of sensory interventions, and a strong developmental perspective. They all supported that advanced education is needed when working with children and adolescents with complex trauma.

4.8 Limitations and Future Research

There are several limitations of this study that are identified below. The small sample size of nine participants makes it challenging to generalize or apply to what is happening in this practice area. The findings allow for consideration and understanding of current practice, however a larger sample size would lend to identifying overall trends and directions in practice.

The sample of participants is limited to United States and United Kingdom, with no participants in Canada. This could be due to recruitment methods did not reach potential participants. Additionally, no novice therapists were recruited, which could

indicate several things such as; this is not an area of practice for new therapists in this field; a lack of confidence of sharing what they are doing in their own practice; or that recruitment methods did not reach this demographic.

A purposive and snow ball sample recruitment was used in this study which may have contributed to the challenge to find participants as it is an emerging field and therapists reported they did not know many working in this area. Participants may have been conservative regarding their answers and perceptions in the semi structured interview. The scope of this study did not look at the efficacy of the interventions identified by occupational therapists in this field.

Frequency of the participants per intervention was not examined. The interventions used by each participant were reported and categorized according to the ICF in Table 4.3. The inclusion of frequency of use in this study would allow for a further understanding the interventions used, though the small sample size would make it difficult to generalize the findings.

Due to this expanding field of practice, there are many directions further research could take, including exploring how occupational therapy and sensory modulation affects regulation with this population, reviewing the efficacy of specific treatments as well as gaining further insight into complex care and interprofessional practice.

4.9 Conclusion

Occupational therapy practice in complex trauma is emerging and still in development (Fraser et al, 2017). This study has shown that even for the experienced therapists interviewed working with this population, systemic barriers and challenges affect practice. Lack of funding, lack of understanding, and limited resources can have an

impact on the treatments received. Additionally, even though the specific types of interventions used varied, they mostly targeted regulation, sensory issues and attachment concerns. Sensory based interventions, focusing on a bottom up approach to treatment are being utilized.

When working with this population, occupational therapists must include the family or caregiver in treatment to ensure a strong family centered approach to care. This would help to ensure transfer of skills and promote attachment (Blaustein & Kinniburgh, 2010).

Due to the complexity of this client population and depth of knowledge required, advanced education and training in trauma practice is needed in conjunction with a community of practice or network to ensure therapists provide the best possible care. Occupational therapists are uniquely positioned to share trauma expertise and knowledge to other groups in the community such as schools, that would work these children and adolescents.

CHAPTER 5: CONCLUSION

5.1 Implications for Practice

5.1.1 Implication for Education and Professional Collaboration

Due to the complicated concerns children and adolescents with complex trauma experience, advanced education is needed. Entry level occupational therapists would find it challenging to consider the complex range of needs and issues faced by this population. For new therapists working in pediatric mental health, there is a need to ensure that basic trauma informed care is understood and to understand how childhood trauma can impact functioning as trauma is not uncommon in children who present for mental health services (van der Kolk, 2005). It is important when developing curriculum on treating complex trauma to emphasize early child cognitive, social, and emotional development, and the importance of early attachment and how attachment disruptions can significantly affect functioning. As well as the importance of sensory development and how that impacts a child's ability to self-regulate. As discussed earlier in chapter 2, the literature highlighted the difficulty children and adolescents with complex trauma have managing their arousal and emotional states which can have an impact on their ability to participate in their daily functioning (Seigel, 2012)

Once a practicing occupational therapist working with children and adolescent with complex trauma, it is important that occupational therapists have a community or network of practice. As stated earlier in chapter 4, due to the complexity of this client population, participants identified feeling isolated when working in this area and feel the need to connect with other occupational therapists. Due to this need, various networks have developed through social media and web-based forums to share ideas and practice

issues and reinforces the importance of having these networks to continue to develop this practice area. These connections could help to provide accountability and continue to move the practice forward to further develop assessments and tools, as well as sharing of resources.

5.1.2 Implications for Research

There has been limited research into understanding pediatric occupational therapy practice when working with children and adolescents who have experienced complex trauma. The work in this thesis has begun to provide insight and information on what a sample of experienced occupational therapists are doing in daily practice with this population. Occupational therapists are developing and carving out clinical practice through their understanding of sensory processing, knowledge of child development and neuroscience, and applying this knowledge when working with children and adolescents who have experienced complex trauma.

Sensory based interventions are being utilized with children and adolescents with complex trauma (Warner et al, 2013). As described in chapter 2, these interventions are showing promise when working with this population. Sensory based interventions are used in treatment to increase the child or adolescent's ability to regulate which improves their occupational performance in daily activities as well as helps them to become ready for other trauma specific therapies that have a cognitive focus (Warner et al., 2013).

The variety of sensory-based interventions and how they are defined can make it challenging for occupational therapists when working with this population. Terms such as self-regulation and sensory based interventions vary in definition depending on the background or understanding from different professions. For example, Martini, Cramm,

Egan, and Sikora et al (2016) discuss the importance of clearly identifying which theoretical framework is being used when discussing self-regulation as it is defined several ways within the occupational therapy literature. When these terms are not well defined, it makes it confusing and difficult for occupational therapists new to this area of practice and other professions to understand what is targeted in interventions as well as the importance of establishing clear definitions when looking at treatment outcomes, establishing evidence-based practice and completing research.

As discussed in chapter 4, occupational therapists interviewed are primarily using sensory based interventions to target challenges with sensory functions. Most therapists identified sensory modulation and trauma as the approach they had received further education on, with a smaller number of therapists receiving advanced training in specific modalities. More research is needed to define and determine the efficacy of these treatments with this client population.

Outcomes research will also help to develop evidence-based interventions in this practice area. Additionally, occupational therapy can contribute to research by creating and validating assessment tools with this population that have a focus on occupational performance. As established evidence-based treatments specific to occupational therapy practice are limited (Petrenchik, & Weiss, 2015) when working with clients who have experienced complex trauma, therapists are borrowing from other disciplines such as psychology, or social work to fill that need. This reinforces the importance of collaborating with other professionals working in this area and defining occupational therapy's role in the treatment process.

5.2 Limitations

There are several limitations that have been identified for this work in Chapters 2 and 4. Primarily, it is difficult to determine if the interview findings are reflective of current practice given the small sample size – although the number of treating therapists for this population are limited and unknown. Additionally, given there were no Canadian therapists who participated in this study, it is difficult to determine what is the true current state of occupational therapy practice in Canada with this population.

5.3 Future Work

There are many opportunities for future studies in occupational therapy practice when working with children and adolescents with complex trauma. The results from this study leads to more questions regarding occupational therapy interventions and practice.

What is being targeted when using sensory strategies with this population? Are there actual changes to the sensory system (physiological) or is it environmental changes in the social and physical environment (sensory modulation) that are occurring? Related to this is the question of what does regulation mean in context of practice?

Another area of research is looking at what areas of development are missed due to neglect and trauma and how is this being considered in practice. This could expand or include what is occupational therapy's role in early intervention with children ages 0-5.

Further work could look at how practice evolves with distant technologies and networks and is this impeding or progressing practice?

As practice continues to evolve, the potential for occupational therapy to contribute to this field of practice is evident. However, to ensure that this occurs,

occupational therapy must work to define this practice in a way that is evidence based, client and family centred, and trauma informed.

Appendix A: Dalhousie Health Science Research Ethics Board Approval

From: angela.hersey@dal.ca <angela.hersey@dal.ca>
Sent: 26 July 2016 16:00
To: Kerry Fraser
Cc: Diane MacKenzie; Joan Versnel; Angela Hersey
Subject: REB # 2016-3921 Letter of Approval



Health Sciences Research Ethics Board Letter of Approval

July 26, 2016

Kerry Fraser
Health Professions\Occupational Therapy

Dear Kerry,

REB #: 2016-3921
Project Title: Exploring Occupational Therapy practice currently utilized with children and adolescents with complex trauma

Effective Date: July 26, 2016
Expiry Date: July 26, 2017

The Health Sciences Research Ethics Board has reviewed your application for research involving humans and found the proposed research to be in accordance with the Tri-Council Policy Statement on *Ethical Conduct for Research Involving Humans*. This approval will be in effect for 12 months as indicated above. This approval is subject to the conditions listed below which constitute your on-going responsibilities with respect to the ethical conduct of this research.

Sincerely,

Dr. Tannis Jurgens, Chair

Appendix B: (Front Line Clinician) Email Recruitment

Dear Occupational Therapist:

I am conducting a study exploring **occupational therapy** practice with children and adolescents, ages 5-18, who have experienced complex trauma. Trauma informed care is a relatively new area of practice for occupational therapists. The purpose of this study is to gather information about the current practice of occupational therapists who work with children and adolescents, aged 5-18, who have experienced complex trauma. It is hoped that the information obtained from this study will contribute to the knowledge of other occupational therapists and health professionals who work in this area.

I am seeking input from:

Occupational Therapists who have worked directly with children and adolescents, ages 5-18, who have experienced complex trauma.

Individuals who volunteer for this study will have the opportunity to participate in a 45-60-minute interview by phone, in person or through online technology. During the interview, participants will be asked questions about the practice setting, assessments, and interventions that occupational therapists currently use when working with children and adolescents, aged 5-18, who have experienced complex trauma.

This study has been reviewed by the office of Human Research Ethics Administration at Dalhousie University. There is no reimbursement offered for participation in this study.

If you are interested in participating in this study or would like more information to assist you in making your decision regarding participation please contact Kerry Fraser by telephone (902-470-5050) or by email (Kerry.Fraser@dal.ca). You will then be sent you more information about the study as well as the participant consent form. If you know of other individuals who may be interested in participating, please feel free to discuss this project with them and ask them to contact me directly for further information or **circulate** this email.

Thank You

Kerry Fraser OT Reg. (NS), Occupational Therapist
MSc OT (Post Professional) Candidate
School of Occupational Therapy
Dalhousie University

(902)470-5050
Kerry.Fraser@dal.ca

Appendix C: (Expert Clinician) Email Recruitment

Research Study on Occupational Therapy practice with children and adolescents who have complex trauma.

Dear Occupational Therapist:

I am conducting a study exploring **occupational therapy** practice with children and adolescents, ages 5-18, who have experienced complex trauma. Trauma informed care is a relatively new area of practice for occupational therapists. The purpose of this study is to gather information about the current practice of occupational therapists who work with children and adolescents, aged 5-18, who have experienced complex trauma. It is hoped that the information obtained from this study will contribute to the knowledge of other occupational therapists and health professionals who work in this area.

I am seeking input from:

Occupational Therapists who have worked directly, for a period of 2 years or more, with children and adolescents, ages 5-18, that have experienced complex trauma.

Individuals who volunteer for this study will have the opportunity to participate in a 45 - 60-minute interview by phone, in person or through online technology. During the interview, participants will be asked questions about the practice setting, assessments, and interventions that occupational therapists currently use when working with children and adolescents, aged 5-18, who have experienced complex trauma.

This study has been reviewed by the office of Human Research Ethics Administration at Dalhousie University. There is no reimbursement offered for participation in this study.

If you are interested in participating in this study or would like more information to assist you in making your decision regarding participation, please contact Kerry Fraser by telephone (902-470-5050) or by email (Kerry.Fraser@dal.ca). You will then be sent you more information about the study as well as the participant consent form. If you know of other individuals who may be interested in participating, please feel free to discuss this project with them and ask them to contact me directly for further information or **circulate** this email.

Thank You,

Kerry Fraser OT Reg. (NS), Occupational Therapist
MSc OT (Post Professional) Candidate
School of Occupational Therapy
Dalhousie University

(902)470-5050
Kerry.Fraser@dal.ca

Appendix D: (Expert Clinician Group) Informed Consent



INFORMED CONSENT LETTER

Project title: Exploring Occupational Therapy practice currently utilized with children and adolescents with complex trauma.

Lead researcher:

Kerry Fraser, O.T. Reg. (NS)
Masters of Science (Post-Professional Occupational Therapy) Candidate
School of Occupational Therapy Dalhousie University.
Kerry.Fraser@dal.ca (902)470-5050 or (902)401-5233

Other researchers

Dr. Diane MacKenzie, O.T. Reg. (NS)
School of Occupational Therapy Dalhousie University
Email: diane.mackenzie@dal.ca or
Phone: (902)494-2612

Dr. Joan Versnel O.T. Reg. (NS)
School of Occupational Therapy Dalhousie University
Email: jversnel@dal.ca or
Phone: (902)494-2601

Introduction

You are invited to take part in a research study being conducted by Kerry Fraser, O.T. Reg. (NS), a graduate student at Dalhousie University as part of her Masters of Science (post professional Occupational Therapy) degree at Dalhousie University.

The purpose of this letter is to provide you with information on the study and provide information on any possible risks or benefits.

Participation in this study is voluntary and if you have any questions about this study, please do not hesitate to contact Kerry Fraser.

The risks to you for participation in this study are minimal. The information below tells you about what is involved in the research, what you will be asked to do and about any benefit, risk, inconvenience or discomfort that you might experience.

Purpose and Outline of the Research Study

The purpose of this study is to gather information about the current practice of occupational therapists who work with children and adolescents, aged 5-18, who have experienced complex trauma. Information will be collected from two groups of therapists with an expected ten to twelve total participants. There will be five to six occupational therapists with expertise in working with children and adolescents with complex trauma interviewed as well as five to six front line occupational therapists who work with children and adolescents with complex trauma. It is hoped that the information obtained from this study will contribute to the knowledge of other occupational therapists and health professionals who work in this area.

Who Can Take Part in the Research Study

You are eligible to participate in this study if you are an occupational therapist who has expertise working with children and adolescents, aged 5-18, who have experienced complex trauma and have worked with this population for a period of two years or more.

What You Will Be Asked to Do

You would be required to take part in a 45-60 minute interview that may take place in person, on the phone or through distance technologies. You will be asked questions regarding your practice in working with children and adolescents with complex trauma, such as the type of setting you work in, what type of training you have had, what assessments, treatments or models you may use. The interview would occur at a time that is convenient for you. The interview will be recorded. You will be asked to review the transcripts of the interview to ensure accuracy of the interview at a later date.

Possible Benefits, Risks and Discomforts

The risks for this study are minimal. You may also not benefit personally from your participation in this study. If during the interview, you are feeling uncomfortable, or if questions are raised that are particularly bothersome you can stop the interview at any time or chose not to answer that question. The information gained from this study may contribute to increased knowledge and awareness of practice in working with children and adolescents with complex trauma.

Compensation / Reimbursement

There is no compensation or reimbursement for your participation in this study.

How your information will be protected:

After completing the informed consent signature page or providing oral consent via digital recording (for those participants participating by distance technologies), participants will be assigned a date. Your identity will not be revealed when the data from this study is reported. While quotations from your interview will be digitally recorded, the quotations will not be attributed to you in

any way for any presentations and/or publications to come from this research. All data from this study will be kept on password-protected server and locked cabinet in Dr. Diane MacKenzie's faculty office in the School of Occupational Therapy for 5 years. No one will have direct access to your data except for Kerry Fraser, Dr. Diane MacKenzie, and Dr. Joan Versnel.

Confidentiality: All information you contribute to this study will be kept confidential. Your information will be assigned a unique identifier and no geographical indicators will be included.

Limits to confidentiality. If during the course of the interview, information is shared about your practice that suggests suspected child abuse or neglect, or the abuse or neglect of an adult in need of protection, the appropriate authorities would be notified. If information is shared about your practice that suggests questionable practice strategies this will result in the researcher notifying your professional regulatory college.

If You Decide to Stop Participating

Participation in this study is completely voluntary and you can choose to not participate in the study. You can withdraw from the study at any point. If you decide to stop participating at any point in the study, you can also decide whether you want any of the information that you have contributed up to that point to be removed or if you will allow us to use that information. You can also decide for up to two months after your participation if you want us to remove your data. After that time, your data will not be able to be removed from the study due to the analysis process.

How to Obtain Results

We will provide you with a short description of group results when the study is finished if requested. No individual results will be provided.

Questions

Please contact Kerry Fraser at (902)470-5050, Kerry.Fraser@dal.ca at any time with questions, comments, or concerns about the research study.

If you have any ethical concerns about your participation in this research, you may also contact Research Ethics, Dalhousie University at (902) 494-1462, or email: ethics@dal.ca

Summary:

Individuals who volunteer for this study will be asked to participate in an interview not to exceed 1 hour in duration. During the interview, the participant would be asked to respond to and discuss questions related to occupational therapy practice with children and adolescents with complex trauma.

Appendix E: Verbal Informed Consent

The lead investigator (KF) will read the Phone Script and confirm consent or withdrawal from participating:

KF: Hello <participant's name>, my name is Kerry Fraser and I am calling to confirm your consent for participation in research study investigating occupational therapy practice currently utilized with children and adolescents with complex trauma. I sent you the **Informed Consent Form** to review in an email last week. I am now going to go through a series of questions to confirm your verbal consent prior to your participation in the research interview.

Have you read the consent form that I sent you and so you agree to participate in this study?

YES NO

[IF NO] Do you need me to re-send the consent letter or would you like to withdraw?

[IF YES] KF arranges for follow-up and re-does entire script.

[IF NO] KF confirms withdrawal from interview participation – thank you.

Do you agree that your interview may be audio-recorded?

YES NO

Do you agree to the use of direct, anonymous quotations in any presentation or publication from the research study?

YES NO

Do you agree to be contacted by the researchers about related research projects in the future?

YES NO

Would you like to receive a summary of the results?

YES NO

Email address: _____

Post address: _____

Please review the **Informed Consent Form** for more information on how you can learn more about the project, either now, or after you have participated. Also, if you have any concerns about your participation, you may contact the Human Research Ethics Administration at Dalhousie. All contact information can be found in the consent form that was sent by email.

Do you have any further questions before we proceed with the interview?

Participant Name

Date

Appendix F: Ethics Amendment Approval for Email Recruitment Letter



**Health Sciences Research Ethics Board
Amendment Approval**

February 06, 2017

Kerry Fraser
Health Professions\Occupational Therapy

Dear Kerry,

REB #: 2016-3921

Project Title: Exploring Occupational Therapy practice currently utilized with children and adolescents with complex trauma

The Health Sciences Research Ethics Board has reviewed your amendment request and has approved this amendment request effective today, February 06, 2017.

Sincerely,

Dr. Tannis Jurgens, Chair

Appendix G : Interview Guide

Part I Demographic Questions (Expert and Clinician Group)

1. What is the age of the population you typically work with?
2. How long have you worked with this population?
3. Are you a consultant or a direct provider? (Probe - Case manager?)
4. What practice setting do you primarily work in?
 - a. outpatient, inpatient, residential setting, community (probe)
 - b. Other setting? (probe) (private or public funded?)
5. Do you work within a team setting with other professionals? If so whom?
6. Have you had specific training in trauma informed care?
7. Have you had specific training in trauma specific care?

Tell me about your work with children and adolescents with complex trauma?
(probe – child’s type of background trauma?)
8. Do you use a specific model or framework when completing assessment and interventions with this population? What is it?

Part 2 Practice Questions (The results from the Expert Group may suggest questions refinements for these questions with the Clinician Group)

9. Do you provide individual treatment?
 - a. What types of interventions do you use? (probe)
10. Do you work with children in a group setting?
 - a. What types of groups do you offer? (probe)

11. What type of assessments do you typically use with this population?

- a. Which ones? (probe)
- b. Do you use outcome measures? (probe)
- c. What do you feel works well? (probe)
- d. Doesn't work? (probe)

12. Do you use sensory based interventions? Could you describe?

(for example, Ayres sensory integration, comfort or tranquility rooms, sensorimotor psychotherapy.)

13. What are the typical functional issues that you would see with this population?

14. What are the challenges and barriers to providing treatment with this population?

15. What are the facilitators to providing treatment with this population?

Thank you for participating

Appendix H: Ethics Amendment Approval for Transcriptionist

REB # 2016-3921 Amendment Approval

do-not-reply-DAL@researchservicesoffice.com

**Health Sciences Research Ethics Board
Amendment Approval**

November 30, 2017

Kerry Fraser
Health\Occupational Therapy

Dear Kerry,

REB #: 2016-3921

Project Title: Exploring Occupational Therapy practice currently utilized with children and adolescents with complex trauma

The Health Sciences Research Ethics Board has reviewed your amendment request and has approved this amendment request effective today, November 30, 2017.

Sincerely,

Dr. Tannis Jurgens, Chair

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