ATHABASCA UNIVERSITY

PARENT-CHILD MUTUALITY AND RELATIONSHIP-BASED PARENTING:

EVALUATING CIRCLE OF SECURITY® PARENTING™ PROGRAM

EFFECTIVENESS

BY

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Dedication

This work is dedicated to Silas, Indra, and Jethro, my littlest loves, my wild.

I hope you always find extraordinary things amongst the ordinary act of being.

You are the bookends of my heart and there is no greater joy or honor than bearing

witness to your great unfolding. Thanks for calling me 'mama'.

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Abstract

The Circle of Security® Parenting™ (COSP™) program is a relationship-based intervention that targets attachment security and caregiver internal working models. Effectiveness and efficacy research utilizing observational measurement of parent-child interaction remains limited in the Circle of Security® literature and no studies have examined changes in dyadic mutuality as a construct of interest. The aims of this thesis work, a pilot study, were to evaluate the efficacy of COSP™ by examining changes in dyadic mutuality and parent positivity/negativity using a validated observational measurement tool (PARCHISY) in 16 parent-child dyads. A quasi-experimental repeated measures design was employed to investigate changes in observed parent-child interaction before and after the 8-week COSP™ intervention and across two tasks, structured play and clean-up. Findings revealed theoretically predicted positive changes in dyadic mutuality and parent positivity and no significant change in parent negativity. These results support the utility of PARCHISY in the assessment of attachment-focused parenting interventions.

Keywords: Circle of Security®, parenting, attachment, mutuality, attachment-based intervention, evaluation

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Chapter 1. Introduction

Parenting plays a crucial role in childhood development. The early relationship patterns between a caregiver and child establish the foundation of attachment and the developmental trajectory of the child (Fearon et al., 2010). Parents can experience many challenges as they move through the process of establishing and maintaining a secure attachment with their children. Intergenerational trauma and the influence of unresolved experiences from a parents' own early attachment relationships, can negatively impact parenting behaviour and capacity (van der Voort et al., 2014).

A lack of attachment in the parent-child dyad can lead to externalizing, internalizing, and/or maladaptive behavior outcomes in children (Kochanska et al., 2019; Regueiro et al., 2020; Zeynel & Uzer, 2020). These behavioral outcomes can trigger negative and harsh disciplinary techniques from the caregiver, thereby, eroding the attachment relationship between caregiver and child (Kochanska et al., 2019). Additionally, harsh parenting is a precursor for child maltreatment (Afifi et al., 2017; Horton & Murray, 2015) and other adverse childhood experiences (ACES), which have been associated with decreased cognitive capacity, increased behavioral challenges, decreased social-emotional development, and increased psychopathology in adulthood (Berthelon et al., 2020; Creavey et al., 2017; Su et al., 2019).

There is an increasing need for evidence-based parenting support and interventions that will enable caregivers to establish and maintain secure attachment relationships with their children. Given the growing body of evidence that links ACES with poor health outcomes into adulthood (Choi et al., 2020; Petruccelli et al., 2019; Zeynel & Uzer, 2020), comprehensive preventative interventions that support parents, children, and

families during the early stages of childhood development are necessary to mitigate negative impacts to public health. The purpose of this thesis project was to analyze data generated during a 2016 pilot project testing the effectiveness of an attachment-based parenting program, using a novel observational measurement protocol.

Definition of Terms

Attachment

Attachment is broadly understood as the bond or relationship between a child and their parent or primary caregiver (traditionally the mother) that acts as a protective facilitator for healthy child development (Bowlby, 1958; Bowlby, 1969; Bretherton, 1992). Attachment forms instinctively between the child and primary caregiver as the child's need for safety and security are met through the process of proximity seeking behaviour on the part of the child that is consistently received with sensitivity and responsiveness from the caregiver (Ainsworth et al., 1978; Bowlby, 1958; Bretherton, 1992).

Attachment Patterns

Attachment patterns are categorized into four main types: secure attachment (child trusts caregiver to meet needs, caregiver is sensitive and responsive), ambivalent (or resistant) attachment (caregiver is unpredictable in responsiveness, child is ambivalent or resistant towards caregiver following times of distress), avoidant attachment (child ignores or moves away from caregiver following times of distress, caregiver frequently unresponsive to needs of child), and disorganized attachment (child responds in disorganized/inconsistent manner during times of distress and may have experienced significant trauma during infancy, caregiver unable to meet needs of child consistently –

often due to underlying trauma or loss) (Ainsworth et al., 1978; Main & Solomon, 1990). Some estimates suggest that approximately 55% of infants in the general population can be classified as having a secure attachment, 23% as having avoidant attachment patterns, 8% with ambivalent attachment patterns, and the remaining infants would fall under the disorganized attachment classification (Benoit, 2004; Lyons-Ruth, 1996).

Attachment Security

Attachment security is a categorical representation of the nature of the attachment relationship between the parent and child and includes the classifications of attachment patterns as established by Ainsworth et al. (1978) and Main and Solomon (1990) (secure attachment, insecure attachment (ambivalent, avoidant), and disorganized attachment).

Mutuality

Mutuality is a construct representing the reciprocity, cooperation, shared affect, and synchrony that exists in a bidirectional process within relationships (Aksan et al., 2006; Deater-Deckard et al., 1997; Deater-Deckard & O'Connor, 2000; Kochanska, 1997; Lindsey & Mize, 2000). Mutuality in the context of parent-child interaction may include sustained eye contact and smiling between parent and child, a turn-taking quality in conversation, and responding to verbalizations in a timely and frequent manner (Askan et al., 2006; Deater-Deckard & O'Connor, 2000; Deater-Deckard & Petrill, 2004)

Dyadic Mutuality

Dyadic mutuality is the specific operationalization of mutuality as it exists in the context of the parent child relationship. Dyadic mutuality can be described as the establishment and continuance of interactions within the parent-child dyad that are synchronous, responsive, benevolent, and bidirectional (Deater-Deckard & Petrill, 2004).

The Strange Situation Procedure (SSP)

The SSP was operationalized by Mary Ainsworth and her colleagues in the influential Baltimore study on mother-infant attachment (Ainsworth et al., 1978). The SSP is a standardized procedure that includes three essential elements: a strange environment, the introduction of a stranger, and the separation of the caregiver (van Rosmalen et al., 2015). The 8 events that occur during the SSP have been described by van Rosmalen et al. (2015) in the following summary:

> In episodes 1–3, the child (in the company of the caregiver) is first confronted with a strange environment (a playroom) and then with a stranger (an unknown research assistant). During the fourth episode, the caregiver leaves the room and the infant is left with the stranger. The caregiver returns during the fifth episode and the stranger leaves. The caregiver then leaves again (episode 6), which means the infant is alone in the room. The stranger returns (episode 7), and eventually the caregiver also returns (episode 8) (van Rosmalen et al., 2015, p. 265).

The caregiver is given further instruction to avoid initiating interactions with the child and the behavior of the child is carefully examined during the reunion phases of the procedure (Ainsworth et al., 1978; van Rosmalen et al., 2015). From this examination of behaviour, the classification of attachment security between the child and caregiver (secure, insecure avoidant, insecure ambivalent, or disorganized) can be understood.

Circle of Security® Parenting

Circle of Security® Parenting (COSP™) is an attachment-based parenting intervention rooted in the strengths-focused approach which includes a visual framework (Appendix A) depicting attachment relationships between caregiver and child (Powell et

al., 2013). Huber et al. (2018) state that the aim of COSP™ is "to increase caregivers' capacity to meet their children's needs by providing a map of a secure relationship and then video-based practice with relationship-focused observation, reflection, and empathy" (p. 3). COSP™ is available as an intensive 20-week individualized program known as the Circle of Security-Intensive (COS-I), which is an early psychotherapeutic and psycho-educational intervention (Huber et al., 2018). COSP™ is also offered as an 8-week manualized preventative intervention program known as Circle of Security® Parenting™ (COSP™), which is intended for broader community implementation (Cassidy et al., 2017; Cooper et al., 2018). The manualized intervention is delivered following specific and pre-determined guidelines for administration to ensure fidelity of the intervention across various delivery sites and to enable Registered Circle of Security Facilitators® from a wide range of backgrounds and disciplines to offer the program in diverse community settings. Circle of Security International offers 4-day in-person experiential training around the world.

Background

My thesis research is rooted in the theories of attachment and dyadic mutuality. I am evaluating the COSP™ program, which is an attachment based parenting intervention, utilizing an observational measurement tool developed to operationalize dyadic mutuality - the Parent child interaction system (PARCHISY; Deater-Deckard, 2000; Deater-Deckard et al., 1997). The intervention phase of this pilot study occurred in 2016 and this thesis project will analyze the results of data generated during this intervention period. For the remainder of this thesis, I will use the term "parent" rather

than parent and caregiver interchangeably. My assumption, however, is that the term

parent encompasses all primary caregivers, including grandparents and foster parents.

Attachment Theory

Attachment theory is at the foundation of many current parenting interventions

including COSP™ (Powell et al., 2014). John Bowlby is largely credited as the founder

of attachment theory. In his early work *The Nature of the Child's Tie to his Mother*,

Bowlby (1958) suggested that attachment behavior aims to bond an infant-mother dyad

in a mutually reciprocal way. In a later series of lectures titled *A Secure base: Parent-*

Child Attachment and Healthy Human Development (Bowlby, 1988), Bowlby described

attachment as "any form of behaviour that results in a person attaining or maintaining

proximity to some other dearly identified individual who is conceived as better able to

cope with the world" (p. 25-26). Bowlby further proposed that attachment be understood

as an evolutionary desire for protection and safety that causes the child to seek proximity

to their primary caregiver as a secure base, and that the lived experience of this

attachment relationship establishes mental representations or internal working models

(IWM) within the child that determine how they relate to themselves and to others

(Bretherton, 1997).

Mary Ainsworth contributed significantly to this conceptual understanding of

attachment through her empirical research using the Strange Situation Procedure (SSP).

The SSP is considered the gold standard for observational measurement of attachment

security (Matias et al., 2014). Ainsworth is also largely credited for the development of

the attachment classifications that are widely accepted today, which are: secure, insecure

avoidant, and insecure ambivalent (Ainsworth & Bell, 1970; Ainsworth et al., 1971; van

Rosmalen et al., 2015). In a later study by Main and Soloman (1986), the disorganized attachment classification was identified and added to the theoretical understanding of attachment.

Attachment security is a categorical representation of early parent-child interaction patterns which influence several developmentally essential outcomes in early childhood and provide the context for socialization (Deater-Deckard & O'Connor, 2000; Kochanska, 1997; Kochanska et al., 2008). Poor parent-child relationships are associated with negative outcomes related to social-emotional regulation, peer competence, prosocial behavior, and socialization (Deater-Deckard & Petrill, 2004; S. Kim & Kochanska, 2012; Kochanska & Askan, 2004; Lindsey et al., 1997; van der Voort et al., 2014). Over the last several decades there has been a shift in understanding related to the mechanisms that influence the parent-child relationship and the effects of dyad interaction on overall attachment security (Lindsey & Mize, 2000; Maccoby, 1992). An important antecedent to secure attachment is caregiver contingent responsiveness which can be described as a caregiver's appropriate, timely, and proportional responsiveness toward the cues and behaviour of the child (Ainsworth et al., 1978; Bornstein & Manian, 2013; Bowlby, 1969; Dunst & Kassow, 2008). Caregiver responsiveness is explicitly measured by several constructs including sensitivity and mutuality (Dunst & Kassow, 2008).

Dyadic Mutuality

Mutuality is a construct that has been associated with secure attachment relationships and healthy developmental outcomes in children including socialization and conscience development (Deater-Deckard & Petrill, 2004; S. Kim et al., 2015; Kim &

Kochanska, 2012; Kochanska & Askan, 2004; Kochanska & Murray, 2000). Various

constructs describing parent-child (or dyadic) mutuality emerge in the literature including

Mutually Responsive Orientation (MRO) (Kochanska, 2002), interactive contingency

(Beebe et al., 2008), and dyadic synchrony (Harrist & Waugh, 2002). Consistent within

the various definitions of mutuality, is the conceptualization of mutuality as a

bidirectional process between parent-child that influences developmental outcomes

(Askan et al., 2006; Deater-Deckard & Petrill, 2004; S. Kim et al., 2015). For the

purposes of this research, the term dyadic mutuality will be used to refer to the

bidirectional relationship and mutuality that exists between the parent and child.

Mutuality has been operationalized to include several sub-constructs such as

reciprocity, co-operation, shared positive affect, mutual responsiveness, harmonious

communication, synchrony, and mutual compliance (Aksan et al., 2006; Deater-Deckard

et al., 1997; Deater-Deckard & O'Connor, 2000; Kochanska, 1997; Lindsey & Mize,

2000). Dyadic mutuality in the parent-child dyad can be described as "the formation and

maintenance of emotionally warm, mutually responsive and well-synchronized

interactions" (Deater-Deckard & Petrill, 2004, p. 1171).

Since mutuality is an indicator of parent-child relationship quality, and the quality

of a child's early attachment relationships is a key indicator of healthy developmental

outcomes, examining changes in mutuality may provide additional support for the use of

attachment-based interventions, such as COSP™, to increase parenting competencies

that contribute to increased attachment security. Moreover, early disruptions in dyadic

mutuality can have clinically significant implications for the child's ability to self-

regulate and may lead to dissociative patterns in adulthood (Boris et al., 2019; Lyons-

Ruth et al., 2006), therefore addressing these patterns early in a child's developmental trajectory is vitally important for mitigating long-term negative health outcomes.

Parenting Dimensions

Various elements of parenting have been operationalized by researchers to explore the impact that parenting has on child development. A substantial volume of empirical literature exists that has examined parenting styles, parenting dimensions, and parenting practices as key indicators of parenting quality (Kuppens & Ceulemans, 2019). Parenting styles have traditionally been defined into four categories: authoritative, authoritarian, neglectful, and permissive based on the work of Diana Baumrind, Eleanor Maccoby and John Martin (Power, 2013; Kuppens & Ceulemans, 2019). The operationalization of these styles has frequently included definitions encompassing parental control and warmth as measurable dimensions (Dallaire & Weinraub, 2005; Power, 2013). Warmth typically includes measures of the affective quality of parenting practices whereas control refers to measures of parental demandingness and/or disciplinary practices (Power, 2013). Negative parenting behaviors such as hostility or demandingness have been linked to maladaptive developmental outcomes (Slatcher & Trentacosta, 2012; Thompson et al., 2014; Zemp et al., 2014), conversely, positive parenting behaviours such as warmth and sensitivity have been associated with prosocial behaviour and increased attachment security (Gregory et al., 2018; Knerr et al., 2013; Liew et al., 2017).

Parenting programs and interventions usually target changes in the parent-child relationship by providing resources, support, and education aiming to improve parent perceptions of their child or by increasing positive parenting behaviours (O'Connor et al.,

2013; Sitnick et al., 2015; van Aar et al., 2017). Since the priority for most parenting interventions remains establishing healthy relational patterns between parents and their children, understanding the specific mechanisms and parenting dimensions by which this is achieved, as well as the specific populations most likely to benefit from different interventions, can enhance the program offerings available to families presenting with attachment-related challenges.

Statement of Problem

Most of the research related to COSP™ has focused on the COS-I intervention and its application to various risk groups, rather than the COSP™ intervention that is more accessible across a wider range of clinical and community settings (Huber et al., 2018). Recent research related to the COSP™ intervention has found that child attachment security did not change following the 8-week program, however, some findings suggest that COSP™ participants report enhanced competence in relational measures that foster secure attachment behaviours in the dyad relationship (Huber et al., 2018; Cassidy et al., 2017). A contextual understanding of the nature of these competency shifts, and the behaviours most likely to be influenced by the intervention, can assist in establishing more robust guidelines for broad implementation. Furthermore, this understanding can facilitate additional insight into the populations most likely to benefit from the COSP™ program.

Funamoto and Rinaldi (2014) suggest that multifaceted constructs such as those existing within the context of a parent-child dyad require direct assessment through behavioural observation methodology which removes biases commonly found in self-report and interview-based methods. Another challenge that arises when investigating

changes in parenting, is the cost prohibitive nature of observational study. Many observational research tools require highly specialized training and are both time and resource intensive to administer (Funamoto & Rinaldi, 2014). There is a demonstrable need for observational tools that are easily accessible and require less intensive training to implement and code. One such tool is The Parent-Child Interaction System (PARCHISY; Deater-Deckard et al., 1997; Deater-Deckard, 2000). The PARCHISY is a behavioural observation tool that measures several properties of parent, child, and dyadic interaction including composite measures of dyadic mutuality, parent positivity, and parent negativity (Deater-Deckard et al., 1997; Deater-Deckard, 2000).

Study Aim and Objectives

The aim of this study is to quantitatively determine changes in parent-child mutuality and changes in the positive and/or negative quality of caregiver interactions utilizing a quasi-experimental design and previously generated and scored pre- and post-observation data to evaluate 8-week COSP™ program offerings. Parent-child dyads were assessed before and after completing COSP™ using the PARCHISY observational tool (Deater-Deckard et al., 1997; Deater-Deckard, 2000). The proposed study will address two objectives: 1) to measure changes in parent-child mutuality, based on the PARCHISY scores from before and after COSP™ program offerings; and, 2) to measure changes in parent positivity and negativity, based on the PARCHISY scores from before and after COSP™ program offerings.

Chapter 2. Review of the Literature

Circle of Security®

The Circle of Security® is a visual map

(https://www.circleofsecurityinternational.com/circle-of-security-model/what-is-the-circle-of-security/) (see Appendix A) that incorporates/applies theoretical constructs from attachment theory with the aim of changing attachment-focused relationship dimensions between caregiver and child (Hoffman et al., 2017; Powell et al., 2014). A key tenet of this intervention is rooted in Bowlby's (1988) claim that caregivers facilitate secure attachment when they are both a 'secure base' from which the child can explore their environment, and a 'safe haven' to which the child can return when in distress. The COS-I 20-week protocol includes a mixed delivery model of individual and group-based sessions and requires a pre-intervention and post-intervention assessment of attachment between caregiver-child. COS-I is delivered weekly in a series of small group sessions (n=4-6) along with individual sessions facilitated by a licensed clinical practitioner (therapist or counselor). In the small group sessions, caregivers are given feedback from clips of videotaped interactions between themselves and their child during a strange situation procedure that is recorded in the pre-intervention phase of the program (Powell et al., 2014).

Five key outcome goals are identified by the originators of the COS intervention which are: (1) provide caregivers with a secure base during the weekly sessions so that the caregiver can safely reflect on the dyad relationship, and their relationship with their child; (2) present a framework of fundamental attachment needs to improve caregiver responsiveness and sensitivity in the parent/child dyad relationship; (3) build caregiver

capacity in identification of explicit and subtle attachment cues and miscues that are given by the child to indicate their needs and internal states; (4) enhance empathy of caregiver through reflective assessment of attachment-focused dyad interaction; and (5) establish awareness of caregiver's personal attachment history that influences their parenting behaviors (Hoffman et al., 2006). COS™ differs from other attachment-based interventions in that it: (a) it assumes an individualized approach using the attachment classification of the dyad; (b) it aims to alter caregiver behaviour as well as the internal working models (IWM) of the caregiver; (c) it includes a graphically represented framework intended to give caregivers a visual tool to understand the nature of the attachment relationship; (d) it provides reflective opportunities and language to describe caregiver self-protective mechanisms and how these mechanisms can be triggered by underlying anxiety; and (e) it includes a standardized protocol delivered by expert clinicians (Hoffman et al., 2006).

Given the time and resource-intensive nature of the 20-week COS-I, a manualized and more scalable 8-week adaptation of the intervention, Circle of Security Parenting™ (COSP™), was developed for use with groups or individual dyads (Horton & Murray, 2015; Kohlhoff et al., 2016). COSP™ is intended for a broad application in community and sub-clinical settings and can be delivered by trained facilitators from a wide range of sectors and disciplines; however, little is currently known about its efficacy or the groups who may benefit most from the intervention. Attachment is a complex and multifaceted construct that requires consistent and long-term adjustment and sensitivity within the parent-child relationship (Hoffman et al., 2014). Since shifts in attachment security may not occur within the short timeframe of the 8-week COSP™, it is essential to understand

what dimensions of attachment behaviour might be influenced by the intervention and how these may contribute to increased attachment-related outcomes.

Several constructs such as caregiver emotional regulation (Horton & Murray, 2015), emotional availability (Risholm Mothander et al., 2018), caregiver depressive symptoms (Kohloff et al., 2016; Maupin et al., 2017), caregiver psychosocial functioning (Cassidy et al., 2010; Huber et al., 2016), caregiver sensitivity (Andrews, 2019), caregiver reflective functioning (Huber et al., 2015; Kohlhoff et al., 2016), and caregiver stress (Huber et al., 2016; Krishnamoorthy et al., 2020), have all been used as outcome measures of the COSP™ interventions. Mutuality has yet to be assessed as an independent construct within the COS™ research and there have been no studies measuring parent-child mutuality pre/post COSP™ intervention.

COS-I Efficacy Research

A protocol-development study was conducted by Hoffman et al. (2006) for the 20-week COS-I with participants (n=65) from Head Start and Early Head Start programs in the United States. The Strange Situation Procedure (SPP) was used pre- and post-intervention to measure child attachment security and results from this study indicated an overall decrease in attachment insecurity with approximately 44% of the pre-intervention 'insecure' children moving to 'secure' post-intervention (Hoffman et al., 2006). This initial study yielded favorable results supporting the implementation of COS-I in clinical settings.

Cassidy et al. (2010) recruited a sample (n=20) of pregnant women in a jail-diversion program to participate in an exploratory study using an adapted version of COS-I called the Circle of Security Perinatal Protocol (COS-PP™). The women were

placed in small groups (n=6) and during the final trimester of pregnancy began bi-weekly meetings for COS-PP™ (Cassidy et al., 2010). The researchers used a combination of stock video from previous COSP™ participants, and a series of clips from current participant dyad-interactions recorded after infants turned 2 months old. Several measurement tools were employed during this study including the use of the SSP to assess infant attachment classification. The women were further assessed for maternal sensitivity, attachment style, and measures of psychosocial functioning. Consistent with the results from Hoffman et al. (2006), infant attachment security was higher post COS-PP™ than in other samples of high-risk populations. Additionally, maternal depression scores from the Beck Depression Inventory (BDI) showed an overall decrease in depressive symptoms between pre- and post-intervention assessment. Given the lack of a control group and the overall nature of the jail-diversion program, which offered a series of services and interventions to the participants, the Cassidy et al. (2010) cautioned that many variables may have contributed to the findings and recommended that further research is necessary to understand the application of COS-I in clinical samples.

In an RCT, Cassidy et al. (2011) used an adapted version of the COS-I delivered in a series of 4 home visits (COS-HV4) to a sample of 'economically-stressed' mothers with irritable infants. The control group (n=88) received psychoeducational sessions delivered on a similar timeline as those in the intervention group (n=85) who received the COS-HV4 sessions. Infant attachment was assessed using the SSP and maternal attachment anxiety and avoidance was measured using a self-report measure, the Experiences in Close Relationships scale (ECR). The findings of this study did not

demonstrate a main intervention effect (Mercer, 2015); however, they did show an increase in attachment security for infants rated as highly irritable (Cassidy et al., 2011).

In an experimental study by Dehghani et al. (2014), mother-child dyads were recruited (n=48) and placed into the control group (n=24) or experimental group (n=24) that received the COS-I intervention. The Attachment Q-Set (AQS) was used to assess attachment security before and after a 20-week COS-I intervention. The AQS is a 90 item card series that contains attachment-related behavioral descriptors of children. The cards were sorted by the caregiver into different piles ranked "most characteristic of the child" to "least characteristic of the child" (Dehghani et al., 2014). Card placement is scored and correlated with a 'secure' child profile to obtain the attachment classification of the child. In this study, the researchers also assessed child well-being as an outcome measure of the intervention. The study results demonstrated a significant difference in attachment security pre vs. post intervention as well as an increase in child well-being.

Huber et al. (2015a, 2015b, 2016) have contributed to the COS-I literature through 3 studies conducted using archived data from a clinical sample (n=83) referred to a clinic specializing in early childhood mental health due to child behaviour challenges and/or mental health concerns. The first study (Huber et al., 2015a) assessed attachment security, caregiver reflective function (CRF), caregiver representations (CR), and moderating effects of CRF/CR on intervention efficacy. Pre-intervention assessments included the SSP (or a modified separation/reunion event for children >48 months) to classify child attachment security, and The Circle of Security Interview which assesses several dimensions of caregiver perceptions of self/child and is described in detail in Powell et al. (2014). The Circle of Security Interview was then coded to assess for CRF

and CR. Results of this study yielded significant changes in CRF, CR, and some dimensions of attachment security, however, attachment security classification did not significantly change following the intervention.

In the second study using the same clinical sample (Huber et al., 2015b), the researchers assessed emotional and behaviour outcomes of the children of the participating parents. The Devereux Early Childhood Assessment-Clinical (DECA-C) questionnaire and the Child Behaviour Checklist and Carer/Teacher Report forms were completed by parents and teachers (where applicable) to assess behavioural and emotional adaptation. Following the intervention, parents reported significant improvements in their child's behaviour and an increase in 'protective factors' (e.g., initiative, self-control, attachment) as measured by the DECA-C. Teacher ratings reported some improvements in externalizing behaviour.

The third study (Huber et al., 2016) conducted with this sample, measured the emotional function of parents pre/post-intervention. Data were collected from self-report measures completed by the parent including parental stress levels as measured by The Parenting Stress Index (PSI), caregiver mental health states as measured by the Symptom Checklist-90 (SCL-90), and results from the previous CRF/CR outcomes (Huber et al., 2015a) were used as moderators. Results from this study demonstrated overall reduction in parental stress and mental health symptomology with the largest changes occurring for the families who presented with the most serious concerns at the outset. While all 3 of these studies yielded post-intervention changes, the lack of a control group and use of archived data present some limitations. Additionally, none of these studies included

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observational data outside of the SSP/separation-reunion attachment classification which lends to potential self-report bias in the collected data.

The most recent RCT utilizing the 20-week COS-I protocol was conducted by Ramsauer et al. (2019) with a group of mothers experiencing postpartum depression. The study included a control group of treatment as usual (TAU) mother-child dyads (n=36) and an intervention group (n=36) who completed COS-I in the traditional small group format (n=6). Results from this study did not reveal any differences in infant attachment security which was measured post-treatment using the SSP (Ainsworth et al., 1978). Initial SSP data was not measured in the pre-intervention phase due to age constraints of the sample (<12 months old).

Despite ongoing implementation of the COS-I, there remains a limited body of research examining its efficacy (Mercer, 2015; Yaholkoski et al., 2016). Many of the studies referenced here have included adapted protocols of the original COS-I intervention and there is a lack of independent research to date. In a review of COS research, Mercer (2015) highlighted the lack of replication and randomized control trials (RCT) across the COS-I literature and advocated for more robust experimental studies to sufficiently address the efficacy of the COS-I at increasing attachment security. Furthermore, some studies have suggested that shorter and less resource-intensive interventions might be more effective at increasing attachment security and producing positive attachment-related behavioral outcomes (Bakermans-Kranenburg et al., 2003). This situates the 8-week COSP™ in an advantageous position within the larger context of parenting interventions. While there remains a growing body of literature to support

the implementation of the 20-week COS-I, there is little research available on the efficacy and delivery of the adapted COSP™ intervention.

COSP™ Efficacy Research

In a pilot study, Coleman (2014) assessed a sample (n=7) of opiate dependent parents who participated in the COSP™ over a period of 8 weeks. Results from this before/after pre-test/post-test study included a reduction in parent reports of stress, depression, and anxiety. Attachment security was measured using the Caregiving Helplessness Questionnaire (CHQ), which is a screening tool that assesses disorganized attachment in the parent-child dyad from three subscales "mother helplessness, mother-child frightened, and child caregiving" (Coleman, 2014). The study yielded no significant findings in changes associated with the CHQ, however the small sample size and timing of the assessment, which occurred immediately following the intervention, may have contributed to these results. Considering the complexity of the attachment relationship, it is not surprising that 8 weeks might not be long enough to produce significant changes in overall attachment security. Future longitudinal research is necessary to explore the efficacy of the intervention and the long-term consistency of caregivers' ability to implement changes accrued during participation in the intervention.

Horton and Murray (2015) recruited a clinical sample (n=15) of mothers in a treatment program for substance-use issues to participate in the COSP™ intervention. Only 9 of the mothers attended at least 6/9 sessions (full dose), while other 6 were subdivided into 'partial attendance' (n=4), and no attendance (n=2). These sub-groups were used as control during the analysis phase of the study. The aim of this study was to examine the emotional capacity of parents following the COSP™ intervention and to

examine changes in disciplinary practices and caregiver attributions related to child behavior. Several self-report measures were used before and after the COSP™ intervention, including the Emotion Regulation Questionnaire (ERQ), the Parenting Attribution Test (PAT) which measures parent perceptions of dyad interactions and the underlying causes of successful vs. unsuccessful interaction, the Parenting Scale (PS) which measures disciplinary practices, and the Marlowe-Crowne (MC) which measures 'social desirability' (Horton & Murray, 2015). Following the COSP™ intervention, results indicated mean improvements for the full-dose group on all measured indicators and no changes for the control groups. An important consideration here is that attendance is an important moderator for efficacy of the intervention. While the small sample size limits generalizability, further research is warranted to understand how attendance correlates with efficacy of the COSP™. Additionally, there were no reported observational measures used in this study to assess parent-child interaction and further research examining these interactions could strengthen current understanding of the mechanism of influence of COSP^{TM}.

In a pilot study with a clinical sample (n=15), Kohloff et al. (2016) measured reflective functioning, helplessness, stress, and caregiver feelings toward their child pre- and post-COSP™ intervention. Self-report measures included the Parental Reflective Functioning Questionnaire (PRFQ), Care-Giving Helplessness Questionnaire (CHQ), the 'rejection and anger' subscale from the Postpartum Bonding Questionnaire (PBQ), and the Depression, Anxiety, and Stress Scales (DASS-21). The results yielded favorable outcomes for all key indicators and added support to the efficacy of COSP™ at improving parental reflection, attribution, and stress. Another important note is the lack

of observational assessment data. Future studies with a larger sample, observational measurement data, and a control group design would strengthen the existing COSP™ efficacy literature.

More recently, two RCTs have been conducted on the efficacy of the COSP™ (Cassidy et al., 2017; Risholm Mothander et al., 2018). Cassidy et al. (2017) recruited a sample (n=141; 66 control, 75 intervention) from a Head Start program in the US. The aim of the study was to measure the efficacy of COSP™ at increasing caregiver sensitivity and attachment security. The researchers utilized a series of measurement tools to assess for child attachment security, maternal responsiveness to child distress, child executive function, maternal attachment anxiety, and maternal depression. These measures were assessed using: Preschool Attachment Classification System (PACS), the Coping with Toddler Negative Emotions Scale (CTNES), Puppet-Says Task (PST), Dimensional Change Card Sort (DCCS), Child Behavior Checklist (CBC), Experiences in Close Relationships Scale (ECR), and the Center for Epidemiological Studies Depression Scale (CESDS). Overall, the study showed no main intervention effect on child attachment security, however, unsupportive responses to child distress decreased and child inhibitory control increased in the intervention group. Both of these behaviors have the potential to influence parent-child mutuality (Geeraerts et al., 2020) and an exploration of the efficacy of COSP™ at increasing mutuality might support the use of the intervention in dyads who present with challenges related to caregiver sensitivity or attachment.

In the RCT conducted by Risholm Mothander et al. (2018), a clinical sample (n=52; 24 control, 28 intervention) receiving treatment at a Swedish mental health clinic

for parent-child relational concerns, was recruited for the study. Researchers sought to assess whether COSP™ was effective at changing parent's working models of themselves and their child and improving dyad interaction. Researchers assessed the emotional availability of the dyad along with parental depressive symptoms, parental anxiety, parental stress, infant distress and maladaptive behaviours, and parental representations of their child. Measurement tools included interview and observational measures such as the Working Model of the Child Interview (WMCI) and the Emotional Availability scales (EA), along with initial psychosocial assessment questionnaires. Assessment data was collected pre- and post-intervention and at a 3 time points post-intervention for the EA scales. Observational data was collected during a free-play task and a structured-play task and dyad interactions were coded based on separate parent and child contributions. The emotional availability of each dyad was classified according to the EA quality ratings of "emotionally available, complicated, detached, or problematic" (Risholm Mothander et al., 2018, p. 266). Results of this study demonstrated increases in parent representations and improved emotional availability and dyad interaction. These results suggest that COSP™ might provide parents with a framework that supports a shift in IWMs which could contribute to increased attachment-related behaviours.

In the most recent non-randomized waitlist control study, Maxwell et al. (2021) recruited 256 participants from 4 different sites in 2 Australian cities to assess efficacy measures pre and post COSP™ offerings. Mothers and fathers were both recruited however fathers were removed from the final analysis due to all fathers being available for participation in the treatment group only. The final sample was reduced to 221 participants after accounting for specified exclusion criteria (n=221; 169 treatment, 52

control). Researchers explored whether COSP™ was effective at targeting outcomes directly emphasized as key outcome indicators of COSP™ including: 1) parental mentalization, 2) parental self-efficacy related to empathy, affection, and emotional management, and 3) parental perceptions of their children including reductions in hostility, helplessness, and negative perceptions of the child. They also measured parental depression and examined whether the efficacy of COSP™ differed for participants with higher levels of depressive symptoms.

Measurement tools for this study comprised entirely of self-report measures due to resource limitations and the authors account for this limitation in the study. Since no single measurement tool was available to assess the outcomes of interest, the study authors used subset and individual items from several existing tools including the Diamond Maternal Reflective Functioning Scale, Tool to Measure Parenting Self-Efficacy (TOPSE), Caregiving Helplessness Scale (CHQ), Hostile Parenting scale (from the Longitudinal study of Australian Children) to formulate a 43-item questionnaire entitled the Composite Caregiving Questionnaire (CCQ) (Maxwell et al, 2020). Results of this study demonstrated increases in parental mentalization and self-efficacy along with overall decreases in parental depressive symptoms and negative attributions towards their children. These results further support the findings of Kohloff et al. (2016) that demonstrate changes in mentalization following the COSP™ intervention and they also support previous research which suggests that COSP™ may be especially helpful for parents who present with clinical symptoms of depression (M. Kim et al., 2018; Maupin et al., 2017). While the results of this study show promising effects on parent attitudes and mentalization following a COSP™, there remains a gap in understanding how these

changes may practically alter interactions in the parent-child relationship. The inclusion of observational measurement data and longitudinal measures of parent and child changes over time would provide additional insight for the way COSP™ may improve parenting, and thus child outcomes.

Currently, there has been limited use of observational measures to examine the efficacy of the COSP™ intervention. Observational measures, such as the PARCHISY, could detect changes in dyadic mutuality, as well as behavioral and affective changes of parents in parent-child interactions. Changes in mutuality and positive or negative parenting could reflect shifts in parents' internal working models and provide additional support for the efficacy of the 8-week COSP™.

COSP™ Qualitative Research

Within the Athabasca University-based COSP™ evaluation research program, where the scored pre- and post-observation PARCHISY data were generated, are two completed qualitative studies. Two Master of Counselling thesis students analyzed interview data from parents who participated in COSP™ (Gray, 2018; Lavery, 2018).

In a qualitative descriptive study examining the changes in parent's perceptions of their children following a COSP™ intervention, Gray (2018) found that several important shifts had occurred in the representations parents had of their children. Data were initially collected from a self-referred sample (n=9) over two periods of time following 8-week COSP™ offerings. Four participants agreed to follow up interviews over an online video conferencing platform as part of Gray's thesis study. Several key themes emerged from the interview data including support for perception shifts related to COSP™ participation. Parents identified having obtained an appreciable awareness of

understanding their children's needs and how to respond to those needs more effectively. Additionally, parents reflected on gaining confidence in their parenting approaches, increasing positive communication with their children, prioritizing connection over specific parenting strategies, gaining increased reflective capacity, and an overall increased understanding of the rupture-repair cycle necessary for healthy attachment.

While not explicitly examined in Gray's study, mutuality is associated with many of the shifts that the parents described as a result of the COSP™ intervention. Increasing our understanding of the types of changes parents experience after participation in COSP™, can help ensure accessibility of the program is obtainable for those dyads presenting with challenges most likely to be influenced by the content and outcomes of the intervention.

In another qualitative study based on the same self-referred sample, Lavery (2018) examined changes in parent perceptions of their child's behaviour and perceptions of their responses to child behaviour, pre- and post-participation in the 8-week COSP™ program. Interview and video data were analyzed following transcription of all audio and video recorded interviews. Several themes emerged from the data including shifts in parent's perceptions of their children's behavior following the COSP™ program. These shifts included parents being able to articulate and understand that their child's behaviour was a communicative process requiring parenting support and attention more clearly. Lavery (2018) stated that "parents expressed a greater understanding of the bi-directional influence of emotion, behaviour, and reaction between themselves and their children" (p. 71) and parents expressed an increased awareness of the reciprocal nature of the dyad relationship which represent key indicators of mutuality. Additionally, parents reported

increased empathy, flexibility, and awareness in their own responses to their children's behaviour. These shifts reflect many of the constructs necessary for the development of mutuality and secure attachment.

Both qualitative studies (Gray, 2018; Lavery, 2018) lend support to research that examines the efficacy of the COSP™ intervention through a careful analysis of the constructs influenced by participation in the program. This analysis can provide increased understanding of the benefits or changes that might be observed in a non-clinical sample after taking the scaled version of the COS®, and which attachment-related challenges are best analyzed and addressed through parenting interventions such as COS®.

Dyadic Mutuality

Researcher Grazyna Kochanska has contributed significantly to the understanding and operationalization of mutuality in the parent-child dyad. Kochanska (1997) proposed that attachment security is an important exemplification of dyadic mutuality and that many of the observable constructs present in dyadic mutuality (e.g., positive affect, responsiveness, and cooperation) were also observed within securely attached dyads. Expanding on previous research by Maccoby (1992), who suggested that bidirectional influences between caregiver and child must be examined through a careful analysis of the reciprocal systems existing in the dyad relationship, Kochanska (1997; 2002) operationalized mutuality through her research on mutually responsive orientation (MRO). In this early work, Kochanska (1997) analyzed the responsiveness between mother-child dyads (e.g., cooperation) and positive affect. Results from this study indicated that increased MRO was related to decreased use of coercive disciplinary

techniques by the caregiver and increased internalization of caregiver expectations by the child.

Kochanska (2002) and with colleagues (Kochanska & Aksan, 2006; Kochanska & Murray, 2000) further demonstrated that MRO was linked to the development of children's moral sense which is an important contributor to self-regulation. Moreover, Kochanska and Askan (2004) examined the emergence of mutuality in the context of the parent-child dyad and found that mutuality was largely parent-driven and reflective of the caregiver's responsiveness to their infant. This responsiveness then provides the necessary structure for the infant to engage in a mutually reciprocal relationship with their caregiver later in childhood. Parent-focused interventions such as COSP™ could be evaluated regarding potential changes in mutuality because the program is meant increase parents' capacity to recognize and respond to their child's needs "all around the circle" (Powell et al., 2013; Cooper et al., 2018).

MRO was later reconceptualized to include four subscales: harmonious communication, emotional ambiance, mutual cooperation, and coordinated routines (Askan et al., 2006). Recognizing a limitation to the early conceptualization of MRO, in that the measures used were aggregates of individual contributions to the dyad relationship rather than the specific contributions at the dyadic level, Askan et al. (2006) developed codes to examine these dyadic level contributions. A sample of caregiver-child dyads (n=102) was recruited to assess the validity of the MRO coding scheme when children were 7 months and 15 months. Results of this study indicated that MRO was an independent construct capturing dyadic level relationship qualities that were distinguishable from the qualities of each individual within the dyad. Additionally, MRO

was found to be a stable and consistent measurement between the ages of 7 and 15 months which provides support for the use of MRO as a measurement of relationship quality in the caregiver-child dyad (Askan et al., 2006).

Considering most of the early research related to MRO was focused on infant-caregiver dyads, Deater-Deckard et al. (1997) sought to operationalize mutuality in pre-school and school age children and developed the Parent Child Interaction System (PARCHISY) to assess both individual contributions and dyad contributions in the parent-child relationship. Utilizing this observational measurement tool, Deater-Deckard and O'Connor (2000), contributed to the work of Kochanska by examining within and between family differences in relation to mutuality. In a series of 2 studies, Deater-Deckard and O'Connor (2000) analyzed mutuality in mother-child dyads including twins (n=125) and with adoptive and biological siblings (n=102) at 3 years of age. In addition to observational video data from the PARCHISY, interview and questionnaire data was obtained using the Parent Feelings Questionnaire (Deater-Deckard, 2000), Strengths and Difficulties Questionnaire (Goodman, 1997), EAS Temperament scale (Buss & Plomin, 1984), Bayley Infant Behavior Record (Bayley, 1993) along with semi-structured interview data to generate general assessments of the family environment and disciplinary approaches. Results from these studies demonstrated mutuality to be higher in families with greater socioeconomic resources and where children were rated as having more positive dispositions. Moreover, mutuality was found to be dyad-specific within families which suggested that parents may engage in different parenting behaviors based on unique contributions from and/or attributes of each child. Since one of the key aims of COSP™ is to provide a framework or road map for parents to understand the

attachment relationship, rather than specifically teaching behavioural techniques, this could be considered a strength of the intervention in that it enables a shift in mentalization rather than emphasizing specific behaviours that may not actually be used by parents in dyad-specific interactions.

In subsequent descriptive research by Deater-Deckard and Petrill (2004), low levels of mutuality in the mother-child dyad were associated with poor behaviour outcomes and the researchers proposed that "the mutuality construct captures at the behavioral level some of the underlying co-regulation (between child and parent) of internal states that is itself linked to self-regulation" (p. 1176). The relationship between mutuality and children's self-regulation was further explored by Kochanska et al. (2008) and increased levels of MRO in the first two years of childhood were significantly related to increased self-regulatory behaviours in children. More recently, S. Kim and Kochanska (2012) found a significant positive link between mutuality and self-regulation, particularly in infants who demonstrated higher levels of negative emotionality. Understanding mutuality as an outcome of the COSP™ intervention could provide additional support for recommending the program to dyads who present with negative emotionality concerns. It is clear from the mutuality literature that there remains a significant link between mutuality and developmental outcomes.

Parenting Quality

Affect and sensitivity are central contributors to a parent's ability to respond to the needs of their child and facilitate a healthy attachment relationship. Positive affect can increase prosocial behaviour and adaptive functioning within the context of attachment security (Davis & Suveg, 2014). Children are influenced by the positive

emotional climate of their caregivers and negative parent-child interactions have been shown to negatively impact overall child executive function (Hughes & Devine, 2019). Furthermore, there is some research that suggests positivity and warmth in the parent-child relationship can act as a moderator for parental negativity thereby decreasing harsh disciplinary techniques and subsequent externalizing behaviours in children (Deater-Deckard et al., 2006; Oliver & Pike, 2018). Since COSP™ aims to improve caregiver responsiveness and sensitivity, examining changes that occur in the overall positive or negative quality of parent inferences regarding and interactions with their child may provide insight into the influence COSP™ intervention has on positive or negative parenting quality.

Observational Measurement Tools of Parent-Child Interaction

Observational measures designed to assess attachment security such as the SSP are the gold standard in attachment research (van Rosmalen et al., 2014; Ziv & Hotam, 2015). Many studies rely on SSP or other separation/reunion procedures as observational measurement to assess attachment security before and after parenting programs. However, the SSP is costly and time intensive (Cadman et al., 2018) and it requires parents and their children to travel to an assessment lab to participate, which is outside of the naturalistic setting most likely to reflect the daily experience of the caregiver-child dyad. Additionally, SSP has not been validated for use in children beyond 18 months of age (Ziv & Hotam, 2015) and alternative measures or adaptations would need to be implemented when studying families with older children who participate in the COSP™ intervention. Considering the short timeframe of delivery for the COSP™ 8-week intervention, and the potential for widespread usage across several community and

clinical settings, a full observational assessment of attachment security to assess efficacy may not be feasible given the limited resources for many organizations. Furthermore, Matais et al. (2014) discuss the importance of measuring attachment beyond traditional separation/reunion measures. It should be noted that for dyads who present with significant attachment-related concerns, use of the 8-week COSP™ as a primary treatment modality is not recommended. These dyads would benefit from participation the 20-week COS-I and individualized care by a licensed practitioner. Researchers interested in studying the efficacy of the 20-week COSI may utilize more complex and intensive research protocol which necessitates the use of measurement tools such as SSP.

For researchers wanting to determine the efficacy of the 8-week COSP™ intervention and which dyads may benefit from participating in it, a scalable observational measurement tool that assesses the nature and quality of the parent-child relationship is essential. Moreover, a before and after protocol for assessing elements of the parent-child relationship, in the way the SSP has traditionally supported observational assessment of attachment security, can provide additional opportunities for researchers to explore the efficacy of the 8-week COSP™ in a Canadian context. The PARCHISY was therefore piloted as a scalable observational measurement tool to evaluate a parenting intervention program in this thesis research since it is less time intensive to implement and code, it can assess dyadic interaction quality beyond infancy, and the training requirements are significantly less intensive than the SSP.

Chapter 3. Theoretical Framework

Introduction

The theoretical framework for this study is situated in the theories of Attachment (Ainsworth et al., 1978; Bowlby, 1958, 1969; Bretherton, 1992) and Family Systems Nursing Theory (Wright & Leahey, 2009). The family is a dynamic sociocultural system that is comprised of several subsystems and relationships between individual members (Doane & Varco, 2013). These relationships form a complex interdependence amongst members that facilitate bidirectional and cyclical processes of relating and existing (Hinde & Stevenson-Hinde, 1987; Kuczynski, 2003). Reciprocal interactions between family members, along with internal and external contextual influences, affect the health and well-being of each family member (Stevenson-Hinde, 1990; Wright & Leahey, 2009). The parent-child dyad is the foundational structure for child development and socialization within the family system (Deater-Deckard & O'Connor, 2000; Kochanska, 1997; Kochanska et al., 2008). Poor caregiving and parent-child interaction patterns can lead to disrupted developmental outcomes and decreased social-emotional competence, peer competence, moral development, and self-regulation (Deater-Deckard & Petrill, 2004; S. Kim & Kochanska, 2012; Kochanska & Askan, 2004; Lindsey et al., 1997; van der Voort et al., 2014).

Conceptual Framework

The conceptual framework for this study merges the theoretical framework with the outcome goals of the COSP™ intervention and the hypotheses of the study regarding potential changes in parent-child interactions and mutuality. In Figure 1, the parent and child are centered and individually represented along with a representation of the parent-

child dyad. These circles overlap to demonstrate the individual contributions that both child and parent bring to the relationship along with arrows indicating the bidirectional nature of the relationship. The red circles denote underlying contributors that impact the ways members of the dyad engage and interact with one another. The parent-child dyad is situated within a larger group of 4 circles as a visual representation of the interconnectedness of the COSP™ intervention, mutuality, attachment security, and sociocultural contexts that can influence the functioning of the dyad relationship. The outer 3 circles reflect the constructs that contribute to and stem from increased dyadic mutuality. The green arrow delineates the potential impact of COSP™ on mutuality and the resulting research question of whether there is a shift/change in parent-child mutuality following an 8-week COSP™ intervention.

Figure 1: Conceptual Framework
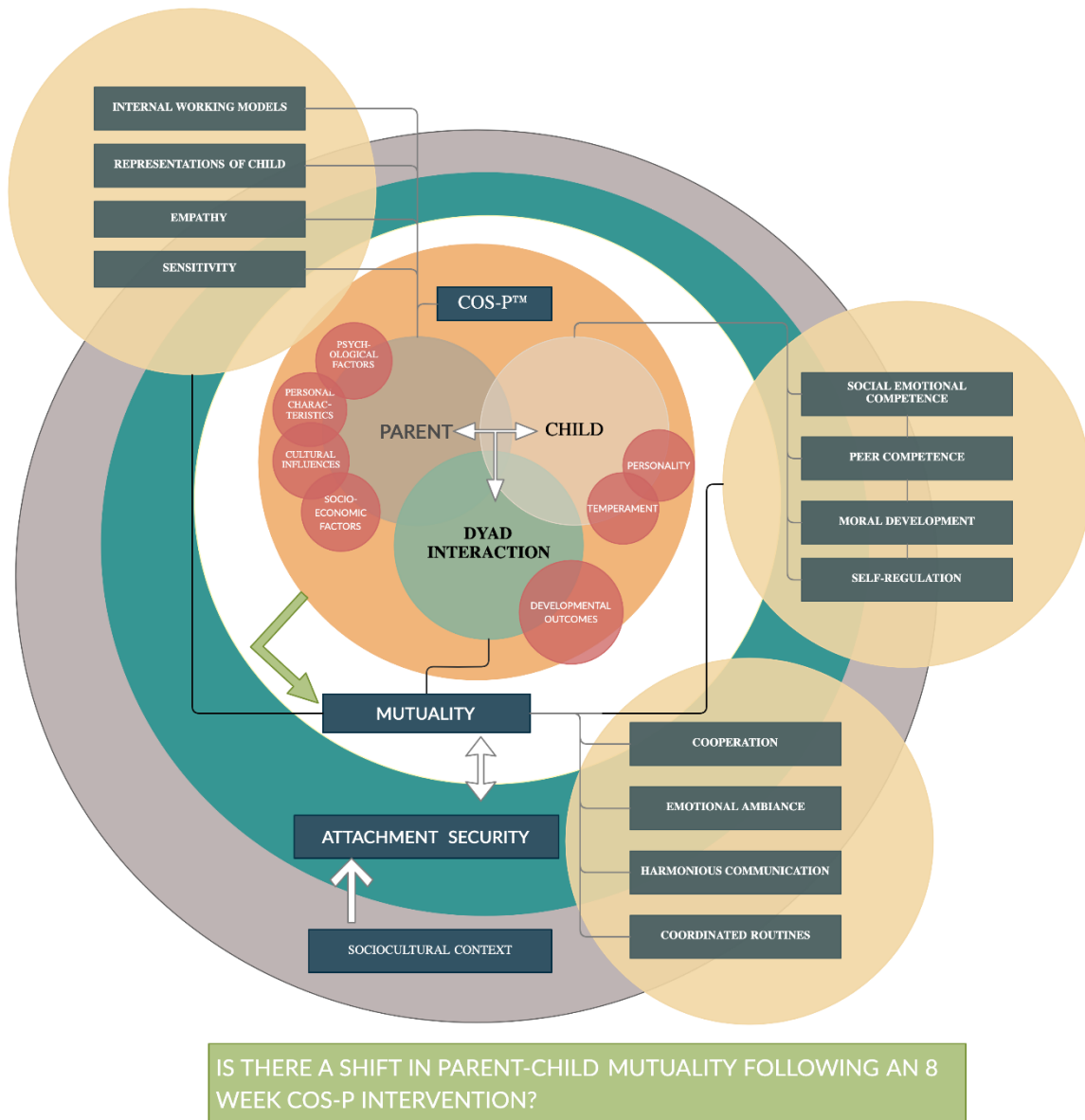
Chapter 4. Methodology

Methodological Paradigm

This research falls within the positivist and post-positivist paradigms. Positivism assumes that there is an objective reality that can be observed and understood through careful analysis of the fixed laws of nature (Rehman & Alharthi, 2016); that positivism is ontologically rooted in realism and epistemologically rooted in objectivism. This paradigmatic approach assumes that the researcher is an objective witness who applies the scientific method to understand and describe natural and social phenomena using an authentic process (Rehman & Alharthi, 2016). Post-positivism developed in response to several criticisms of positivism including the lack of acknowledgment of the contextual influences that the researcher's beliefs and values may contribute to the analysis and observation of reality (Rehman & Alharthi, 2016). Post-positivism emphasizes "operationalization, observation and measurement of objective reality, quantification, and verification" (Postpositivism, 2010). The ontological assumptions of post-positivism differ from positivism by applying a critical lens to the realist perspective. In so doing, the researcher acknowledges that there are socially influenced contextual experiences within which humans live and function and that reality can only be known imperfectly (Rehman & Alharthi, 2016).

Ryan (2019) describes the application of critical realism as an evaluative approach that can inform nursing research by exploring "what works, for whom, and in what circumstance" (p. 24). The present study will be using a single-group, pre-test/post-test design to understand changes in mutuality before and after an 8-week COSP™ intervention. This study can provide additional support for the use of the COSP™ as a

broadly applied community-level intervention for parents and their children and can add to the growing body of literature exploring who might benefit most from the COSP™ intervention.

Research Questions

In the current COSP™ efficacy literature, there have been limited studies exploring the effects of the intervention using observational measures to detect parent-child behavioral changes (Risholm Mothander et al., 2018). To date, no studies have examined changes in dyadic mutuality following the COSP™ intervention. However, several of the existing studies have reported changes in parent perceptions of their child (Gray, 2018; Horton & Murray, 2015; Koholff et al., 2016; Lavery, 2018; Maxwell et al., 2021) which is a contributor to attachment security and a key target of COSP™ programming (Powell et al., 2014). Caregiver sensitivity and responsiveness are influenced by parent perceptions of their child and both of these constructs also contribute to dyadic mutuality (Askan et al., 2006; Deater-Deckard et al., 1997; Dunst & Kassow, 2008). Therefore, an examination of these interrelated constructs is a logical next step. The research questions guiding this study are: 1) Is there a change in observed parent-child mutuality as measured by the PARCHISY global rating scale following an 8-week COSP™ intervention? and, 2) Is there a change in observed parent positivity or negativity behaviours as measured by the PARCHISY global rating scale following an 8-week COSP™ intervention?

Hypotheses

To address the aforementioned research questions, three hypotheses pertaining to PARCHISY will be tested. Between Time 1 (pre-COSP™) and Time 2 (Post-COSP™):

H1: There will be an increase in dyadic mutuality across tasks from T1 to T2

H2: There will be an increase in parent positivity across tasks from T1 to T2

H3: There will be a decrease in parent negativity across tasks from T1 to T2

Research Methods

The present study was a single group pretest/posttest quasi-experimental design. Participant data had already been generated through videotaped and coded parent-child interactions pre and post the 8-week COSP™ intervention using the PARCHISY in-home protocol (Rempel et al., 2016) and the 18-item global rating scale for parent-child interaction (Deater-Deckard et al., 1997; Deater-Deckard, 2000). In this thesis research, I analyzed the results of the observed parent-child interactions using the PARCHISY scores from pre- and post-COSP™ program run in 2016. Since data were generated at an earlier date, the data files were not opened until the data analysis phase of this current study to minimize researcher bias and protect the integrity of the research process.

Participants

A total of 38 participants (17 parents and 21 children) were recruited for the original PARCHISY-COS-P™ study by the principal investigator (PI) Dr. Gwen Rempel and co-principal investigator (Co-PI) Dr. Gina Wong. Parent-child dyads were recruited using convenience sampling through three different COSP™ course offerings, 2 within the greater Edmonton area and 1 in rural Alberta. A total of 10 families including 2 sibling sets (n=22; 10 parents, 12 children) were recruited through CASA, an Edmonton-based treatment program for infants, children, and adolescents with behavioural concerns. When children are referred to CASA, their parents are encouraged to enroll in a COSP™ group. CASA provides transportation and childcare for parents attending the

group. Parents who enrolled in two different CASA COSP™ group were invited to participate in the PARCHISY-COSP study. The two CASA 8-week COSP™ programs were delivered by Registered Circle of Security Facilitators® unknown to the PARCHISY-COSP researchers. For those parents who expressed interest in participation in the PARCHISY research project, the PI/Project Coordinator provided the Information Letter and Consent Form (see Appendix B) via email and booked a home visit to video record a pre-COSP™ play and clean-up session. A child assent form was also provided to and completed by all children who were school age (6 years old) or older (n=1; Appendix C). Limited demographic data was collected prior to this study (see Appendix D). Previous research has found that dyadic mutuality is child-specific in parent-child dyads and that parents may share unique dyadic qualities with each of their children (Deater-Deckard & Petrill, 2004). Therefore, for families with more than 1 child, the parent was videotaped separately with each child and only the child participating in the interaction was present for the videotaped task.

There were 6 additional families including two sibling sets (n=14; 6 parents, 8 children) recruited through an urban first responders group participating in an 8-week COSP program facilitated by the Co-PI. A final dyad (n=2; 1 parent, 1 child) was recruited through a rural offering of the 8-week COSP that was facilitated by the principal investigator of the PARCHISY-COSP study. COSP™ groups facilitated by the PARCHISY researchers received concurrent COSP™ fidelity coaching through Circle of Security International Coach Deirdre Quinlan during the 8-week running of each program.

Inclusion criteria for the analysis included dyads who participated in both videotaped sessions at Time 1 (T1) and Time 2 (T2) who had also completed a full dose of the COSP™ intervention during the intervention period. Previous COSP™ research has identified attendance to at least 6 of the 8 COSP™ sessions as a full dose of the intervention (Horton & Murray, 2015). Videotaped sessions were initiated or completed on a total of 21 parent-child dyads (n=38). One family (n=3; 1 parent, 2 children) that signed up for the study was unable to schedule a videotaping session after the intervention phase and was removed from the sample. Two additional families (n=5; 2 parents, 3 children) that participated in the videotaped sessions at T1 and T2 were unable to complete the COSP™ intervention and were excluded from the final data set. Therefore, the final sample data set included T1 and T2 data from a total of 16 dyads (n=30; 14 parents, 16 children).

Ethical Considerations

Research approvals were obtained through Athabasca University's Research Ethics Board and through the University of Alberta's Research Ethic Board 1 (REB 1; See Appendix E). Athabasca University's Circle of Security® Parenting™ evaluation team partnered with CASA (participant recruitment) and the University of Alberta (scoring and PARCHISY expertise). The Principal Investigator on AU's REB ethics certification was Gwen Rempel; with Shawn Fraser, Christina Rinaldi (U of A), and Gina Wong as co-investigators and Karen F. Cook as an invited partner/collaborator. Laura Rogers was the Project Coordinator. The Principal Investigator on U of A's REB1 ethics certification was Dr. Rebeccah Marsh, CASA's Director of Research and Evaluation, with Christina Rinaldi (U of A), Shawn Fraser, Gwen Rempel, and Gina Wong as co-

investigators. Research Coordinators were Laura Rogers and Leanne Johnson.

Operational approval was obtained through CASA.

Data Collection

   Observational data were collected for parent, child, and dyad behaviours, in a

setting of the parents' choice. Most videotaped play and clean-up sessions were

conducted in the family home or at the office of the Co-PI; one was conducted at CASA

offices and one at a community centre. During these sessions, the PI or Co-PI set up a

video camera to record the parent and child interactions during the play and clean-up

tasks. A set of toys, as per the study protocol, was arranged for the child and parent. The

PARCHISY task script instructions (Appendix F) were read to the participants and toys

for the play task were displayed in a semi-circle around the parent and child. Once the

toys were set up, the researcher began timing for 15 minutes of play and left the room to

wait in another room. After the 15 minutes of play was finished, the researcher returned

and initiated the clean-up task instructions. At this point the researcher left the room

again and returned once the timing for the clean-up task was complete. Videotaped

parent-child interactions were recorded and coded at Time 1 (pre) and Time 2 (post) the

8-week COSP™ intervention using the PARCHISY 18 item global rating scale for

parent-child interaction. At Time 1, approximately 37.5 % of dyads (n=6) had already

participated in 1-3 COSP™ sessions (*M*= .63, SD, .957) and 62.5% of dyads had not yet

started the intervention. At Time 2 all 16 dyads had completed a minimum of 6/8

sessions (*M*= 7.63, SD, .719) meeting inclusion criteria for full dose of the intervention.

This thesis research involved analyzing the scores related to changes in dyadic mutuality

and parent positivity/negativity of the observed parent-child interactions using the PARCHISY scores from pre- and post-COSP™.

Data Storage and Identification

Videotaped sessions were downloaded from camera to a password protected Athabasca University desktop computer. Digital files of each pre- and post-play and clean-up sessions were labelled with an identification code. Video files were identified so that those working with the video data were blinded to whether the video was pre- or post-COSP™; coders were also blinded to the COSP™ group in which parents had participated.

For transfer to University of Alberta (U of A) research team for scoring, video files were transferred to an external hard drive and hand delivered to Dr. Christina Rinaldi and her research assistants. This external hard drive was stored in a locked research cabinet in a locked research lab at U of A.

Reliability

PARCHISY has been used in previous research across diverse contexts and populations with evidence of suitable external validity (Deater-Deckard, n.d.; Deater-Deckard, 2000). Each videotaped interaction had been independently scored by PARCHISY-trained coders in Christina Rinaldi's Learning Engagement and Parenting (LEAP) lab, Department of Educational Psychology, Faculty of Education, University of Alberta. All coders received PARCHISY training through Dr. Rinaldi's lab to establish reliability with the PARCHISY coding system (See Appendix G), the parent, child, and parent-child dyad scoring. Reliability training was completed on approximately 20% of the videotaped sessions and coders were then paired and randomly assigned videotaped

sessions to score. A third coder was employed to obviate 'observer drift' through indiscriminate reliability assessment. For the dyad subsections of the PARCHISY, consensus coding was used to determine final scoring. Coders independently rated the dyad and where consensus could not be reached a third coder was brought in to establish consensus.

A randomized subset of approximately 20% of the videotaped sessions was selected and scored independently by two pairs of coders for inter-rater reliability (n=4 videos per coder pair; 8 videos total, 2 tasks per video, 18 items per task, 144 items total per coder pair). For the purposes of this study, data from the two pairs of coders was entered into SPSS and Intraclass Correlation Coefficient (ICC) with 95% confidence intervals was calculated for each pair of coders (n=144 items per pair) (Trevethan, 2017). After testing for normality in the data set, a two-way random-effect model based on single ratings and absolute agreement assessed the inter-rater reliability between coders. A high degree of reliability was found for both pairs with $ICC_{(2,1)} = 0.97$, 95% CI [0.95, 0.98] and 0.95, 95% CI [0.93, 0.96].

Measures

Observed parent-child interactions were measured using the The Parent-Child Interaction System (PARCHISY; Deater-Deckard, 2000; Deater-Deckard et al., 1997). PARCHISY is an 18-item global rating scale that measures various components of parent-child interactions including individual contributions of both the parent and the child, along with the dyadic properties of the interactions. Dyadic interactions are observed during the completion of a manualized play task followed by a clean-up task.

There are 3 subsections for coding which include parent behaviours (i.e., positive content/control, negative content/control, positive affect/warmth, negative affect, responsiveness to child, on task initiation and persistence, and verbalizations), child behaviours (i.e., positive affect/warmth, negative affect, responsiveness to parent, on task initiative and persistence, noncompliance, autonomy/independence, activity/energy, verbalizations), and dyadic behaviours (i.e., reciprocity/shared positive affect, conflict, and cooperation). The items are rated on a 7-point Likert scale with 1 indicating no evidence of the coded behaviour during the task, 4 indicating the presence of the behaviour for at least half of the interaction, and 7 indicating the behaviour was consistently present throughout the interaction (Deater-Deckard, 2000; Deader-Deckard et al., 1997). The original measurement system was developed for use with children ages 3-12 and the play task included an "etch-a-sketch" where the parent and child would be instructed to draw together while not using the other's dial however, the tool has been adapted for use with other age groups and play tasks (Deater-Deckard, n.d).

The current study utilized an adapted PARCHISY protocol that included modified phrasing to support the outcome goals of the COSP™ intervention (Rempel et al., 2016; See Appendix G). The behaviours of interest for the current study were parent responsiveness to child, child responsiveness to parent, dyad cooperation, dyad reciprocity, parent positive control, parent negative control, parent positive affect, parent negative affect, and dyadic conflict.

PARCHISY has been used in different contexts across several studies (Deater-Deckard, n.d). Individual items as well as composite measures from the PARCHISY have been used to measure the nature and quality of parent-child interaction. The

constructs measured for this research were chosen based on theoretical connections to attachment theory and the use of these constructs in other PARCHISY research. Given the purpose of this study and the identified research questions, changes in dyadic mutuality, parent positivity and parent negativity were measured pre and post the COSP™ intervention.

Dyadic mutuality is a composite score created from dyadic reciprocity, dyadic cooperation, parent responsiveness to child, and child responsiveness to parent (Deater-Deckard & Petrill, 2004). This composite has been used in previous PARCHISY studies to assess the dyadic mutuality between caregiver and child (Deater-Deckard et al., 2004; Deater-Deckard & Petrill, 2004; Deater-Deckard & O'Connor, 2000).

Parent positivity is a composite score of parent positive control and parent positive affect while *parent negativity* is a composite score of parent negative control and parent negative affect. This set of composite scores has been utilized in other observational studies (Atzaba-Poria et al., 2017; Mullineaux et al., 2009; Oliver & Pike, 2021).

Limitations and Delimitations

A limitation of this study is that there is no published research of the PARCHISY being used as a before and after measure nor as an observation of parenting intervention effectiveness. Additionally, there was no control group for this COSP™ effectiveness research and we did not have information about the experience of all of the COSP™ facilitators who conducted the COSP™ groups that were evaluated using the PARCHISY. A delimitation of this study is that the observation measure was the only

source of data as the methodological objective of determining the feasibility of

PARCHISY in COSP™ effectiveness research was a goal of the original project.

Chapter 5. Results

Sample

The sample data set included Time 1 (T1) and Time 2 (T2) data from a total of 16 dyads (n=30; 14 parents, 16 children). Parents (12 mothers; 2 fathers) ranged in age from 27 to 42 years (M= 37.07 ± 4.32). Children (10 male; 6 female) ranged in age from 2 to 12 years old (M= 5.31, SD=3.27).

Data Analysis

Prior to data analysis, the data were cleaned using recommendations from Field (2018) and Seaton (2020). Cases were excluded based on attrition at T1 or incomplete intervention sessions as noted in the previous section. The remaining sample data were analyzed using SPSS version 27 software (IBM Corp., 2020). The assumption of normally distributed difference scores was examined for each of the variables of interest. Histograms, Q-Q plots, and boxplots were also developed and visually inspected to test for normality assumptions and the presence of outliers. Normality assumptions were considered satisfied for dyadic mutuality and parent positivity composite scores however, the parent negativity composite during the clean-up task had a right-skewed, leptokurtic distribution.

Data were analyzed using paired t-tests to answer the generated hypotheses related to dyadic mutuality and parent positivity, and a Wilcoxon signed-ranks test was employed for the parent negativity score during the clean-up task. Polit and Beck (2017) suggest that "although instruments such as Likert scales produce data that are, strictly speaking, ordinal, many analysts believe that treating them as interval measures results in too few errors to warrant using less powerful statistical procedures" (p. 358). A p value

of < .05 was set as a threshold to assess statistical significance and effect sizes were

calculated to assess the magnitude of changes across time and tasks. Because this study

included clearly delineated directional hypotheses, all *p* values were generated for one-

tailed values. To accommodate the small sample size (n=16 dyads) and the inability to

rely on central limit theorem (Field, 2018), bootstrap measures were implemented to

increase robustness of data analysis and to account for the mitigation of risks associated

with smaller samples. All bootstrap results are based on 1000 bootstrap samples unless

otherwise indicated (Field, 2018). Descriptive statistics are presented in Table 1.

Table 1

Participant Characteristics

Parents (n=14)	
Type, n (%)	
Mothers	12 (85.7)
Fathers	2 (14.3)
Age (years), Range	27-42
M ± **SD**	37.07 ± 4.32
Children (n=16)	
Sex, n (%)	
Female	6 (37.5)
Male	10 (62.5)
Age (years), Range	2-12
M ± **SD**	5.31 ± 3.27

Dyadic Mutuality

To test the hypothesis that there would be an increase in dyadic mutuality

composite scores across tasks from T1 to T2 following an 8-week COSP™ intervention,

a paired samples t-test was performed. On average dyadic mutuality during the *play task*

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was lower at T1 (*M*=5.031, *SD*= .576) than at T2 (*M*=5.343, *SD*=.763). This difference, -.312, BCa 95% CI [-.688, .047] was not significant *t*(15) = -1.53, *p* = .080. Cohen's d was estimated at d = .39 which is a weak effect size according to Cohen's guidelines (Cohen, 1988). On average dyadic mutuality during the *clean-up task* was lower at T1 (*M*=4.172, *SD*= .965) than at T2 (M=4.672, SD= 1.154). This difference, -.500, BCa 95% CI [-.871, -.082], was significant *t*(15) = -2.56, *p* = .019. Cohen's d was estimated at d = .632 which is a moderate effect size according to Cohen's guidelines (Cohen, 1988).

Parent Positivity

To test the hypothesis that there would be an increase in parent positivity composite scores across tasks from T1 to T2 following an 8-week COSP™ intervention, a paired samples t-test was performed. On average parent positivity during the *play task* was lower at T1 (*M*=4.563, *SD*= .929) than at T2 (*M*=5.469, *SD*=1.297). This difference, -.906, BCa 95% CI [-1.40, -.45] was significant *t*(15) = -3.613, *p* = .003. Cohen's d was estimated at d = .86 which is a strong effect size according to Cohen's guidelines (Cohen, 1988). On average parent positivity during the *clean-up task* was lower at T1 (*M*=3.156, *SD*= 1.106) than at T2 (M=4.25, SD= 1.643). This difference, -1.094, BCa 95% CI [-1.66, -.50], was significant *t*(15) = -3.59, *p* = .004. Cohen's d was estimated at d = .872 which is a large effect size according to Cohen's guidelines (Cohen, 1988).

Parent Negativity

To test the hypothesis that there would be a decrease in parent negativity composite scores during the play task from T1 to T2 following an 8-week COSP™ intervention, a paired samples t-test was performed. On average parent negativity during

the *play task* was higher at T1 (*M*= 1.38, *SD*= .532) than at T2 (*M*= 1.34, *SD*= .598). This difference, .031, BCa 95% CI [-.156, .230] was not significant *t*(15) = .290, *p* = .400. Cohen's d was estimated at d = .07 which is a weak effect size according to Cohen's guidelines (Cohen, 1988). Because the data was skewed for the parent negativity composite in the clean-up task, a Wilcoxon Signed-Ranks test was performed. Output indicated that parent negativity scores during the *clean-up task* at T2 (M=1.31, SD= .629), were not statistically significantly lower than T1 scores (*M*=1.41, *SD*= 1.254), *Z* = -.073, *p* = .471. Effect size was estimated at *r* = -0.01 which is a weak effect size (Field, 2018).

Chapter 6. Discussion

The purpose of this thesis project was to analyze data generated during a 2016 pilot project testing the effectiveness of an attachment-based parenting program, using a novel observational measurement protocol. This study contributes to the COSP™ literature by examining the ways in which the 8-week intervention may produce changes in dyadic mutuality which has not been studied as a construct of interest. Specifically, paired t-tests were used to analyze changes in dyadic mutuality, parent positivity, and parent negativity to answer the following research questions: 1) Is there a change in observed parent-child mutuality as measured by the PARCHISY global rating scale following an 8-week COSP™ intervention? and, 2) Is there a change in observed parent positivity or negativity behaviours as measured by the PARCHISY global rating scale following an 8-week COSP™ intervention?

Dyadic Mutuality

The findings indicate an increase in dyadic mutuality during the observed play task, however, this increase was not statistically significant as hypothesized. Alternatively, during the clean-up task dyadic mutuality did have a statistically significant increase between T1 and T2 as hypothesized with a moderate effect size. The reason for this difference across tasks may be due to the more positive nature of the play-oriented task where parents and children experience less overall demand on the relationship during a shared play experience. This is consistent with previous studies that have explored differences in mutuality across tasks (Lindsey et al., 2010; Kwon et al., 2013).

Similar to other observational methods that measure attachment, the clean-up task represents a challenge between the parent and child that enables researchers to observe the nature and quality of the dyadic interaction. This type of challenge may produce increased stress for the parent and child, resulting in higher levels of conflict and/or distress. We would anticipate that parents who are participating in a relationship-focused intervention such as COSP™ would be more aware of the implications that these challenges can have on the parent-child relationship and would subsequently adjust their responsiveness and behaviour during challenging interactions. The Circle of Security® visual and repeated activities to build reflective capacity in participating parents is meant to provide direction for "heat of the moment" parenting (Cooper et al., 2018). Additionally, the clean-up task, as a means of stressing the parent-child relationship parallels the stranger entering the laboratory and the parent leaving the room in the SSP.

Since the dyadic mutuality composite uses scores focused on responsiveness, cooperation, and reciprocity, these changes in behaviour and responsiveness should impact the overall mutual orientation of the dyad. It is important to note, however, that while significant changes occurred in dyadic mutuality during the clean-up task, results should be interpreted with caution since the lack of a control group and the smaller sample size of this pilot, makes causal interpretations unwise. While statistically meaningful findings such as these should be carefully evaluated, it is imperative that future studies examine both clinical and practical significance for changes in dyadic mutuality to support the ongoing use of interventions like COSP™.

Parent Positivity

Parent positivity was significantly higher following the COSP™ intervention during both the play and clean-up tasks with large effect sizes noted across tasks. Since one of the aims of COSP™ is to increase the internal working models of the parent (Powell et al., 2014), thereby enhancing the overall capacity of the parent to respond to the needs of their child, parents participating in COSP™ may engage in more positive interactions with their child. Even though the sample size of this current study is small and confounding factors were not accounted for during analysis, it would seem logical that parents who are actively participating in a parenting intervention may be more cognizant of their overall behaviour and affect when interacting with their child.

This finding may be of particular importance in relation to understanding the impact that COSP™ can have on parental affect and behaviour. There is evidence that an increase in positive parenting behaviours and positive dyadic interactions can reduce coercive cycles as well as negative parent-child interactions, which thereby decreases adverse developmental outcomes (Knerr et al., 2013; Karazsia & Wildman, 2009; Sitnick et al., 2014). Since one of the main goals of COSP™ is to increase the parent's positive attributions of the child (Powell et al., 2014; Maxwell et al., 2021), this finding may be linked to changes in the internal working model of the parent. Future research can examine the long-term efficacy of COSP™ to change the internal working models of parents and whether this creates positive behaviour change in parent-child interactions and changes in attachment security over time.

Parent Negativity

Overall, there was a decrease in parent negativity during both the play and clean-up tasks post-COSP™ intervention. This decrease however, was not statistically significant and effect sizes were small.

There could be several reasons for this finding. Even though the researcher was not in the same room as the parent and child during filming and several of the videotaped sessions occurred in the home environment, the presence of the researchers may have influenced parent behaviours during the study. Moreover, the timing of the second videotaped session may have occurred too close to the completion of the intervention to show a consistent and meaningful impact on negativity behaviours. Additionally, measuring parent negativity at a single point in time may not be reflective of the overall negative quality of the dyadic relationship. It is also important to note that the parenting negativity scores across tasks were relatively low in the sample at both Time 1 and Time 2. This is consistent with previous findings using a similar task and single observational period (Deater-Deckard et al., 2004). In general, negative behaviours may occur less frequently during direct observational study which makes assessment of these behaviors challenging (Gardner, 2000; Slatcher & Trentacosta, 2012).

Future studies can employ multiple methods to assess parent affect and behaviour which may provide a clearer understanding of the overall negativity in the parent-child relationship. This would contribute increased insight into whether COSP™ had any impact on the overall negativity of the parent. There is evidence to suggest that maternal behaviours remain relatively stable over time (Dallaire & Weinraub, 2005) while subsequent research has indicated some variations in maternal behaviour across tasks

(Madigan et al., 2016). Since negative behaviours can take time to change (Sitnick et al., 2014) and intervention or sleeper effects may not be immediately measurable (van Aar et al., 2017), there is a demonstrable need for in-depth longitudinal research that includes randomized control and employs a mixed methods approach to examine the efficacy and the limitations of COSP™ at changing parenting behavior and quality. For researchers interested in using PARCHISY to measure this construct in future studies, the overall distribution for scoring negativity may need to be revised or shifted to account for more subtle cues of negative behaviours. Future COSP™ research can use observational methods across several different tasks that might be more likely to elicit parent negativity and to better examine changes in positive and negative contributions from both the parent and the child. This will provide COSP™ researchers and facilitators with data to support the populations most likely to benefit from COSP™ offerings.

Observational Measurement: PARCHISY

One of the original intentions of the PI and Co-PI during the data generation phase of this current study was to assess the feasibility and utility of implementation for the PARCHISY measurement tool in relation to COSP™ research. While this current study lacks a control to compare observational tools across various samples, there are some considerations regarding PARCHISY that warrant acknowledgement. Since COSP™ utilizes pre-recorded videos of dyadic interaction to enhance the overall sensitivity, responsiveness, and reflective capacity of the caregiver (Hoffman et al., 2006; Powell et al., 2014), assessment strategies that focus on dyadic interaction quality such as the PARCHISY, may be more appropriate to measure changes that have occurred as a result of the COSP™ intervention. In the one other COSP™ study that used an

observational method outside of an actual or modified strange situation procedure, there were significant findings in the quality of caregiver-child interaction and emotional availability of the caregiver-child dyads (Risholm Mothander et al., 2018). This lends preliminary support for the inclusion of observational data to measure efficacy of the intervention as these measures may provide the necessary sensitivity to identify changes in both caregiver and child behaviour through objective analysis by trained unbiased/blinded coders.

The specific use of PARCHISY in future COSP™ research may support the analysis of several important substrates of attachment security including mutuality, parent positivity, parent negativity, child autonomy, non-compliance, and conflict. These variables might provide researchers with more evidence regarding the distinct relational changes that may occur following participation in an 8-week COSP™ program. Future COSP™ research can employ observational measurement of parent-child interaction using PARCHISY and more stringent factor analysis studies to determine the types of dyads who could most benefit from a relationship-based intervention such as COSP™. While PARCHISY contains a total of 18 observational items, the use of this tool in its entirety is uncommon in the published literature. Moreover, PARCHISY does not appear to have been used as a tool to measure the efficacy of a parenting intervention in repeated measures designs. The specific composite items used for this study were selected based on the theoretical fit between the target outcomes of COSP™, attachment-related behaviours, and previous usage of PARCHISY in contexts that examined parent-child interaction quality. An advantage of PARCHISY is that it captures contributions from the caregiver, child, and the dyad in separate items. This can enable researchers to

understand how dyadic quality may be influenced by observed behaviours of both caregiver and child. Future studies can consider how PARCHISY may be best utilized to evaluate constructs most important to targeted COSP™ outcomes and how PARCHISY compares to other observational measurement tools that examine parent-child interaction. Additionally, future research can focus on exploring the implementing mixed methods of data generation that includes observational data alongside questionnaire, interview, and self-report data.

Limitations

This study has several limitations including the relatively small sample size (n=16 dyads) and the lack of an intervention control. The lack of control group precludes the findings that COSP™ was the main contributor to the study outcomes, and other confounding factors, such as maturation effect, may have contributed to the overall results of this study. It is imperative that the exploratory/pilot nature of the current study be emphasized.

Furthermore, generalizability of findings may be limited due to the potential for sample bias as a result of convenience sampling. Participants in the current study were primarily mothers (n=12) from the same geographical area in Alberta, Canada and detailed sociocultural and socioeconomic information were not available for analysis. A more diverse sample from other geographical regions and across cultural settings would increase the external validity of the study and provide more insight into the populations most likely to benefit from COSP™ interventions. Additionally, there remains an imbalance in study outcomes that primarily focus on the contributions of mothers. Future research can focus on exploring the specific contributions of fathers and the influence of

broader family systems in the context of attachment-related outcomes and developmental processes targeted by parenting interventions such as COSP™.

Another limitation of this study was the lack of fidelity assessment for the CASA group COSP™ offerings. Since researchers were not able to analyze fidelity of this group at the time of the intervention, there could be other factors related to programming that contributed to the results in the current study. Future research can ensure a robust analysis of intervention fidelity at the time of data collection to ensure consistency in programming amongst all participants. Moreover, some of the dyads had already participated in 1-3 COSP™ classes at Time 1 during data collection. This may have skewed the baseline scoring in several of the observational tasks as parents may have already had initial intervention effects by class 2-3. Future research can examine dosing as a moderator for COSP™ intervention efficacy.

Since the intention of the original study was to evaluate the utility of PARCHISY as a methodological tool for observed parent-child interactions, there were no other observational measures used alongside the PARCHISY to assess the quality of the dyadic interactions. This is another limitation as additional measurement tools could have strengthened the overall PARCHISY findings as well as provided additional support for the use of the PARCHISY in evaluating COS research.

Conclusion

This pilot study adds to the growing evidence examining the efficacy of the Circle of Security® Parenting (COSP™) intervention. Notwithstanding the stated limitations and exploratory nature of this current study, findings suggest that COSP™ may influence the positive quality of parent-child interaction and subsequently enhance mutuality

between parents and their children. This finding is particularly supported in contexts that may present a challenge to dyad interaction such as a structured clean-up task. Moreover, these findings support the implementation of PARCHISY as an observational measurement strategy for researchers interested in examining dyadic changes that might be likely to occur following participation in COSP™.

Further research is needed to address the efficacy of COSP™ at changing the quality of dyadic parent-child interactions and the long-term stability of parenting behaviours following participation in the program. The findings from this pilot study support the recommendation that COSP™ research can benefit from utilizing observational methods to examine changes in parenting quality across various tasks. With a growing need for scalable parenting interventions that can be disseminated across a diverse range of community and clinical settings, the support for continued exploration of the mechanisms of change and populations most likely to benefit from COSP™ cannot be overstated.

References

Afifi, T. O. (2011). Child maltreatment in Canada: An understudied public health

problem. *Canadian Journal of Public Health*, *102*(6), 459–461.

https://doi.org/10.1007/bf03404200

Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, exploration, and separation:

Illustrated by the behavior of one-year-olds in a Strange Situation. *Child

Development, 41*(1), 49. https://doi.org/10.2307/1127388

Ainsworth, M. D. S., Bell, S. M., & Stayton, D. J. (1971). Individual differences in

strange-situation behaviour of one-year-olds. In Shaffer, H. R. (Ed.), *The origins of

human social relations*. Academic Press.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of

attachment: A psychological study of the strange situation*. Lawrence Erlbaum.

Aksan, N., Kochanska, G., & Ortmann, M.R. (2006). Mutually responsive orientation

between parents and their young children: Toward methodological advances in the

science of relationships. *Developmental Psychology,42*, 833–848.

https://doi.org/10.1037/0012-1649.42.5.833

Andrews, E. (2019). A parenting intervention for middle childhood: An expansion of a

Circle of Security intensive individual protocol. *Educational and Developmental

Psychologist*, *36*(1), 27–31. http://doi.org/10.1017/edp.2019.5

Atzaba-Poria, N., Deater-Deckard, K., & Bell, M. A. (2017). Mother-Child interaction:

links between mother and child frontal electroencephalograph asymmetry and

negative behavior. *Child Development*, *88*(2), 544-554.

https://doi.org/10.1111/cdev.12583

Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129*(2), 195–215. https://doi.org/10.1037/0033-2909.129.2.195

Bayley, N. (1993). *Manual for the Bayley Scales of Infant Development* (2nd ed.). San Antonio, TX: Psychological Corporation

Beebe, B., Jaffe, J., Buck, K., Chen, H., Cohen, P., Feldstein, S., & Andrews, H. (2008). Six-week postpartum maternal depressive symptoms and 4-month mother–infant self- and interactive contingency. *Infant Mental Health Journal, 29*(5), 442–471. https://doi.org/10.1002/imhj.20191

Benoit, D. (2004). Infant-parent attachment: Definition, types, antecedents, measurement and outcome. *Paediatrics & child health*, *9*(8), 541–545. https://doi.org/10.1093/pch/9.8.541

Berthelon, M., Contreras, D., Kruger, D., & Palma, M. I. (2020). Harsh parenting during early childhood and child development. *Economics and Human Biology*, *36*. https://doi.org/10.1016/j.ehb.2019.100831

Boris, N. W., Chesher, T., & Wajda-Johnston, V. (2019). Assessment of attachment in infancy and early childhood. In R. DelCarmen-Wiggins & A. Carter (Eds.), *The Oxford handbook of infant, toddler, and preschool mental health assessment (2nd ed.)*. Oxford Press.

Bornstein, M. H., & Manian, N. (2013). Maternal responsiveness and sensitivity reconsidered: Some is more. *Development and Psychopathology, 25*(4 PART 1), 957–971. https://doi.org/10.1017/S0954579413000308

Bowlby, J. (1958). The nature of the child's tie to his mother. *International Journal of Psycho-Analysis,* XXXIX, 1-2. http://www.psychology.sunysb.edu/attachment/online/nature%20of%20the%20childs%20tie%20bowlby.pdf

Bowlby, J. (1969). Attachment and Loss, Vol. 1: Attachment. Attachment and Loss. New York: Basic Books.

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. Basic Books. https://pdfs.semanticscholar.org/545b/983942722792c0e0c48b699aced98323d13e.pdf

Bretherton, I. (1992). The origins of attachment theory: John Bowlby and Mary Ainsworth. *Developmental Psychology*, *28*(*5)*, 759-775. https://doi.org/10.1037/0012-1649.28.5.759

Bretherton, I. (1997). Bowlby's legacy to developmental psychology. *Child Psychiatry and Human Development, 28*(1), 33–43. https://doi.org/10.1023/A:1025193002462

Buss, A., & Plomin, R. (1984). *Temperament: Early developing personality traits*. Erlbaum.

Cadman, T., Belsky, J., & Fearon, R. M. (2018). The Brief Attachment Scale (BAS-16): A short measure of infant attachment. *Child: Care, Health and Development*, *44*(5), 766-775. https://doi.org/10.1111/cch.12599

Cassidy, J., Brett, B. B., Gross, J. T., Stern, J. A., Martin, D., Mohr, J., et al. (2017). Circle of Security-Parenting (COS-P): A randomized controlled trial in Head Start.

Developmental Psychopathology, 29, 651–673.

https://doi.org/10.1017/S0954579417000244

Cassidy, J., Woodhouse, S. S., Sherman, L. J., Stupica, B. & Lejuez, C. W. (2011).

Enhancing infant attachment security: An examination of treatment efficacy and

differential susceptibility. *Development and Psychopathology, 23*, 131–148.

https://doi.org/10.1017/S0954579410000696

Cassidy, J., Ziv, Y., Stupica, B., Sherman, L. J., Butler, H., Karfgin, A. et al. (2010).

Enhancing attachment security in the infants of women in a jail diversion program.

Attachment & Human Development, 12, 333–353.

https://doi.org/10.1080/14616730903416955

Choi, K. R., Stewart, T., Fein, E., McCreary, M., Kenan, K. N., Davies, J. D., … Zima,

B. T. (2020). The impact of attachment-disrupting adverse childhood experiences

on child behavioral health. *Journal of Pediatrics*, *221*, 224–229.

https://doi.org/10.1016/j.jpeds.2020.03.006

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). L.

Erlbaum Associates.

http://www.utstat.toronto.edu/~brunner/oldclass/378f16/readings/CohenPower.pdf

Coleman, M. (2014). An attachment-based parenting training program for opiate

dependent carers. *Journal of Addiction Research and Therapy, 5*(4), 1-7.

https://doi.org/10.4172/2155-6105.1000201

Cooper, G., Hoffman, K., & Powell, B. (2018). *Circle of Security COS-P© facilitator

manual and DVD*. (Unpublished). Circle of Security International, Spokane, WA.

Creavey, K. L., Gatzke-Kopp, L. M., & Fosco, G. M. (2018). Differential effects of family stress exposure and harsh parental discipline on child social competence. *Journal of Child and Family Studies*, *27*(2), 483–493. https://doi.org/10.1007/s10826-017-0913-3

Dallaire, D. H., & Weinraub, M. (2005). The stability of parenting behaviors over the first 6 years of life. *Early Childhood Research Quarterly*, *20*(2), 201–219. https://doi.org/10.1016/j.ecresq.2005.04.008

Davis, M., & Suveg, C. (2014). Focusing on the positive: A review of the role of child positive affect in developmental psychopathology. *Clinical Child and Family Psychology Review*, 17(2), 97–124. https ://doi.org/10.1007/s10567-013-0162-y

Deater-Deckard, K. (n.d.). *PARCHISY.* Individual differences in development lab. https://blogs.umass.edu/kdeaterdeck/parchisy

Deater-Deckard, K. (2000). Parenting and child behavioral adjustment in early childhood: A quantitative genetic approach to studying family processes and child development. *Child Development, 71*, 468-484. http://www.jstor.org/stable/1132003

Deater-Deckard, K., Atzaba-Poria, N., & Pike, A. (2004). Mother- and father-child mutuality in Anglo and Indian British families: A link with lower externalizing problems in middle childhood. *Journal of Abnormal Child Psychology*, *32*(6), 609-620. https://doi.org/10.1023/B:JACP.0000047210.81880.14

Deater-Deckard, K., Ivy, L., & Petrill, S. A. (2006). Maternal warmth moderates the link between physical punishment and child externalizing problems: A parent-offspring

behavior genetic analysis. *Parenting: Science and Practice*, 6, 59–78.

http://dx.doi.org/10.1207/s15327922par0601_3

Deater-Deckard, K., & O'Connor, T. G. (2000). Parent-child mutuality in early

childhood: Two behavioral genetic studies. *Developmental Psychology, 36*, 561-

570. https://doi.org/10.1037/0012-1649.36.5.561

Deater-Deckard, K., & Petrill, S. A. (2004). Parent-child dyadic mutuality and child

behavior problems: An investigation of gene-environment processes. *Journal of*

Child Psychology and Psychiatry and Allied Disciplines, 45(6), 1171–1179.

https://doi.org/10.1111/j.1469-7610.2004.00309.x

Deater-Deckard, K., Pylas, M.V., & Petrill, S. (1997). Parent–Child Inter-action System

(PARCHISY). London: Institute of Psychiatry.

https://doi.org/10.1080/02699931.2015.1013087

Dehghani, A., Malekpour, M., Abedi, A. & Amiri, S. (2014). The efficacy of circle of

security on attachment and wellbeing in preschool children. *Management Science*

Letters, 4, 607–612. https://doi.org/10.5267/j.msl.2013.12.031

Doane, G., & Varcoe, C. (2013). Relational practice and nursing obligations. In W.K.

Cody (Ed.), *Philosophical and theoretical perspectives for advanced nursing*

practice (5th ed., pp. 201-219). Jones and Bartlett.

Dunst, C. J., & Kassow, D. Z. (2008). Caregiver sensitivity, contingent social

responsiveness, and secure infant attachment. *Journal of Early and Intensive*

Behavior Intervention, 5(1), 40–56. http://dx.doi.org/10.1037/h0100409

Fearon, R. P., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Lapsley, A. M., &

Roisman, G. I. (2010). The significance of insecure attachment and disorganization

in the development of children's externalizing behavior: A meta-analytic study.

    Child Development, 81(2), 435–456. https://doi.org/10.1111/j.1467-

    8624.2009.01405.x

Field, A. (2018). *Discovering Statistics using IBM SPSS Statistics: North American*

    edition (5th ed.). Sage Publications.

Funamoto, A., & Rinaldi, C. M. (2015). Measuring parent-child mutuality: A review of

    current observational coding systems. *Infant Mental Health Journal, 36*(1), 3–11.

    https://doi.org/10.1002/imhj.21481

Gardner F. (2000). Methodological issues in the direct observation of parent–child

    interaction: do observational findings reflect the natural behavior of participants?

    Clinical Child and Family Psychology Review, 3, 185–198.

    https://doi.org/10.1023/A:1009503409699

Geeraerts, S. B., Endendijk, J. J., Deković, M., Huijding, J., Deater-Deckard, K., &

    Mesman, J. (2020). Inhibitory control across the preschool years: Developmental

    changes and associations with parenting. *Child Development,* 1-16.

    https://doi.org/10.1111/cdev.13426

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note.

    Journal of Child Psychology and Psychiatry, 38, 581- 586.

    https://doi.org/10.1111/j.1469-7610.1997.tb01545.x

Gray, L. (2018). *Considering shifts in parenting after the 8-week circle of security©*

    parenting program. [Master's thesis, Athabasca University]. DTheses.

    https://dt.athabascau.ca/jspui/bitstream/10791/252/8/LisaGrayFinal.pdf

Gregory, M., Kannis, D. L., & Sharman, R. (2019). A review of attachment-based parenting interventions: Recent advances and future considerations. *Australian Journal of Psychology*. https://doi.org/10.1111/ajpy.12270

Harrist, A., & Waugh, R. (2002). Dyadic synchrony: Its structure and function in children's development. *Developmental Review*, *22*, 555–592. https://doi.org/10.1016/S0273-2297(02)00500-2

Hinde, R. A. & Stevenson-Hinde, J. (1987). Interpersonal relationships and child development. *Developmental Review, 7*, 1-21. https://doi.org/10.1016/0273-2297(87)90002-5

Hoffman, K., Cooper, G., Powell, B., & Benton, C. M. (2017). *Raising a secure child*. Guilford Publications.

Hoffman, K., Marvin, R., Cooper, G., & Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: The Circle of Security intervention. *Journal of Counseling and Clinical Psychology, 74*, 1917–1026. https://doi.org/10.1080/14616730252982491

Horton, E., & Murray, C. (2015). A quantitative exploratory evaluation of the circle of security-parenting program with mothers in residential substance-abuse treatment. *Infant Mental Health Journal, 36*(3), 320-336. http://dx.doi.org/10.1002/imhj.21514

Huber, A., McMahon, C. A., & Sweller, N. (2015a). Efficacy of the 20-week circle of security intervention: Changes in parent reflective functioning, representations, and child attachment in an Australian clinical sample. *Infant Mental Health Journal, 36*(6), 556-574. https://doi.org/10.1002/imhj.21540

Huber, A., McMahon, C. A., & Sweller, N. (2015b). Improved child behavioural and emotional functioning after Circle of Security 20-week intervention. *Attachment & Human Development*, 1-23. http://dx.doi.org/10.1080/14616734.2015.1086395

Huber, A., McMahon, C. A., & Sweller, N. (2016). Improved parental emotional functioning after circle of security 20-week parent–child relationship intervention. *Journal of Child and Family Studies, 25*, 2526–2540. https://doi.org/10.1080/14616734.2015.1086395

Huber, A., Hawkins, E., & Cooper, G. (2018) Circle of Security. In Lebow, J., Chambers, A., Breunlin, D. (eds) *Encyclopedia of couple and family therapy*. Springer.

Hughes, C., & Devine, R. T. (2019). For better or for worse? Positive and negative parental influences on young children's executive function. *Child development*, *90*(2), 593–609. https://doi.org/10.1111/cdev.12915

IBM Corp. Released 2020. IBM SPSS Statistics for Macintosh, Version 27.0. Armonk, NY: IBM Corp.

Karazsia, B., & Wildman, B. (2009). The mediating effects of parenting behaviors on maternal affect and reports of children's behavior. *Journal of Child & Family Studies*, *18*(3), 342–349. https://doi.org/10.1007/s10826-008-9236-8

Kim, M., Woodhouse, S. S., & Dai, C. (2018). Learning to provide children with a secure base and a safe haven: The Circle of Security-Parenting (COS-P) group intervention. *Journal of Clinical Psychology*, *74*(8), 1319-1332. https://doi.org/10.1002/jclp.22643

Kim, S., Boldt, L. J., & Kochanska, G. (2015). From parent–child mutuality to security to socialization outcomes: developmental cascade toward positive adaptation in preadolescence. *Attachment & Human Development*, *17*(5), 472-491. https://doi.org/10.1080/14616734.2015.1072832

Kim, S., & Kochanska, G. (2012). Child temperament moderates effects of parent-child mutuality on self-regulation: A relationship-based path for emotionally negative infants. *Child Development*, *83*(4), 1275-1289. https://doi.org/10.1111/j.1467-8624.2012.01778.x

Knerr, W., Gardner, F., Cluver, L. (2013). Improving positive parenting skills and reducing harsh and abusive parenting in low- and middle-income countries: A systematic review. *Prevention Science*, *14*(4), 352–363. https://doi.org/10.1007/s11121-012-0314-1

Kochanska, G. (2002). Mutually responsive orientation between mothers and their young children: A context for the early development of conscience. *Current Directions in Psychological Science, 11*, 191–195. https://doi.org/10.1111/1467-8721.00198

Kochanska, G. (1997). Mutually responsive orientation between mothers and their young children: Implications for early socialization. *Child Development*, *68*(1), 94-112. https://doi.org/10.1111/j.1467-8624.1997.tb01928.x

Kochanska, G., & Aksan, N. (2006). Children's conscience and self-regulation. *Journal of Personality*, *6*, 1587-1618. https://doi.org/10.1111/j.1467-6494.2006.00421.x

Kochanska, G., & Aksan, N. (2004). Development of mutual responsiveness between parents and their young children. *Child Development*, *75*(6), 1657–1676. https://doi.org/10.1111/j.1467-8624.2004.00808.x

Kochanska, G., & Coy, K. C. (2002). Child emotionality and maternal responsiveness as predictors of reunion behaviors in the Strange Situation: Links mediated and unmediated by separation distress. *Child Development*, *73*(1), 228-240. https://www.jstor.org/stable/3696441

Kochanska, G., & Murray, K. T. (2000). Mother-child mutually responsive orientation and conscience development: From toddler to early school age. *Child Development, 71*, 417- 431. http://dx.doi.org/10.1111/1467-8624.00154

Kochanska, G., Aksan, N., Prisco, T. R., & Adams, E. E. (2008). Mother–child and father–child mutually responsive orientation in the first 2 years and children's outcomes at preschool age: Mechanisms of influence. *Child Development*, *79*(1), 30- 44. https://doi.org/10.1111/j.1467-8624.2007.01109.x

Kochanska, G., Boldt, L. J., & Goffin, K. C. (2019). Early relational experience: A foundation for the unfolding dynamics of parent–child socialization. *Child Development Perspectives, 13*(1), 41–47. https://doi.org/10.1111/cdep.12308

Kohlhof, J., Stein, M., Ha, M., & Mejaha, K. (2016). The Circle of Security Parenting (COS-P) intervention: Pilot evaluation. *Australian Journal of Child & Family Health Nursing*, *13*(1), 3–7.

Krishnamoorthy, G., Hessing, P., Middeldorp, C., & Branjerdporn, M. (2020). Effects of the 'Circle of Security' group parenting program (COS-P) with foster carers: An observational study. *Children and Youth Services Review*, *115*. https://doi.org/10.1016/j.childyouth.2020.105082

Kuczynski, L. (2003). Beyond bidirectionality: Bilateral conceptual frameworks for understanding dynamics in parent-child relations. In L. Kuczynski (Ed.), *Handbook of dynamics in parent-child relations* (pp. 3-24). Sage Publications, Inc.

Kuppens, S., & Ceulemans, E. (2019). Parenting styles: A closer look at a well-known concept. *Journal of Child & Family Studies*, *28*(1), 168–181. https://doi.org/10.1007/s10826-018-1242-x

Kwon, K.A., Bingham, G., Lewsader, J., Jeon, H.-J., & Elicker, J. (2013). Structured task versus free play: The influence of social context on parenting quality, toddlers' engagement with parents and play behaviors, and parent-toddler language use. *Child & Youth Care Forum*, *42*(3), 207–224. https://doi.org/10.1007/s10566-013-9198-x

Lavery, R. (2018). *Parental perceptions of behaviour change: A circle of security® parenting™ perspective*. [Master's thesis, Athabasca University]. DTheses. https://dt.athabascau.ca/jspui/bitstream/10791/281/10/RachelLaveryFinal.pdf

Liew, J., Carlo, G., Streit, C., & Ispa, J. M. (2018). Parenting beliefs and practices in toddlerhood as precursors to self-regulatory, psychosocial, and academic outcomes in early and middle childhood in ethnically diverse low-income families. *Social Development*, *27*(4), 891–909. https://doi.org/10.1111/sode.12306

Lindsay, E. W., Mize, J., & Pettit, G. S. (1997). Differential pay patterns of mothers and fathers of sons and daughters: Implications for children's gender role development. *Sex Roles: A Journal of Research, 37*(9-10), 643–661. https://doi.org/10.1007/BF02936333

Lindsey, E. W., Cremeens, P. R., & Caldera, Y. M. (2010). Mother-child and father-child mutuality in two contexts: Consequences for young children's peer relationships. *Infant and Child Development*, *19*(2), 142–160. https://doi.org/10.1002/icd.645

Lindsey, E. W., & Mize, J. (2000). Measuring parent-child mutuality during play. In P. K. Kerig, & K. M. Lindahl (Eds.), *Family observational coding systems: Resources for systemic research* (pp. 171-185). Lawrence Erlbaum.

Lyons-Ruth, K., Dutra, L., Schuder, M. R., & Bianchi, I. (2006). From infant attachment disorganization to adult dissociation: Relational adaptations or traumatic experiences? *Psychiatric Clinics of North America*, *29*(1), 63–86. https://doi.org/10.1016/j.psc.2005.10.011

Lyons-Ruth, K. (1996). Attachment relationships among children with aggressive behavior problems: The role of disorganized early attachment patterns. *Journal of Consulting and Clinical Psychology, 64*(1), 64-73. https://doi.org/10.1037/0022-006X.64.1.64

Maccoby, E. E. (1992). The role of parents in the socialization of children: An historical overview. *Developmental Psychology, 28*(6), 1006-1017. https://doi.org/10.1037/0012-1649.28.6.1006

Madigan, S., Brumariu, L. E., Villani, V., Atkinson, L., & Lyons-Ruth, K. (2016). Representational and questionnaire measures of attachment: A meta-analysis of relations to child internalizing and externalizing problems. *Psychological Bulletin*, *142*(4), 367–399. https://doi.org/10.1037/bul0000029

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M.T.

Greenberg, D. Cicchetti, & E.M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 121-160). University of Chicago Press.

Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern*.* In T. B. Brazelton & M. W. Yogman (Eds.), *Affective development in infancy* (p. 95–124). Ablex Publishing.

Matias, C., O'Connor, T. G., Futh, A., & Scott, S. (2014). Observational attachment theory-based parenting measures predict children's attachment narratives independently from social learning theory-based measures. *Attachment & Human Development, 16*(1), 77–92. https://doi.org/10.1080/14616734.2013.851333

Maupin, A. N., Samuel, E. E., Nappi, S. M. et al. Disseminating a parenting intervention in the community: Experiences from a multi-site evaluation. *Journal of Child and Family Studies, 26*, 3079–3092 (2017). https://doi.org/10.1007/s10826-017-0804-7

Maxwell, A.-M., McMahon, C., Huber, A., Hawkins, E., & Reay, R.E. (2020). Addressing the evidence gap: Protocol for an effectiveness study of Circle of Security Parenting, an attachment-based intervention. *Frontiers in Global Women's Health*, 1, Article 575752. https://doi.org/10.3389/fgwh.2020.575752

Maxwell, A.-M., McMahon, C., Huber, A., Reay, R. E., Hawkins, E., & Barnett, B. (2021). Examining the effectiveness of Circle of Security Parenting (COS-P): A multi-site non-randomized study with waitlist control. *Journal of Child and Family Studies*, *30*(5), 1123-1140. https://doi.org/10.1007/s10826-021-01932-4

Mercer, J. (2015). Examining Circle of Security^{TM}: A review of research and theory. *Research on Social Work Practice*, *25*(3), 382–392. https://doi.org/10.1177/1049731514536620

Mullineaux P.Y., Deater-Deckard K., Petrill S.A., & Thompson L.A. (2009). Parenting and child behaviour problems: a longitudinal analysis of non-shared environment. *Infant & Child Development*, *18*(2), 133–148. https://doi.org/10.1002/icd.593

O'Connor, T. G., Matias, C., Futh, A., Tantam, G., & Scott, S. (2013). Social learning theory parenting intervention promotes attachment-based caregiving in young children: Randomized clinical trial. *Journal of Clinical Child and Adolescent Psychology*, 42 (*3*), 358-370. https://doi.org/10.1080/15374416.2012.723262

Oliver, B. R., & Pike, A. (2018). Mother-child positivity and negativity: Family-wide and child-specific main effects and interactions predict child adjustment. *Developmental Psychology, 54*(4), 744–756. https://doi.org/10.1037/dev0000467

Oliver, B. R., & Pike, A. (2021). Introducing a novel online observation of parenting behavior: Reliability and validation. *Parenting: Science & Practice*, *21*(2), 168–183. https://doi.org/10.1080/15295192.2019.1694838

Petruccelli, K., Davis, J., & Berman, T. (2019). Adverse childhood experiences and associated health outcomes: A systematic review and meta-analysis. *Child Abuse and Neglect*, *97*, 104127. https://doi.org/10.1016/j.chiabu.2019.104127

Polit, D.F., & Beck, C.T. (2017). Nursing research: Generating and assessing evidence for nursing practice (10th ed.). Wolters Kluwer.

Postpositivism. (2010). In A. B. Powers, *Dictionary of nursing theory and research* (4th ed.). Springer Publishing Company. Credo Reference: http://0-

search.credoreference.com.aupac.lib.athabascau.ca/content/entry/spnurthres/postpositivism/0?institutionId=1122

Powell, B., Cooper, G., Hoffman, K., & Marvin, B. (2013*). The Circle of Security Intervention: Enhancing attachment in early parent-child relationships*. Guilford Press.

Power T. G. (2013). Parenting dimensions and styles: a brief history and recommendations for future research. *Childhood obesity*, *9(s1)*, S14–S21. https://doi.org/10.1089/chi.2013.0034

Ramsauer, B., Mühlhan, C., Lotzin, A., Achtergarde, S., Mueller, J., Krink, S., Tharner, A., Becker-Stoll, F., Nolte, T., & Romer, G. (2019). Randomized controlled trial of the circle of security-intensive intervention for mothers with postpartum depression: Maternal unresolved attachment moderates changes in sensitivity. *Attachment & Human Development, 22(*6), 705-726. https://doi.org/10.1080/14616734.2019.1689406`

Regueiro, S., Matte-Gagné, C., & Bernier, A. (2020). Patterns of growth in executive functioning during school years: Contributions of early mother–child attachment security and maternal autonomy support. *Journal of Experimental Child Psychology*, *200*, 104934. https://doi.org/10.1016/j.jecp.2020.104934

Rehman, A. A., & Alharthi, K. (2016). An introduction to research paradigms in distance education. *International Journal of Educational Investigations, 3*(8), 51–59.

Rempel, G., Cook, K., Johnson, J., Rogers, L.G., & Rinaldi, C. (2016). *PARCHISY Protocol for COS-P research*. Unpublished Manuscript.

Risholm Mothander, P., Furmark, C., & Neander, K. (2018). Adding "Circle of Security – Parenting" to treatment as usual in three Swedish infant mental health clinics. Effects on parents' internal representations and quality of parent-infant interaction. *Scandinavian Journal of Psychology*, *59*(3), 262–272. https://doi.org/10.1111/sjop.12419

Ryan, G. (2019) Postpositivist critical realism: Philosophy, methodology and method for nursing research. *Nurse Researcher.* *27*(3), 20-26. https://doi.org/10.7748/nr.2019.e1598

Seaton, C. (2020). Summary of data cleaning [video]. Athabasca University Advanced Quantitative Methods for Health Research Moodle: https://cnhs.lms.athabascau.ca/mod/forum/discuss.php?d=796142

Slatcher, R. B., & Trentacosta, C. J. (2012). Influences of parent and child negative emotionality on young children's everyday behaviors. *Emotion*, *12*(5), 932–942. https://doi.org/10.1037/a0027148

Stevenson-Hinde, J. (1990). Attachment within family systems: An overview. *Infant Mental Health Journal*, *11*(3), 218–227. https://doi.org/10.1002/1097-0355(199023)11:3<218::AID-IMHJ2280110304>3.0.CO;2-1\

Su, Y., D'Arcy, C., Yuan, S., & Meng, X. (2019). How does childhood maltreatment influence ensuing cognitive functioning among people with the exposure of childhood maltreatment? A systematic review of prospective cohort studies. *Journal of Affective Disorders*, *252*, 278–293. https://doi.org/10.1016/j.jad.2019.04.026

Thomson, R. M., Allely, C. S., Purves, D., Puckering, C., McConnachie, A., Johnson, P. C., Golding, J., Gillberg, C., & Wilson, P. (2014). Predictors of positive and negative parenting behaviours: evidence from the ALSPAC cohort. *BMC Pediatrics*, *14*(1). https://doi.org/10.1186/1471-2431-14-247

Trevethan, R. (2017). Intraclass correlation coefficients: Clearing the air, extending some cautions, and making some requests. *Health Services and Outcomes Research Methodology, 2, 127-143.* http://dx.doi.org/10.1007/s10742-016-0156-6

van Aar, J., Leijten, P., Orobio de Castro, B., & Overbeek, G. (2017). Sustained, fade-out or sleeper effects? A systematic review and meta-analysis of parenting interventions for disruptive child behavior. *Clinical Psychology Review*, *51*, 153–163. https://doi.org/10.1016/j.cpr.2016.11.006

van Der Voort, A., Juffer, F., & Bakermans-Kranenburg, M. J. (2014). Sensitive parenting is the foundation for secure attachment relationships and positive social-emotional development of children. *Journal of Children's Services, 9*(2), 165–176. https://doi.org/10.1108/JCS-12-2013-0038

van Rosmalen, L., van IJzendoorn, M., & Bakermans-Kkranenburg, M. (2014). ABC+D of Attachment Theory: The Strange Situation Procedure as the gold standard of attachment assessment. In P. Holmes & S. Farnield (Eds.), *The Routledge Handbook of Attachment: Theory* (pp. 11–30). Taylor & Francis Group.

van Rosmalen, L., van Der Veer, R., & van Der Horst, F. (2015). Ainsworth's strange situation procedure: The origin of an instrument. *Journal of the History of the Behavioral Sciences*, *51*(3), 261–284. https://doi.org/10.1002/jhbs.21729

Wright, L.M., & Leahey, M. (2009). Nurses and families: A guide to family assessment and intervention (5th ed.). F.A. Davis.

Yaholkoski, A., Hurl, K., & Theule, J. (2016). Efficacy of the Circle of Security intervention: A meta-analysis. *Journal of Infant, Child, and Adolescent Psychotherapy*, *15*(*2*), 95-103. https://doi.org/10.1080/15289168.2016.1163161

Zeynel, Z., & Uzer, T. (2020). Adverse childhood experiences lead to trans-generational transmission of early maladaptive schemas. *Child Abuse and Neglect, 99*, 1-14. https://doi.org/10.1016/j.chiabu.2019.104235

Ziv, Y., & Hotam, Y. (2015). Theory and measure in the psychological field: The case of attachment theory and the strange situation procedure. *Theory & Psychology*, *25*(3), 274. https://doi.org/10.1177/0959354315577970

Appendix A: Circle of Security™
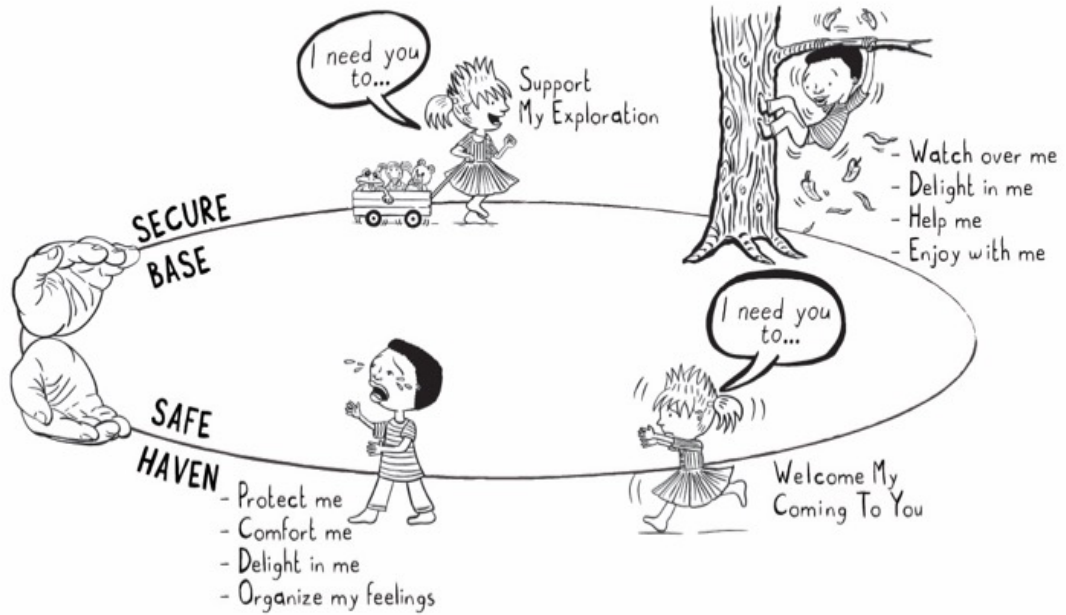
Appendix B: Information Letters & Consent Forms

Study Title:	Evaluation Circle of Security Parenting Program
Investigator:	Gwen R. Rempel PhD, RN
	Associate Professor, Faculty of Health Disciplines
Toll-free:	1-855-833-5699
Email:	grempel@athabascau.ca

Athabasca University everywhere.

INFORMATION LETTER

Because you are participating in the Circle of Security parenting program, you are being asked to help us understand how well the program works. This evaluation is being conducted by Gwen Rempel through Athabasca University. The evaluation will involve filling out questionnaires, participating in a video taping of you playing with your child and/or participating in an interview that will be audio or video recorded. Participating in any of these research activities is completely voluntary.

Please take the time to consider whether or not you wish to participate. Please ask questions if anything about this evaluation seems unclear.

What is the purpose of this evaluation?

The purpose of this evaluation is to see the ways in which Circle of Security is helping families, and the ways that it is not. Not all people respond to programs in the same ways. We want to see how your unique experience has influenced, or will influence, your perception of Circle of Security. Some evaluation activities will be completed before the program begins; some will be completed at the end of the program. This will allow us to see the ways in which Circle of Security has affected your outlook on parenting.

What will happen if I take part in this evaluation?

There are three evaluation activities:

1. A video-taped play session with your child (ren)

2. Filling out questionnaires about your thoughts, feelings, and behavior both before the program begins, and after you have completed it.

3. A video or audio recorded interview with you about your parenting challenges and accomplishments.

What should I do if I don't want to take part in the evaluation anymore?

If you don't want to take part in the evaluation of Circle of Security, you can STOP AT ANY TIME. Participation is completely voluntary. You have the right to decline to complete any questionnaire or to end your participation at any point. You will not be penalized for this, and you will still be able to complete Circle of Security. The other parents in your group will not know that you have decided not to participate in the evaluation. If at any point you wish to stop participating in this evaluation, just let the project coordinator know.

Are there any risks to taking part in this evaluation?

There are no known risks associated with this evaluation.

Are there benefits to taking part in this evaluation?

There will be no direct benefit to you from taking part in this evaluation. We hope that the information we gain from this study can be used to improve Circle of Security and make it more effective for all parents.

How much does it cost to take part in this evaluation?

It does not cost you anything to take part in this evaluation.

Will I be paid for taking part in this evaluation?

You will not be paid for taking part in this evaluation.

Will my information be kept private?

We will take every precaution to ensure that your personal information is kept private. We cannot, however, guarantee this. If required by law, we will have to give out your personal information, although this is unlikely. If the findings of this evaluation are presented, your name and other personal information will not be shared. Only research staff working with Gwen Rempel will see this information.

What are my rights as a participant in this evaluation?

Taking part in this evaluation is completely up to you, and deciding not to take part will have no adverse effects on you. It will also not affect your participation in Circle of Security.

Who can answer my questions about this evaluation?

If you have any questions about the research, you may contact _____.

This study is funded by

Athabasca University
FACULTY OF HEALTH DISCIPLINES

Research Incentive Grant

Athabasca University
everywhere.

Study Title: **Evaluating the Circle of Security Parenting Program**
Lead Gwen R. Rempel PhD, RN
Investigator: Associate Professor, Faculty of Health Disciplines
Email: grempel@athabascau.ca   **Toll free:**   1 855 833 5699

Project Laura Rogers MScRS, OT(C)   **Phone:**   780 732 0123
Coordinator: Researcher, Faculty of Health Disciplines
Email: lrogers@athabascau.ca

CONSENT

Do you understand that you have been asked to be in a research study?	Yes	No
Have you read and received a copy of the attached Information Letter?	Yes	No
Do you understand the benefits and risks involved in taking part in this research study?	Yes	No
Have you had an opportunity to ask questions and discuss this study?	Yes	No
Do you understand that you are free to refuse to participate or withdraw from the study at any time? You do not have to give a reason and it will not affect your involvement in the group.	Yes	No
Has the issue of confidentiality been explained to you?	Yes	No
Do you understand that the questionnaire and/or interview data you provide for this study may be analyzed in future studies?	Yes	No
Do you understand who will have access to the data?	Yes	No
Do you understand that the questionnaire, interview, and/or videotape, you provide for this study may be analyzed in future studies?	Yes	No
Would you like a report of the research findings when the study is done?	Yes	No
Would you be willing to be contacted about participating in related studies in the future?	Yes	No

I agree:

1. That the pre and post program **Questionnaires** I complete(d) be used for this research study.	Yes	No
2. To participate in **videotaped** play interactions with my child	Yes	No
3. To participate in **5-minute videos** of me talking about my parenting	Yes	No
4. To participate in **audiotaped longer interviews** of me talking about my parenting	Yes	No

Athabasca University
everywhere.

Signatures:

_____   _____   _____

Signature of Research Participant   Printed Name   Date

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

_____   _____   _____

Signature of Researcher   Printed Name   Date

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Information Letter
Evaluating the Circle of Security Parenting Program (8-week version)

Lead Investigators: Dr. Rebeccah Marsh, Director, Evaluation and Research, CASA

Dr. Gwen Rempel, Adjunct Associate Professor, University of Alberta

Co- Investigators: Dr. Christina Rinaldi, Dr. Gina Wong, Dr. Shawn Fraser

Research Coordinators: Leanne Johnson; Laura Rogers 780-435-8167

Because you are taking the Circle of Security parenting (COS-P) program, we are asking you to help us to understand how well the program works. The study involves a videoed play and clean-up session between you and your child. Doing this is completely up to you. Please take the time to consider whether or not you wish to join. Please ask questions if anything about this study seems unclear.

What is the purpose of this study?
The purpose of this study is to see the ways in which COS-P is helping families, and the ways that it is not. Not all people respond to programs in the same ways. We want to see how your unique experience has influenced or will influence your parenting. The research activity will be completed before the program begins and then again at the end of the program. This will allow us to see the ways this program has helped you and your child.

What will happen if I take part in this study?
- o   A videotaped play (15 minutes) and clean-up session with your child who has had care at CASA. The play is done in your home, if that is convenient for you.

What if I change my mind about taking part in the study?
If you change your mind about taking part in the videotaped play session you can STOP AT ANY TIME. Participation is completely voluntary. And of course, you will still be able to complete COS-P. The other parents in your group will not know that you have decided not to participate in the study; just let the research coordinators know. You can ask to have any or all of your data removed from the study, as long as you let us know before we start to analyze the data which will be after the parenting group is finished. Again, let the research coordinators know.

Are there any risks to taking part in this study?
A possible risk is that you feel uneasy during the videotaped play session with your child. As you reflect on your parenting, you may decide that there are things that you would like to talk about privately with someone. We have contacts to share with you including The Family Centre in Edmonton [http://www.the-family-centre.com/contact-us/] at 780 423 2831.

Are there benefits to taking part in this study?
There will be no direct benefit to you from taking part in this study. We hope the information we gain from this study will be used to improve COS-P and make it more effective for all parents. There is potential benefit to you if you recognize positive effects of the program; the influence it has on your parenting and your relationship with your child(ren).

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Will my information be kept confidential and private?
We will keep the video data you provide confidential except when professional codes of ethics or the law require reporting; then your right to confidentiality and privacy cannot be upheld. Videoed data will only be viewed by members of the research team who sign a Confidentiality Agreement. We remove your name and any identifying information from the video files. Paper files are kept inside locked cabinets inside a locked office. All electronic files are kept on a password-protected server through Athabasca University. Only research staff working with Rebeccah Marsh, Gwen Rempel, and Christina Rinaldi will see this information. Any files with identifying information (e.g., your name and address so we can contact you) are kept in a separate location from your video files. We keep the information you provide for at least seven years after we finish the study.

The findings from this study will be shared with others. We will, however, not use your name or identifying information. We will not use your name in any presentations or publications. We may look at the information you provided for this study again in the future to help answer other research questions about COS-P. If so, the ethics board will review the study to ensure we use the information ethically. We do not share data between parents. Data collected in this study is not discussed in the COS-P program.

Who can address concerns I have about this study?
The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical concerns, you may contact the University of Alberta Research Ethics Office at 780-492-2615.

Please contact either of the individuals identified below if you have any questions or concerns about the study.

Dr. Christina Rinaldi   *Telephone: 780-492-7471*
Professor, Educational Psychology
University of Alberta

Dr. Gina Wong   *Telephone: 1 866 442 3089*
Associate Professor, Graduate Centre for Applied Psychology
Athabasca University

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Consent Form for Parents
Evaluating the Circle of Security Parenting Program

Lead Investigators:	Dr. Rebeccah Marsh	Telephone: (780) 400-4567
	Dr. Gwen Rempel	Telephone: (780) 435- 8167
Research Coordinators:	Leanne Johnson	Email: ljohnson@ualberta.ca
	Laura Rogers	Email: lrogers@ualberta.ca

1. Do you understand that you have been asked to be in a research study? ☐ Yes ☐ No

2. Have you read and received a copy of the attached Information Letter? ☐ Yes ☐ No

3. Do you understand the benefits and risks involved in taking part in this research study? ☐ Yes ☐ No

4. Do you understand that you are free to refuse to participate or withdraw from the study at any time? You do not have to give a reason and it will not affect your or your child's care. ☐ Yes ☐ No

5. Has the issue of confidentiality been explained to your satisfaction? ☐ Yes ☐ No

6. Do you understand who will have access to your study data? ☐ Yes ☐ No

7. Do you understand that the videotape data you provide for this study may be analyzed in future studies? ☐ Yes ☐ No

8. Would you be willing to be contacted about participating in related studies in the future? ☐ Yes ☐ No

I agree:

To participate in **videotaped play interactions** with my child(ren) for this research study. ☐ Yes ☐ No

I agree to have my child(ren) _____ participate in the videotaped play session:

☐ Yes ☐ No

_____   _____   _____
Signature of Parent   Parent's Printed Name   Date

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

_____   _____   _____
Signature of Investigator or Designee   Printed Name   Date

THE INFORMATION SHEET MUST BE ATTACHED TO THIS CONSENT FORM AND A COPY GIVEN TO THE RESEARCH PARTICIPANT

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Appendix C: Child Information Letter and Assent Form

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Evaluating the Circle of Security Parenting Program (8-week version)

Lead Investigators: Dr. Rebeccah Marsh, Director, Evaluation and Research, CASA
                       Dr. Gwen Rempel, Adjunct Associate Professor, University of Alberta
Co- Investigators: Dr. Christina Rinaldi, Dr. Gina Wong, Dr. Shawn Fraser
Research Coordinators: Leanne Johnson; Laura Rogers 780 435 8167

What is a study?

A study is done when we want to learn more about something.

For this study, we want to learn more about parents and their children. Most of all, we want to learn about parents who take a parenting program.

What will you have to do?

If you and your mom or dad agree to join this study, one of us will meet with you both twice over the next few months.

We will have toys for you and your parent to play with. We will also bring a video camera. We will video tape you playing with your mom or dad. You will play for 15 minutes. Then we will ask you to clean up the toys.

Will it feel OK?

We hope that you have fun playing with the toys that we bring.

Will it hurt?

The only thing that might be hard is that you have to stop playing when 15 minutes go by.

Can you quit?

You don't have to take part in this study at all, and you can quit at any time. No one will be mad at you if you decide you don't want to do this. You can also stop part way through. You can tell a person from the study that you want to quit.

Your signature?

We would like you to sign this form to show that you agree to take part. Your mom or dad will be asked to sign another form agreeing for you to take part in the study.

Do you have questions?

You can ask anyone from the research team about anything you don't understand. You can also phone Leanne or Laura. You can also ask your parents any questions you have.

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Evaluating the Circle of Security Parenting Program (8-week version)
CHILD ASSENT FORM

Lead Investigators:	Dr. Rebeccah Marsh, Director, Evaluation and Research, CASA
	Dr. Gwen Rempel, Adjunct Associate Professor, University of Alberta
Co- Investigators:	Dr. Christina Rinaldi, Dr. Gina Wong, Dr. Shawn Fraser
Research Coordinators:	Leanne Johnson; Laura Rogers

I agree to take part in this study: ☐ Yes ☐ No

_____   _____
Your Name   Date

_____   _____   _____
Witness (if available)   Printed Name   Date

I believe that this child understands what is involved in the study and voluntarily agrees to participate.

_____   _____   _____
Signature of Researcher   Printed Name   Date

Appendix D: Enrollment Demographic Forms

Evaluating the Circle of Security Parenting Program (8-week version)

Enrollment Demographics

Part I: Parent Demographics

Study ID: _____

Parent Name: _____

Parent Year of Birth: _____ ☐ Parent speaks English

Part 2: Child Demographics (child who has had care at Stollery Children's Hospital)

Child name: _____

Child age: _____ Child's DOB: _____

Child diagnosis: _____

Other children: _____

Part II: Contact Information

Address: _____

City: _____ Province: _____ Postal Code: _____

Home Phone: _____

Alt. Phone: _____

Email: _____

Preferred communication: ☐ Text   ☐ Phone   ☐ Email

Part III: Timing of COS-P ☐ COS-P starting late April 2016

Part IV:

☐ **"I give permission to pass my contact information on to the COS-P researchers."**

Completed by:

_____   _____   _____
          Name   Signature   Date (dd-mmm-yyyy)

Version: 2017-Mar-17

Appendix E: Research Ethics Approval

Revisions Accepted: Certification of Ethics

Gail Leicht <gleicht@athabascau.ca>
Mon 2015-02-02 8:48 AM
To: Dr. Gwen Kleinschroth <grempel@athabascau.ca>
Cc: Dr. Gwen Kleinschroth <grempel@athabascau.ca>; Dr. Sherri Melrose <sherrim@athabascau.ca>; Gail Leicht <gleicht@athabascau.ca>

Athabasca University
RESEARCH CENTRE

February 02, 2015

Dr. Gwendolyn Rempel
Faculty of Health Disciplines
Athabasca University

File No: 21671

Expiry Date: January 30, 2016

Dear Dr. Gwendolyn Rempel,

Thank you for your recent resubmission to the Athabasca University Research Ethics Board (AUREB), addressing the clarifications and revisions as requested for your research entitled, 'Evaluating the Circle of Security relationship-based parenting program with families in an urban setting in Alberta: Pilot phase 2 Short title: Evaluating Circle of Security'.

Your application has been **Approved** and this memorandum constitutes a **Certification of Ethics Approval**. You may begin the research immediately.

This REB approval, dated January 31, 2015, is valid for one year less a day.

Throughout the duration of this REB approval, all requests for modifications, ethics approval renewals and serious adverse event reports must be submitted via the Research Portal.

To continue your proposed research beyond January 30, 2016, you must submit an Ethics Renewal Request Form before January 15, 2016.

When your research is concluded, you must submit a Project Completion (Final) Report Form to close out REB approval monitoring efforts.

At any time, you can login to the Research Portal to monitor the workflow status of your application.

If you encounter any issues when working in the Research Portal, please contact the system administrator at research_portal@athabascau.ca.

Sincerely,

CIRCLE OF SECURITY® PARENTING™ EFFECTIVENESS

Sherri Melrose
Chair, Research Ethics Board

Notification of Approval

Date:	April 7, 2016
Study ID:	Pro00064102
Principal Investigator:	Rebeccah Marsh
Study Title:	Evaluating Circle of Security Parenting® Eight Session DVD Program at CASA - Child, Adolescent and Family Mental Health
Approval Expiry Date:	Thursday, April 6, 2017

Approved Consent Form:	Approval Date	Approved Document
	4/7/2016	Document 3.1 CASA - Information Letter Consent - Intervention (2016-04-02) REVISED.doc

Sponsor/Funding Agency: Athabasca University - Academic Research Fund

Thank you for submitting the above study to the Research Ethics Board 1. Your application has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

Anne Malena, PhD
Chair, Research Ethics Board 1

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Appendix F: PARCHISY Task Script Instructions

"We are interested in seeing how children and their parents play and interact. Here are some toys for you to play with. I'll be in the next room if you need me and I will let you know when your play time is done. Thanks."

After instructions are given, pull bag out and take out toys. Place toys in a semi-circle around the child and parent, with the bags of people and animals in the middle. Start timing with watch as soon as all toys are out, and time for 15 minutes.

After 15 minutes – approach parents and state: "It's time to stop now; so I'll leave this bag here for you *(put bag in front of toys)* and I'll give you a few minutes to clean up" *(Give them toy bag)*. You can call me back when you're done" *and walk away*.

TOYS FOR PARCHISY BY AGE GROUP

These are the toys that promote parent-child interaction.

Age group	Toys
3-5 years	Barn, animals, people, trucks/cars, doll, play food, carousel or cause-effect toy
5-8 years	Etch-a-sketch, build an instrument, barn, playhouse/castle, puppets, animals, people, dinosaurs
9-12 years	Marble maze, marble works and build an instrument construction toys

Photographs used with permission.

Appendix G: PARCHISY Coding Scheme - Adapted for Circle of Security®

Research

(Originators: Deater-Deckard, K., Pylas, M. V., & Petrill, S. (1997). *Parent-Child Interaction System©*(PARCHISY), London: Institute of Psychiatry). Used with permission from authors

Italics include clarification of coding for Circle of Security project

MOTHER OR FATHER CODES

1. Positive content (control): use of praise, explanation, and open-ended questions
    1) no positive control shown
    2) one or two instances of positive control
    3) a few/several instances of positive control; reliance on explicit directions ("up, down, stop")
    4) moderate amounts of positive control shown; reliance on explicit directions with at least one instance of praise, explanation, *or* questioning (*half and half)*
    5) two or more instances of explanation, questioning, *or* praise, with some explicit directions *(only a few)*
    6) substantial use of explanation, questioning, *and* praise, and few explicit directions; only one or two instances of non-positive control shown
    7) exclusive use of explanation, questioning, and praise

Overall: Ok to have closed ended questions for clarity in play; has overall supportive feel; on coding sheet note praise, questions/explanations, directives

2. Negative content (control): use of physical control of dials (*toys)* or child's hand/arm/body, use of criticism, *shaming*; (Physical control of dials (*toys)* or child's body <u>must be with intention</u>, not accidental or momentary. Touching a *toy*, for instance, is not necessarily an instance of negative control - touching the *toy* and turning it implies intention and would be coded as an instance of negative control, even if it was very quickly done).
    1) no negative control shown
    2) one or two instances of negative control
    3) a few/several instances of negative control
    4) moderate amounts of negative control: reliance on critical comments ("no, don't do that") and/or manipulation of dials
    5) negative control used for more than half the interaction
    6) substantial use of criticism, and physically "taking over" task; only a few instances of non-negative control shown
    7) exclusive use of criticism (can include shaming) and physical control of dials and/or child's hand/arm/body; may include instances of corporal punishment

Overall: Has a negative feel; must be with intention

3. Positive affect (warmth): smiling, laughing
    1) no positive affect displayed
    2) one or two instances of positive affect
    3) a few/several instances of positive affect
    4) moderate amounts of positive affect - smiling, laughing for about half of interaction
    5) positive affect for more than half of interaction
    6) substantial amounts of positive affect; only one or two instances of non-positive affect
    7) constant positive affect - smiling and laughing throughout task

Overall: Obvious smiling and laughing; Our coding includes warmth and genuineness (especially when considering two codes)

4. Negative affect - rejection: frowning, cold/harsh voice
    1) no negative affect displayed
    2) one or two instances of negative affect
    3) a few/several instances of negative affect
    4) moderate amounts of negative affect - frowning, stern looking, harsh/cold voice for about half of interaction – *half and half*
    5) negative affect for more than half of interaction
    6) substantial amounts of negative affect; only one or two instances of non-negative affect
    7) constant negative affect - always scowling/frowning, voice always in harsh tones

Overall – do not code flat affect as negative; hard to see due to our presence in their homes; may decide to have this as a dichotomous code

5. Responsiveness to child's questions, comments, behaviors *(Note evidence of delay is important)*
    1) never responds; ignores child's comments, questions, and behaviors
    2) one or two instances of responding to child
    3) a few/several instances of responding to child
    4) moderate amounts of responsiveness - responds to about half of child's comments, questions, and behaviors, although some responses may be delayed
    5) responds more than half the time, with only a few delays in responses
    6) responds to most of child's comments, questions, and behaviors, with no delay *(most with no delay)*; expands on some comments made by child; only one or two instances of non-responsiveness.
    7) always responds immediately to child; expands on comments made by child.

6. On task - initiative/persistence: persistence is with respect to the task that we have given them - doing some other drawing does not qualify as completing the task *(the task is play)*

We will not use this code as we are less interested in them being on the task of play than attending to child need and lead – we have deleted and replaced with 6a deleting and replacing with new code 6a.

6.a *Following child's lead/need*
1) *no instances of following child's lead/need*
2) *one or two instances of following child's lead; and/or ignores or has delayed response to need*
3) *a few/several instances of following a child's lead; ignores a child need or delayed response to need*
4) *follows child lead half of time; does not ignore a child need*
5) *Follows child lead more than half of time, with only a few instances of not following the child's lead; does not ignore a child need;*
6) *Follows child lead most of time with one or two instances of not following lead; does not ignore a need*
   70 *Following child's lead /need all of the time*

7. Verbalisations
    1) none
    2) one or two utterances
    3) a few/several utterances
    4) multiple utterances; moderate amounts of speaking; talks during about half of the interaction
    5) talks during more than half, but not through entire, interaction
    6) substantial amounts of speaking; only one or two moments when not talking
    7) speaks throughout the interaction (excluding when child is speaking); no clear moments of silence

We will include this code for now so that we can note if there is a change in the verbalizations pre and post COS group.

CHILD CODES

8. Positive affect (warmth): smiling, laughing *(outward displays)*
    1) no positive affect displayed
    2) one or two instances of positive affect
    3) a few/several instances of positive affect
    4) moderate amounts of positive affect - smiling, laughing for about half of interaction
    5) positive affect for more than half of interaction
    6) substantial amounts of positive affect; only one or two instances of non-positive affect

       7) constant positive affect - smiling and laughing throughout task

Overall: can be flat – flat does not mean positive

9. Negative affect - rejection: frowning, cold/harsh voice tones *(include: crying in anger, frustration, pouting, swearing, sadness/upset but not in anger)*
      1) no negative affect displayed
      2) one or two instances of negative affect
      3) a few/several instances of negative affect
      4) moderate amounts of negative affect - frowning, stern looking, harsh/cold voice for about half of interaction
      5) negative affect for more than half of interaction
      6) substantial amounts of negative affect; only one or two instances of non-negative affect
      7) constant negative affect - always scowling/frowning, voice always in harsh tones

Overall: can be flat – flat does not mean negative

10. Responsiveness to *parent's* questions, comments, behaviors: responses can be either verbal or Behavioural *(responding to, although not necessarily agreeable)*
      1) never responds; ignores *parent's* comments, questions, and behaviors
      2) one or two instances of responding to *parent*
      3) a few/several instances of responding to *parent (ignores more than responds)*
      4) moderate amounts of responsiveness - responds to about half of *parent's* comments, questions, and behaviors, although some responses may be delayed *(looks inconsistent)*
      5) responds more than half the time, with only a few delays in responses *(responds more than ignores)*
      6) responds to <u>most</u> of *parent's* comments, questions, and behaviors, *(most)* with no delay; only one or two instances of non-responsiveness.
      7) always responds immediately to mother; expands on some comments made by mother.

11. On task - initiative/persistence: persistence is with respect to the task that we have given them - doing some other drawing does not qualify as completing the task
      1) no interest in task; no initiative; does not begin task
      2) begins task, but clearly not interested in it
      3) begins task with initiative, but does not attempt to complete task with *parent*
      4) moderate interest, initiative - just completes task with *parent*
      5) completes task with *parent*, with a few instances of off-task behavior
      6) persistent; only one or two instances of off-task behavior
      7) constant interest and persistence; always on-task

12. Noncompliance *(explicit refusal, maybe non-verbal but very clear non-compliance)*
      1) always does what is asked by mother during task

2) one or two instances of noncompliance
3) a few/several instances of noncompliance
4) moderate amounts of noncompliance - during about half of the interaction
5) noncompliant for more than half of the interaction, with a few/several instances of compliance
6) substantial amounts of noncompliance; only one or two instances of compliance
7) noncompliant throughout task; always refuses or does something contrary to that which is asked of him/her; no instances of compliance

Overall: note ignoring is non-responsive, not non-compliance

13. Autonomy/independence - child leads and controls task; does not include off-task behaviours *(count the play sequences or topics and who initiates)*
    1) no evidence of autonomy/independence; mother leads throughout task
    2) one or two instances of child's autonomy
    3) a few/several instances of child's autonomy
    4) moderate amounts of autonomy; controls task about half of the time
    5) controls task for more than half of the time
    6) substantial autonomy - one or two instances of following mother's lead
    7) completely independent - controls entire task from beginning to end

14. Activity - energy includes all minor body movements (moving arms, pointing to stimuli or places on screen) and major body movements (jumping up and down, getting up and sitting down) not including fine motor manipulation of dials.
    1) child seems extremely lethargic or tired; makes no movement (aside from turning dials)
    2) one or two instances of activity or movement
    3) a few/several instances of activity or movement
    4) moderate amounts of activity - moving for about half of the interaction *(more active with toys but sits in one place)*
    5) active for more than half of the interaction *(gets up 2+ times-not just when finished clean-up)*
    6) substantial amounts of activity; only one or two instances of inactivity *(motorically busy)*

    7. child is constantly moving, very active and energetic or fidgety, moves quickly.

Overall: May not be a helpful code but will keep in for now due to possible differences with vulnerable populations

15. Verbalisations *(includes play sounds)*
    1) none
    2) one or two utterances
    3) a few/several utterances

4) multiple utterances; moderate amounts of speaking; talks during about half of the interaction
5) talks during more than half, but not through entire, interaction *(about average, talking on an off with parent)*
6) substantial amounts of speaking; only one or two moments when not talking
7) speaks throughout the interaction (excluding when *parent* is speaking); no clear moments of silence

DYADIC CODES

16. Reciprocity: shared positive affect, eye contact, a "turn taking" (i.e., conversation-like) quality of Interaction- (*harmonious quality- back and forth interaction*)
    1) no evidence of reciprocity
    2) one or two instances of reciprocity - either shared affect *or* eye contact *(looks more disconnected)*
    3) a few/several instances of reciprocity (either shared affect *or* eye contact)
    4) moderate levels of reciprocity; evidence of *both* shared affect *and* eye contact; some evidence of "conversation-like" interaction
    5) clear evidence of reciprocity; one or two episodes of *intense* shared positive affect *coupled* with eye contact that is sustained for several "turns" between mother and child *(moment of shared joy)*
    6) substantial reciprocity involving numerous episodes of intense shared positive affect coupled with eye contact that is sustained for several "turns"; only one or two instances of non-reciprocity *(or just a few)*
    7) highly integrated and reciprocal - constant shared positive affect and eye contact that never loses "turn taking" quality *(overall tone is strongly mutual without a sense of disconnect)*

17. Conflict: *minor or major* disagreement - *mutual or shared* negative affect; arguing, tussling over toy, etc.
    1) no evidence of conflict during task
    2) one or two instances of conflict
    3) a few/several instances of conflict
    4) moderate amounts of conflict - about half of interaction is conflictual
    5) conflicted interaction throughout, with a few/several instances of no conflict
    6) substantial conflict throughout, with only one or two instances of no conflict
    7) highly conflicted interaction for entire task

Overall: Avoidance is not conflict, but is non-cooperation

18. Cooperation - defined as *explicit* agreement and discussion *(may do this through play in play task; can be verbal or non-verbal but still explicit)*, about how to proceed with and complete task (e.g., "Shall we do this next?" and child says "Yes")
    1) no evidence of cooperation during task
    2) one or two instances of cooperation

3) a few/several instances of cooperation
4) moderate amounts of cooperation - appears during about half of interaction *(looks cooperative, on common goal with some explicit)*
5) cooperative interaction throughout, with a few/several instances of lack of explicit cooperation *(more than half; really see more explicit processing-discussion)*
6) substantial cooperation throughout, with only one or two instances of lack of explicit cooperation
7) highly cooperative interaction for entire task

Overall: Cooperation is working together on common goal

Appendix H: Confidentiality Pledges/Agreements

Athabasca University
everywhere.

Study Title:	Evaluation Circle of Security Parenting Program
Investigator:	Gwen R. Rempel PhD, RN
	Associate Professor, Faculty of Health Disciplines
Toll-free:	1-855-833-5699
Email:	grempel@athabascau.ca

CONFIDENTIALITY PLEDGE

In generating, transcribing, and/or analyzing video and/or audio recorded data for the above-named research study, I understand that I will be working with data gathered from individual participants whose identities I may or may not know or come to know.

I understand that all possible precautions are to be undertaken to protect the identities of the participants as well as the information they share during their involvement with the research study.

I hereby pledge to keep all the information that I see or hear during my work as a research team member strictly confidential. I agree not to discuss the information or the identities of any of the participants with anyone other than Dr. Gwen Rempel and/or other members of the research team.

My signature (below) indicates that I understand the importance of, and agree to maintain, confidentiality.

_____   _____   _____
Signature of Research Team Member   Printed Name   Date

_____   _____   _____
Signature of Principal Investigator   Printed Name   Date

UNIVERSITY OF ALBERTA

Evaluating the Circle of Security Parenting Program (8-week version)

Confidentiality Agreement

Lead Investigators: Dr. Rebeccah Marsh, Director, Evaluation and Research, CASA
                                  Dr. Gwen Rempel, Adjunct Associate Professor, University of Alberta
Co- Investigators: Dr. Christina Rinaldi, Dr. Gina Wong, Dr. Shawn Fraser
Research Coordinators: Leanne Johnson; Laura Rogers

Study Purpose: The purpose of this project is to identify the most effective methods of measuring change in parent reflective functioning over the course of an 8-week COS-P group program so that we can demonstrate intervention effectiveness in clinical trials of this program in Alberta.

Consent: This is to certify that I _____ agree to maintain the confidentiality
                                            [Full name]
of the data to which I have access demographic forms, home visits, and video taping and coding parent-child play sessions in the above study. I will not discuss the information with anyone other than the research team, I will not reveal the name of any participants, I will not play video recordings of the data in the hearing or viewing range of others apart from the research team and I will not retain in my possession copies of the data or other information about study participants.

Signature: _____

Date: _____