Effectiveness of the Circle of Security Intervention in an Australian Community-Based Clinical Population:

A Consecutive Cohort Study

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Abstract

The Circle of Security intensive intervention (COS) is based on attachment theory and aims to promote secure parent–child attachment relationships. Despite extensive uptake of the approach, there is still limited empirical evidence regarding its efficacy, or its effectiveness as a treatment approach with at risk and referred populations.

The current research, consisting of three separate studies, seeks to fill a gap in this evidence by testing the use of the Circle of Security intervention with a sample of families referred to an Australian community clinical service with concerns about their young children's behaviour. Archived pre- and post-intervention data were analyzed from 83 clinically referred caregiver–child dyads (child age: 13–88 months) who completed the Circle of Security intervention in sequential cohorts and gave permission for their data to be included in the study.

The first study considered questions about the efficacy of the intervention: specifically whether participation in the 20-week Circle of Security intervention resulted in positive caregiver–child relationship change in four domains: caregiver reflective functioning; caregiver representations of the child and the relationship with the child; child attachment security, and attachment disorganization. Caregivers completed the Circle of Security Interview, and dyads were filmed in the Strange Situation Procedure before and after the intervention. Results supported all four hypotheses: caregiver reflective functioning, caregiving representations, and indices of child attachment security increased after the intervention, and indices of attachment disorganisation decreased for those with high baseline scores. Those whose scores were least optimal prior to intervention showed the greatest change in all domains. This study adds to the evidence suggesting that the 20-week Circle of Security intervention results in significant relationship improvements for caregivers and their children, in line with intervention aims.

The next study examined the efficacy and effectiveness of intervention in improving child behavioural and emotional functioning in the referred sample of families who completed

the intervention (n = 83). Parents (and teachers, when available) completed questionnaires assessing child protective factors, behavioural concerns, internalising and externalising problems, prior to and immediately after the intervention. The following were considered as potential moderators: child gender and age; parent representations; reflective functioning; child attachment indices; and severity of presenting problems prior to treatment. Results showed significant improvement for parent ratings of child protective factors, and fewer behavioural concerns (internalising and externalising symptoms); children with more severe problems showed most improvement. Teachers also reported improvements, but change was significant only for externalising problems. Findings suggest the intensive Circle of Security intervention is effective in improving child behavioural and emotional functioning in clinically referred children aged 1–7 years.

The third study examined the effectiveness of the attachment-based Circle of Security 20-week intervention (COS) in improving parent emotional functioning in the referred population of families who completed the intervention (n = 83). Parenting stress and parent psychological symptoms were assessed pre and post intervention, and mixed design repeated measures (ANOVAs) were used to assess change. Severity of presenting problems was considered as a moderator. Results showed clinically significant improvements in both aspects of parent emotional functioning, with change explained by those with more severe problems at the outset. Improvements were associated with improvements in child behaviour and more positive parent representations of the child and of parenting capacity. Findings suggest the intensive COS intervention is effective in reducing parenting stress and psychological symptoms in parents of children aged 1–7 years. Questions remain about the mechanisms of change and the direction of effects.

The findings of the current research add to evidence that the intensive Circle of Security intervention is efficacious in improving the parent–child relationship (achieving the primary aims of the intervention). The research also indicates that the intervention is effective in a real-world clinical context with moderate to high-risk families referred with child

behavioural and emotional problems. Results show that the intervention approach was successful in engaging and retaining most families in the treatment, and resulted in statistically and clinically significant reductions in both child and parent symptoms of dysfunction.

While there were some substantial limitations to this research, notably the absence of a control group, findings address a significant gap in evidence for the Circle of Security intensive intervention. Important questions are also raised that warrant further investigation, including whether parent behaviour also changes after the intervention, and what the mechanisms of change are.

Other theoretical and clinical implications are also discussed, including questions about the construct and measurement of reflective functioning, the value of dimensional measures of attachment and caregiving representations and the likely (but unmeasured) contribution of the therapeutic process to outcomes seen. A novel contribution of the current research was the development of a coding tool to measure caregiving representations on the Circle of Security interview, with research and clinical application.

The current research concludes that the Circle of Security Intervention is effective in a treatment context with moderate to high risk families of children aged 1 up to 7 years, referred with child behavioural and emotional difficulties not only in improving parent-child relationships, but also in reducing child and parent symptoms of distress, and that the most troubled families showed most benefit. Further research is needed, comparing outcomes from this version of the intervention with those of other child behaviour interventions, other attachment based interventions and other forms of the Circle of Security intervention to clarify what works for whom.

Certification by Candidate

I certify that the work in this thesis titled "Effectiveness of the Circle of Security Intervention in an Australian Community-based Clinical Population: A Consecutive Cohort Study" has not previously been submitted for a degree or submitted as part of the requirements of a degree to any university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research and has been written by me. Any assistance I have received in my research work and the preparation of the thesis itself has been appropriately acknowledged.

In addition I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by the Macquarie University Ethics Committee (Human Research) on February 21, 2013 under reference number 5201300043 (see Appendix A).

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Student Number:

Acknowledgements

After many years of largely working in the clinical world, embarking on and completing a doctoral research project has been a major undertaking. Although I am only too aware of the hard work it took to complete this study, it could not have been achieved without the inspiration provided, belief shown, and guidance, encouragement and practical and emotional support given, by so many people.

My principal supervisor, Associate Professor Catherine McMahon, has been the most pivotal person, enabling me to not only embark on but more importantly also finish this task. Not many PhD students have the privilege of being guided, supported and challenged by someone who is not only interested but also reliably available, sensitive, responsive and able to take charge when needed. Most of this was done at a distance, as I was in Canberra and she was in Sydney. Doing a PhD is a solitary pursuit for much of the time, but I never felt left alone as I toiled away, as I always knew Cathy had me in mind.

I am also grateful for the timely support provided by Dr Naomi Sweller, my associate supervisor. Naomi was always quick to respond, providing crucial assistance and guidance with statistical analyses at key stages in each of the three studies. She also assisted by reviewing method and results write-ups in each study.

This research would not have been possible without the contributions made by many people outside the university too. The families who participated in the Circle of Security intervention between 2006 and 2012 who had agreed to their data being used for research purposes were taking a leap of faith. I am grateful that they trusted it would be used for a good purpose, and I hope the work will, in future, come to benefit other families like them.

My former colleagues at Marymead Child and Family Centre in Canberra, especially staff in the Centre for Early Life Matters, have been a constant source of support. Not only did they share the hope that one day research might be possible with all the data they helped collect but also they saw its importance and helped me see that my doing a PhD was one way it could be achieved. There were so many events that could have derailed the research

I would also like to thank my many colleagues from Australia and around the world in the infant and early childhood mental health field. Without being connected to you all through both the Australian Association for Infant Mental Health and the World Association for Infant Mental Health (AAIMHI and WAIMH) and other professional networks, undertaking such a project would not have been contemplated. Many of you have generously shared your work and showed interest in mine, building new possibilities for collaboration down the track. Knowing you are all out there, also toiling away to make things better for infants, young children and their families, has helped me to feel supported through this whole process and strengthened my resolve when the going got tough.

Finally, my ultimate secure base and safe haven has been my immediate family. My husband, Mark, has been a constant support and has believed in me and the value of this work from the outset. He and my daughter, Louisa, have tirelessly kept the household functioning while I have been "in the PhD vortex" and both teamed up to ensure that I was looked after throughout the process. My son, Christopher, regularly gave me a bed in Sydney when I travelled to the university, and provided IT guidance and support from the very beginning. They have all been there when needed, the whole way through, for which I am deeply grateful.

Chapter 1   Overview

> *It is a little unexpected that, whereas attachment theory was formulated by a clinician for use in the diagnosis and treatment of emotionally disturbed patients and families, its usage hitherto has been mainly to promote research in developmental psychology. Whilst I welcome the findings of this research as enormously extending our understanding of personality development and psychopathology, it has none the less been disappointing that clinicians have been slow to test the theory's uses. There are probably many reasons for this. One is that the data drawn on appeared to be unduly behavioural. Another is that clinicians are very busy people who are naturally reluctant to spend time to master a new and strange conceptual framework until they have strong reasons for believing that to do so will improve their clinical understanding and therapeutic skills.*
>
> (Bowlby, 1988/2005, A Secure Base. Preface, pp. ix–x)

Background to the Current Study

Clinicians can be stimulated to develop and apply theory and/or undertake research, to make sense of what they see in the clinical context, especially when gaps exist that leave them feeling inadequately equipped to meet challenges they face. This was, in fact, the impetus for Bowlby developing the theory of attachment. Circle of Security originators were also therapists working with young children and families and they were similarly motivated by their desire to "improve their clinical understanding and therapeutic skills" (Bowlby, 1988/2005, pp. IX–X). Their inquiry into alternative ways to understand and respond to therapeutic challenges led them to apply attachment theory and research to develop a new approach (the Circle of Security intervention) *and* to research whether it worked (Powell, Cooper, Hoffman, & Marvin, 2014).

The current study was driven by some of the same imperatives. Charged with setting up a clinical program to fill a gap in services for families of young children presenting with behavioural and emotional problems, the researcher drew on relational frameworks derived from infant and early childhood mental health theory and research (including attachment theory) to underpin this service. A confluence of factors led to the clinical use of Circle of Security intervention in the program from 2006. These included the timely availability of a Circle of Security 10-day training course in Australia, a desire to train practitioners to work together in a relational way with families of young children, the need for a structured approach to assessment and intervention that could be tailored to suit the individual needs of

families with children across a broad age range, and the fortuitous availability of some pilot funding. The Circle of Security originators also agreed to provide clinical supervision (in pre-Skype days this was via telephone) for the implementation of the intervention. So clinical priorities were mostly addressed.

There was ongoing concern, however, that the intervention itself had not been researched. In mid 2006, when use of the Circle of Security intervention in the service began, there was no published empirical evidence on either the efficacy or effectiveness of this intervention, even though it appeared to be very soundly grounded in attachment theory and research, and also informed by other relevant developmental and clinical research.

Early pilot funding (2006–07) required an evaluation which established that using the Circle of Security intensive intervention with families was more effective than individual counselling in engaging and retaining moderate to high-risk families in treatment, and also showed positive trends in child and parent symptom reduction (Huber, 2007). The routine gathering of pre- and post-intervention assessments and parent consent to use these for evaluation and research purposes meant that these procedures became embedded early in routine clinical practice and were retained as the Circle of Security intervention came to be more regularly and widely used in the service.

By 2012, empirical evidence for the original Circle of Security intervention was still scant (there were three extant published studies, only one reporting on the 20-week group version of the intervention). At the same time a brief version of the intervention, which does not require the use of individualised video-based assessment and treatment (Circle of Security-Parenting [COS-P]—Cooper, Hoffman, & Powell, 2009), was gaining wide popularity among practitioners, also with no empirical support. By this time, extensive pre- and post-clinical data on the 20-week group version had been archived over 6 years. The need for research on both forms of the intervention was compelling, but it was the awarding of a research grant to the clinical service for data collation (transcription, video editing, auditing)

and coding, and the combined research interests of the candidate and supervisor that enabled

the current doctoral research to begin in 2013. (See Appendix A for ethics approval.)

Study Goals

The studies that comprised the current doctoral research set out to answer the

following questions:

1. Is the intensive form of the Circle of Security intervention effective in improving the

   parent–child attachment relationship (reflected in improved parents' relational capacities

   and improved child attachment security and decreased disorganisation)?

2. Following on from Bowlby's clinical interest, is the Circle of Security intervention an

   appropriate and effective treatment approach with families where children have

   established behavioural and emotional difficulties?

3. Does the intervention also benefit parents?

Figure 1.1 illustrates the focus of the three complementary studies.

Figure 1.1 *Map of studies and area of focus*

Study Parameters and Design

The scope of the study was defined by the fact that it relied on archived data, collected

through a clinical program. Because of the trust built up with families, nearly every family

who completed the intervention agreed to the use of all of their data for evaluation and research purposes, leading to an excellent retention of intervention completers in the study. However, there was also missing data as clinical priorities meant some checklists were not completed by some families. The study design was also limited by the fact that data were only collected at two time points (pre and post intervention for each group), and there was no control or comparison group. Therefore a pre-post sequential design was used, replicating the one used in the original empirical study (Hoffman, Marvin, Cooper, & Powell, 2006). Figure 1.2 shows study participants and data available for inclusion in the overall study.

Assessed for COS *n*=95

Excluded from study *n* = 12
- Did not commence = 5
- Attended 1 session = 2
- Dropped out part way = 5

Completed COS and included in the study: *n* = **83**

"Younger children groups"
Dyads—child 11 mths – 4 years
n = **56 (67%)**

"Older children groups"
Dyads—child over 4.5 years
n = **27 (33%)**

SSPs available for coding
n = **55 (66%)**
- No consent=1

COSIs available for coding
n = **51/56 (93%)**
- No consent = 2
- Post COSI incomplete = 1
- Recording failure pre COSI = 2

DECA-C 2–5 years
Eligible by age:
Pre n = 66 (80%)
Post n = 61 (73%)
Checklists available for scoring
Parent rated:
Pre n = 58 (70%)
Post n = 48 (58%)
Parent rated pre and post n = 44 (53%)
Teacher rated:
Pre n = 35 (42%)
Post n = 28 (34%)
Teacher rated pre and post n = 21 (25%)

CBCL 1.5 years up
Eligible by age:
Pre n = 79 (95%)
Post n = 83 (100%)
Checklists available for scoring
Parent rated:
Pre n = 75 (90%)
Post n = 62 (75%)
Parent rated pre and post n = 57 (69%)
Teacher rated:
Pre n = 54
Post n = 36
Teacher rated pre and post n = 31 (37%)

PSI Checklists available for scoring
Pre n = 74 (89%)
Post n = 64 (77%)
Both pre and post n = 58 (70%)

SCL-90_R Checklists available for scoring
Pre n = 78 (94%)
Post n = 58 (70%)
Both pre and post n = 55 (66%)

COSIs available for coding
n = **22/27 (81%)**
- Post COSI incomplete = 4
- No post assessment = 1

Note: Percentages are of the total sample n=83 unless otherwise specified

Figure 1.2 *Flow diagram showing overall study participation*

Thesis Presentation

This thesis is presented as a thesis by publication. It begins with a brief overview of theory and research regarding child developmental psychopathology and evidence for interventions to prevent or treat behavioural and emotional problems in young children by improving parenting (Chapter 2). Chapter 3 provides a more in-depth discussion of attachment theory, the theory underpinning both the intervention and the research, and reviews empirical evidence on attachment-based interventions. Chapter 4 focuses on the Circle of Security intervention, outlining key features of the approach and critically reviewing empirical support as a basis for the current study. The three empirical studies are presented in Chapters 5, 6, and 7, for all of which the candidate was the first author. The thesis concludes with an integrated discussion of major findings from all three studies in the context of study strengths and limitations, theoretical and clinical implications and directions for future research.

The thesis by publication format necessarily involves some repetition. In order to minimise this, one comprehensive reference list is provided at the end of the thesis. However, as the studies are published (or submitted) manuscripts, they are presented as stand-alone works, including references.

Appendices include copies of the published versions of the three studies (Chapters 5, 6 and 7), as well as the coding manual developed to measure caregiving representations.

Chapter 2 **Background: Developmental Psychopathology and Approaches to Intervention**

Introduction

Achieving positive child developmental outcomes has been the goal of many prevention and early intervention efforts with young children and their families (Meisels & Shonkoff, 2000). When young children are referred to clinical services because parents are concerned about behavioural and/or emotional difficulties, effective intervention to address these concerns is imperative to remediate current distress, but also to prevent future adverse developmental processes and consequences, including the development of psychopathology (Knitzer, 2000). In order to be effective, interventions need to be responsive to the developmental context in which the problems occur, build on an understanding of the processes of normative development and developmental psychopathology, and be strongly grounded in theory and research (Shonkoff & Phillips, 2000; Toth, Gravener-Davis, Guild, Cicchetti, 2013; Zeanah & Zeanah, 2009).

This chapter presents the theoretical and empirical background regarding risk and protective factors for child social and emotional development, and discusses the prevalence of behavioural and emotional problems in the early years and the importance of early intervention. A range of parent-focused intervention approaches are reviewed, identifying their strengths and limitations. Next consideration is given to transactional processes through which child behaviour problems are associated with parent distress and whether typical approaches to intervention ameliorate both. The chapter concludes by presenting the rationale for relationship-based approaches to intervention.

Risk and Protective Factors in Early Development

Models of development suggest that early and/or prolonged exposure to demographic or psychosocial "risk" factors is likely to increase the chances of a negative developmental trajectory for the child. Several explanatory models are proposed: adverse experiences at "sensitive periods" in development may initiate maladaptive biological systems as well as patterns of behaviour and relating to others that influence ongoing development (e.g., Calkins, Propper, & Mills Koonce, 2013). These patterns may also increase the chances of exposure to

subsequent adverse experiences, thus having a "cascade" effect on development (Sroufe,

2013). There is extensive evidence supporting the importance of early experiences (including

risk exposure) for later development (for reviews see, e.g., Shonkoff & Phillips, 2000;

O'Connor & Parfitt, 2009). Some of these risks may be associated with the parent (e.g.,

absent, limited education, mental health problems, substance abuse). Some may be associated

with characteristics of the child (e.g., genetic vulnerabilities, difficult temperament and/or

dysregulated behaviour, physical health problems, developmental disabilities). Others may be

conferred by the environmental context in which the child is developing (e.g., number of and

gap between siblings, exposure to family conflict or violence, living in poverty, social

isolation).

The environmental factors most proximal to the infant and young child are their

experiences in caregiving relationships. The primary caregiving relationship can be protective

or confer risk for child development. When caregiving is characterised by unpredictable,

harsh, abusive or neglectful parenting behaviour, the developing child can be exposed to

chronic, unregulated stress, known to compromise development (National Scientific Council

on the Developing Child, 2006). On the other hand protective factors in the early environment

not only support healthy development but can also buffer the child against the likelihood of

negative developmental outcomes when other risks are present. Protective parent factors

include a good level of education, physical and mental wellness and financial security. Child

protective factors include intelligence, easy temperament, physical health and well-developed

social and emotional capacities, for example capacity to engage socially, delay gratification,

focus attention, and regulate emotions (Shonkoff & Phillips, 2000). Protective environments

are characterised by secure housing, safe neighbourhoods, harmonious family relationships,

social support, appropriate stimulation, and optimal caregiving provided by parents who are

predictably available, protective, warm and responsive to child needs.

Longitudinal studies tracking child developmental trajectories suggest that the type of

risk is less critical than the cumulative number of risks and that such risks present in early

childhood have lasting impact, beyond the impact of any middle childhood risks (Appleyard, Egeland, van Dulmen & Sroufe, 2005; Sameroff & Fiese, 2000). Other research also indicates that chronic mental and physical health problems in adulthood are sequelae to an accumulation (or dose-response effect) of childhood risk exposure (Anda et al., 2006). Infant mental health researchers and practitioners suggest that individual differences in child characteristics are less influential than the caregiving relationship, which, when positive, has been associated with more optimal social, emotional and cognitive development (Zeanah & Zeanah, 2009). While a positive relationship can avert a negative trajectory by moderating individual risk factors, promoting the development of self-regulation and more adaptive behaviour, a problematic relationship may increase the chances of negative outcomes for children both directly and via cascade effects that lead to poor relational functioning in caregiving environments outside the home (Lyons-Ruth & Jacobvitz, 2008; Sroufe, Egeland, Carlson & Collins, 2005; Zeanah & Zeanah, 2009). In particular, early relational trauma in infancy resulting from serious caregiving failures (such as those inherent in frightening or withdrawn parent behavior) has been linked to serious developmental consequences including neurobiological impacts, and psychopathology in adolescence and adulthood (e.g., Lyons-Ruth & Jacobvitz, 2008; Schore, 2012). Longitudinal research examining gene–environment interactions partly confirms this conclusion, but also suggests that the impact of the environment on development may not be the same for every child (Caspi et al., 2002; Caspi et al., 2003). Recent research in the field of epigenetics suggests environmental conditions appear to interact with a child's genetic predisposition to differentially affect development; some children appear to be more genetically susceptible to both positive and/or negative experiences conferred by their caregiving environments (for reviews see Bakermans-Kranenburg & van IJzendoorn, 2007; Pluess & Belsky, 2010). An even more recent proposition is that some children have more developmental plasticity than others, making them more adaptable to both adverse and positive environmental influences, including caregiving (Belsky & Pluess, 2013). These findings and propositions also imply that

interventions to improve parenting may impact differently on children as some may have more capacity to benefit than others from caregiving improvements (e.g., Belsky & van IJzendoorn, 2015)

Normative Development, Adverse Trajectories and Psychopathology

Normative development during infancy and early childhood involves the gradual acquisition of a range of social and emotional capacities which develop alongside cognitive and physical abilities to enable the child to manage developmentally appropriate challenges such as learning, building healthy relationships with family, friends and peers and successfully engaging with the outside world (Berlin, Cassidy, & Appleyard, 2008; Rosenblum, Dayton, & Muzik, 2009; Thompson, 2008). During this period, infants and young children need to learn to regulate behaviour and emotions, focus attention, seek appropriate social support when challenged or distressed, and communicate with and collaborate with others (Shonkoff & Phillips, 2000; Thompson, Goodvin, & Meyer, 2006; Denham, 2006). Nobel laureate economist James Heckman (e.g., 2008, 2012) identified the predictive role of these non-cognitive (i.e., social and emotional) capacities for lifetime functioning (because early skills beget later ones), and signalled the importance of early caregiving and learning environments in their development.

Mounting evidence suggests that clinically concerning early perturbations in child social and emotional development (expressed as behavioural and emotional problems), especially those occurring in a context of other demographic, psychosocial and environmental risks, can trigger an adverse developmental trajectory for the child, and/or signal the presence of psychopathology (Briggs-Gowan, Carter, Bosson-Heenan, Guyer, & Horwitz, 2006; Egger & Angold, 2006; Fanti & Henrich, 2010; Greenberg, Speltz, DeKlyen, & Jones, 2001; Mäntymaa et al., 2012; Wakschlag & Danis, 2009).

While a range of psychopathologies are recognised to occur in school-aged children, research indicates that many (including eating disorders, attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), regulatory disturbances, anxiety

disorders, post-traumatic stress disorder, sleep disorders, depression, and attachment disorders) also occur prior to school entry and that even very young infants can show signs of significant disturbance (Luby, 2006; Skovgaard, 2010; Zeanah & Zeanah, 2009). Behavioural and emotional problems also co-occur in young children (Fanti & Heinrich, 2010) and may be expressed in a range of internalising and externalising symptoms, as well as regulatory and relationship disturbances (Skovaard, 2010). While some challenging behaviours are developmentally normative (e.g., separation protest in 1–2-year-olds; aggression and tantrums in toddlers), their persistence beyond developmentally expected norms, or their interference with important developmental priorities, suggests they have become developmentally problematic and require intervention. Evidence also suggests that the earlier the onset of such difficulties and the longer they persist, and the more they co-occur and/or take place in a context of other risks, the greater the chance of ongoing problems over the life course (Fanti & Heinrich, 2010; National Scientific Council on the Developing Child, 2008/2012; Sroufe, 2013; Sroufe et al., 2005; Wakschlag & Danis, 2009).

Estimated Prevalence of Early Childhood Behavioural and Emotional Problems

While figures are scant for Australian children under 4 years of age, prevalence rates of behavioural and emotional difficulties in young children under 8 years are estimated to be in the range of 15–20% (Egger & Angold, 2006; Lawrence et al., 2015; Sawyer et al., 2000; Skovgaard et al., 2007). Reviews also suggest that many families do not receive early intervention before the problems become entrenched and therefore more difficult to change (e.g., Sainsbury Centre for Mental Health, 2009; Centre for Community Child Health, 2010, 2012). Research from a large Australian longitudinal study has confirmed that precursors of later adjustment problems were present in the preschool years: 50–60% of children with both externalising and internalising problems at 11–12 years had shown these difficult behaviours from as early as 3–4 years, and children with behavioural difficulties at 3–4 years were found to be five times more likely (than those without) to have clinically diagnosable internalising and/or externalising problems at 11–12 years, with the latter problems tending to persist in

adolescence (Prior, Sanson, Smart, & Oberklaid, 1999). The current research focuses on children under the age of eight years who have been referred due to parent concerns about their behaviour. However, child behaviour problems are often accompanied by significant parent distress, discussed below.

Parent Emotional Functioning and Child Social and Emotional Difficulties

Because the social and emotional development of young children is so embedded in the environment and the dynamics of the family, it is not surprising that parent and child emotional wellbeing are intertwined (Lieberman & Osofsky, 2009). Transactional theories and research indicate that parents and children both influence and are influenced by the relationship between them (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Patterson & Fisher, 2002; Sameroff, 2004) and risks affecting either parent or child are likely to impact on the other. Compromised emotional functioning in a parent may therefore be both a cause and a consequence of a troubled parent– child relationship, and also of behavioural and emotional disturbances in the child.

Parent mental health problems (ranging from low levels of symptomatology to diagnosed disorders) and parenting stress, defined as a parent's subjective evaluation of a mismatch between the demands of the parent role and capacity to meet these demands (Abidin, 1992, 1995), may co-occur or occur independently. Two key contributors to parenting stress are the perceived needs and difficulties of the child, and the parent's perceptions of their own internal and external resources in the parenting role (Abidin, 1992, 1995; Deater-Deckard, 2004). These difficulties may occur for a range of reasons including genetic vulnerabilities, the cumulative impacts of stress, trauma, unresolved grief and loss, and other difficult life experiences combined with lack of adequate coping capacities or supports (Coyne & Downey, 1991; Leigh & Milgrom, 2008; Zahn-Waxler, Duggal, & Gruber, 2002). Both parent mental health problems (Goodman & Brand, 2009; Seifer & Dickstein, 2000; Zahn-Waxler et al., 2002) and elevated parenting stress have been associated with negative outcomes for both children and their parents including increased child

vulnerability to insecure attachment, behavioural and emotional problems; and more negative

parenting cognitions, behaviour, and feelings of low self-efficacy (Crnic & Low, 2002;

Deater-Deckard, 2004; Calkins, Hungerford, & Dedmon, 2004; Crnic, Gaze, & Hoffman,

2005; Bugental & Johnson, 2000; Dubois-Comtois, Moss, Cyr, & Pascuzzo, 2013).

High levels of parenting stress and/or mental health problems are frequent reasons for

families with young children to present for professional help, and in many cases stressed

parents perceive their child's behaviour as the source of their distress (Huntsman, 2008).

Research indicates reciprocal relations between parenting stress and child behaviour problems

(Dubois-Comtois et al., 2013; Mackler, Shanahan, Calkins, Keane, & O'Brien, 2015);

stressed and psychologically distressed parents are also more likely to have children who

show behavioural and emotional problems (Barry, Dunlap, Cotton, Lochman & Wells, 2009;

McLaughlin et al., 2012; Elgar, Mills, McGrath, Waschbusch, & Brownridge, 2007).

The Importance of Early Intervention

The need for effective early years intervention to address these transactional issues

and prevent later dysfunction across education, health, work and societal contexts seems

obvious. Community-based clinical services for families of young children, especially those

at higher risk, need to provide interventions which take account of, and ideally reduce, both

current child and parent distress, and also prevent future difficulties and costs for children,

their families and the community (Bayer, Ukoumunne, et al., 2011; Heckman, Pinto, &

Savelyev, 2013; Sawyer et al., 2000). A recent review of evidence for the prevention of

common mental disorders across the lifespan, however, found that although there is a pressing

need for "matching interventions to the most critical and plastic periods of development"

(Jacka et al., 2013, p. 925) there is a limited focus on perinatal and early childhood

prevention, and concluded that further research is needed on children under 8 years of age.

Knowing which interventions are effective both as prevention and as early intervention in this

context, and what works for whom, is therefore a pressing priority and was the focus of the

current research.

Approaches to Intervention

Most interventions for behavioural and emotional problems in young children (under 8 years) target parenting behaviour in order to assist parents to better manage their children, and several of these approaches have been widely researched (see Barlow, Smailagic, Ferriter, Bennett, & Jones, 2010; Forehand, Jones, & Parent, 2013, for recent reviews). The existing evidence predominantly concerns approaches informed by cognitive-behavioural and/or social learning theories and suggests these approaches are more effective than no intervention with regard to reducing child externalising (Daley et al., 2014; Furlong et al., 2012) and internalising symptoms (Rapee, Schniering, & Hudson, 2009; Webster-Stratton & Herman, 2008).

Parent behaviour. There is growing recognition that parenting and the early caregiving environment contribute to both externalising and internalising disorders (Bayer, Rapee et al., 2011; Cyr, Pasalich, McMahon, & Spieker, 2014; Kochanska & Kim, 2012) and that interventions aimed at reducing these difficulties need to target the parent–child relationship (Barlow et al., 2010; Cyr et al., 2014; Zeanah, Larrieu, Scott Heller, & Valliere, 2000). Widely disseminated parent training approaches based on behavioural and social learning theories such as the Triple P Positive Parenting Programme (Triple P) (Sanders, Cann, & Markie-Dadds, 2003); Parent–Child Interaction Therapy (PCIT) (Zisser & Eyberg, 2010); and the Incredible Years (Webster-Stratton & Reid, 2010) acknowledge the role of negative parent–child relationship dynamics in predicting child behaviour problems, especially externalising problems, and seek to promote positive discipline strategies and/or more positive interactions between parents and their children (Thomas & Zimmer-Gembeck, 2007; Webster-Stratton & Reid, 2010). The focus, however, is typically on parenting behaviours, with limited attention to the internal (intrapsychic) factors that may underlie and maintain counter-productive parenting responses (Coyne, 2013). While behavioural parent training assumes that changing parenting behaviour accounts for change in child disruptive behaviours, there is limited empirical support for this proposition (Forehand et al., 2013).

Parent cognitions. While the role cognitions about the child play in influencing parenting behaviour is well recognised in the etiology and maintenance of internalising disorders such as child anxiety (Bayer, Rapee et al., 2011), parent cognitions have rarely been the focus of interventions to reduce child anxiety symptoms (Forehand et al., 2013). One study found that parent "perceived parenting effectiveness" mediated the effect of behavioural parent training treatment on child internalising symptoms (Webster-Stratton & Herman, 2008, p. 479). This suggests that changing internal parent factors, such as perception of self as a parent, may influence change seen in child behavioural and emotional symptoms, but this requires further investigation.

Ameliorating parent distress. Because of the known impacts of parenting stress and parent mental health on child wellbeing, and the possibility that reducing child problems may also ease parent distress, some intervention approaches aimed at improving child symptoms have also measured change in parent wellbeing. Results have been mixed, with recent meta-analyses of group-based parent training approaches that target child symptoms finding short-term improvements in parenting confidence and reduced stress, anger, guilt, anxiety and depression, but without lasting effects (Barlow, Smailagic, Huband, Roloff, & Bennett, 2014; McGilloway et al., 2014). Evidence also suggests that improving parent mental health symptoms without addressing difficulties in the parent–child relationship may not improve outcomes for young children (Forman et al., 2007; Murray, Cooper, & Hipwell, 2003).

Limitations of Common Intervention Approaches

While many of these approaches based on social learning and cognitive-behavioural theories have substantial empirical support for their efficacy, significant limitations have been identified (for a review see Davis, McDonald, & Axford, 2012). In particular, there is evidence that these interventions are not effective for all parents and children who need them (Koerting et al., 2013; Rapee et al., 2009; Reyno & McGrath, 2006; Scott & Dadds, 2009) and some have been found to be effective only with internalising *or* externalising difficulties (Barlow et al., 2010; Forehand et al. 2013; Rapee et al, 2009).

Difficulties with engagement and high attrition rates are common. Between 30% and 68% of parents of children with externalising problems decline to take part in parent training programs and between 25% and 50% either fail to respond or drop out (Koerting et al, 2013; Thomas & Zimmer Gembeck, 2012), particularly when families have high levels of social adversity (Koerting et al., 2013; Reyno & McGrath, 2006; Scott & Dadds, 2009). Evidence is limited regarding the suitability and effectiveness of interventions targeting internalising symptoms in very young children (Barlow et al, 2010; Bayer, Rapee, et al., 2011; Carpenter, Puliafico, Kurtz, Pincus, & Comer, 2014; Rapee et al., 2009). In addition, co-occurrence of both internalising and externalising symptoms is typical in young children, but few interventions are designed to target both (Fanti & Henrich, 2010; Forehand et al., 2013; Skovgaard et al., 2007).

Taken together, these findings indicate a need for intervention approaches which can holistically address a range of behavioural and emotional problem presentations in young children (Barlow et al., 2010; Webster-Stratton & Herman, 2008), present individualised approaches in response to different etiologies (Greenberg et al., 2001) and successfully engage and retain families, especially those from high-risk backgrounds (Koerting et al., 2013).

Alternative Frameworks for Intervention: Targeting the Caregiving Relationship

Because of the transactional nature of the parent–child relationship, with its bi-directional influences, some have proposed that improving the parent–child relationship is the ideal intervention target when one or both partners are showing signs of dysfunction (Stern-Bruschweiler & Stern, 1989; Sameroff, 2004; Shonkoff & Fisher, 2013; Zeanah & Zeanah, 2009). For these reasons, and also because of some of the limitations identified with other approaches, attention has been directed to the contributions of attachment theory and research to our understanding of both positive development and the origins of developmental psychopathology, and the need to incorporate these understandings in effective interventions (e.g., Berlin, Zeanah, & Lieberman, 2008; Scott & Dadds, 2009; Sroufe, 2013; Thomas &

Zimmer-Gembeck, 2012; Toth et al., 2013). These approaches, which are the focus of the

current research, will be reviewed in the following chapter, along with the theoretical

framework underpinning them.

Chapter 3   **Attachment-Based Interventions: Theory, Empirical Findings, and Research Challenges**

Introduction

Attachment theory (Bowlby, 1969/1997, 1973/1998, 1980/1998; Ainsworth, 1979) has a central focus on the parent–child relationship and has informed a range of intervention approaches to improving early caregiving and child social and emotional outcomes. This chapter reviews the theoretical and empirical underpinnings of attachment-based intervention approaches. The major propositions of attachment theory salient to the current research are discussed, along with recent theoretical developments, research, and clinical applications. Empirical evidence on attachment-based approaches to prevention and early intervention is reviewed with a specific focus on their applicability in addressing behavioural and emotional problems in young children.

Attachment Theory and the Developmental Origins of Psychopathology

Attachment theory originated from Bowlby's efforts to understand the development of psychopathology (Bowlby, 1944; Ainsworth & Bowlby, 1991). In essence, the theory proposes that experiences of caregiving in the early years can set in train a series of behavioural and mental adaptations in the child that (interacting with subsequent experiences) have consequences for psychological adjustment and functioning across the lifespan. This theory, therefore, offers a useful framework for not only understanding the development of, but also intervening with, behavioural and emotional disturbances in young children.

Bowlby's seminal retrospective investigation of links between adolescent psychopathology and early experiences of separation and/or inadequate care from a main caregiver informed the development of attachment theory, with its emphasis on the central importance of the caregiving relationship to the child's survival and development (Bowlby, 1969/1997, 1988/2005; Ainsworth, 1979; Cassidy & Shaver, 2008; Sroufe, Carlson, Levy, & Egeland, 1999). Bowlby focused mostly on maternal caregiving, but subsequently attachment theory has been applied to a range of caregiving and intimate relationships.

The theory had its origins in psychodynamic and object relations theories, but was revolutionary in integrating new scientific understandings from a range of knowledge bases

including child development, evolutionary biology, ethology, behaviour, cognition,

information processing, and, more recently, neurobiology and epigenetics. The theory seeks

to explain the biological, affective, behavioural and cognitive underpinnings of the caregiver–

child relationship and their dynamic interplay in promoting or compromising healthy

development. Some modern scholars describe it as a theory of regulation (e.g., Fonagy,

Gergely, Jurist, & Target, 2002; Schore, 2012; Solomon & George, 2011), as evidence

accumulates that attachment experiences affect development through their influence on how

humans develop capacities to regulate themselves and others.

Major Propositions of Attachment Theory

Attachment theory proposes that caregiver–child interactions are based on biologically

driven behavioural systems linked to mentally encoded representations. Using an attachment

lens, the caregiving relationship can therefore be seen as both a product of and an influence

on parent and child behaviours, cognitions and affects. Non-optimal caregiving relationships

can, therefore, have major negative impacts on both child and parent functioning.

Attachment and caregiving behavioural systems. Bowlby (1969/1997) proposed

that four behavioural systems operate within the child–parent attachment-caregiving

relationship. Two of these, attachment and exploration, belong to the child. He emphasised

the ethological origins of the theory with regard to safety and survival of the young and

proposed that the attachment system is activated when the child experiences fear or distress

and needs protection, comfort or emotional support from the parent, who needs to provide a

"haven of safety" (Bowlby, 1969/1997, p. 303). The child's attachment system is de-activated

(terminated) when he/she receives an adequate response from the parent enabling them to

return to a calm, regulated state. The younger and more distressed the child, the more likely

that physical "retrieval" and contact is required from the caregiver to terminate the child's

attachment system.

The exploratory system, on the other hand, is antithetical to the attachment system,

and is activated when the child is curious about novel and/or complex stimuli in the

environment and feels secure enough in the presence of the caregiver to explore—first termed the "secure base" by Mary Ainsworth (Bowlby, 1988/2005, dedication). The exploration system is terminated by familiarity or when the attachment system is activated, e.g., when the child feels fearful or distressed.

The remaining two systems belong to the parent and are complementary to the child's behavioural systems: maternal caregiving and maternal behaviour that is antithetical to parental care (Bowlby 1969/1997). When things are working as they should, the caregiving system is activated by the child's attachment bids signalling the caregiver to provide adequate security, protection and guidance to enable survival and optimal development. In their later expansion on Bowlby's theory of caregiving, Solomon and George (1996) proposed that the caregiving system is a mature transformation of the attachment system in which the goal shifts from seeking care and protection to providing care and protection. Together, these theorists suggested that when the child's needs for protection and nurture compete with parent needs (e.g., the parent's own attachment needs, other goals to antithetical to caregiving) the parent will need to find a balance but still give priority to caregiving, while seeking support as needed from attachment figures—e.g., spouse, parent (Bowlby, 1969/1997; Solomon & George, 1996).

Working models: mental representations of attachment. Bowlby further postulated that individuals develop dynamic mental models of self, other, and how they interact, based initially on repeated experiences in the attachment-caregiving relationship. The child builds a perception of him/herself as acceptable (worthy of care) or unacceptable in the eyes of the attachment figure, and these mental representations also include expectations of how available and responsive the attachment figure is likely to be when attachment needs are activated (Bowlby, 1973/1998). These sets of perceptions and expectations involving self and the environment may be conscious or unconscious, and include both thoughts and feelings (including proneness to intense or chronic fear). Over time, they serve to regulate attention, organise behaviour and make sense of experiences (Bowlby, 1969/1997).

Bowlby termed these "representational" or "working" models (Bowlby, 1973/1998, p. 235) and put forward three propositions about them: (a) the child's confidence in the accessibility and responsiveness of attachment figure would affect how prone to intense or chronic fear he/she was; (b) there is a sensitive period during which this confidence develops, built slowly during infancy, childhood, and adolescence, and expectations that develop in these years "tend to persist relatively unchanged throughout the rest of life" (Bowlby, 1973/1998, p. 235); and (c) these expectations reflect actual experiences of the individual during years of immaturity. Bowlby proposed that these mental representations would have developmental consequences for the child by influencing expectations and behaviour in subsequent close relationships. This work referred mostly to the development and function of the child's working models of attachment, but Bowlby also implied that caregivers would develop working models of caregiving, discussed in more detail in a later section.

In summary, therefore, attachment theory proposes that the child's experiences with the caregiver foster the development of patterns of behaviour, cognitions, affective states, and expectations about the self, the parent, and how the relationship works. The following section considers individual differences in child social-emotional development, how these relate to caregiving quality and how caregivers' behaviour and mental representations can affect these for better or worse.

Individual Differences in Attachment Behaviour, Caregiving Experiences, and Child Representations

Mary Ainsworth extended Bowlby's theoretical propositions through her seminal work observing individual differences in child attachment and exploratory behaviour (Ainsworth, 1967) and how these related to different caregiving behaviours (Ainsworth, 1967; Ainsworth, 1969a), and developed a laboratory procedure that enabled the empirical investigation of the origins and consequences of individual differences in attachment (Ainsworth et al., 1978). Differences in the caregiver's capacity to meet the child's needs for protection, support for emotional needs, and exploration (termed maternal sensitivity) were

shown to be related to different patterns of child behaviour when the attachment system was activated in the laboratory (Ainsworth et al., 1978; Main & Solomon, 1986, 1990). These attachment patterns were also believed to reflect the child's internal working models.

Infant attachment patterns. Ainsworth et al. (1978) identified three patterns of infant attachment based on differences in safe haven and secure base behaviour. Her laboratory research using the Strange Situation Procedure showed that "secure" infants openly signalled for and sought proximity to their caregiver when distressed and were quickly comforted by this proximity. They also showed a flexible balance of exploration- and proximity-seeking behaviours and displayed a range of positive and negative emotions when with the parent. Two insecure patterns of attachment were also identified. Avoidant infants were seen to suppress displays of negative affect when distressed, only sought connection with the parent when not in need of emotional support, and appeared more focused on exploration. Resistant (or ambivalent) infants escalated displays of negative affect in the presence of the parent when they were distressed, were not comforted by proximity to the caregiver, took longer to return to exploration, and appeared more preoccupied with the parent's availability. A final insecure-disorganised/disoriented attachment pattern was identified later by Main and Solomon (1986, 1990) among children who, when distressed, showed a range of anomalous behaviours in the presence of their caregivers.

Caregiver interactive behaviour. Through in-depth longitudinal home observations, Ainsworth was able to link infant patterns of attachment with the degree to which a mother's caregiving style was available, attuned, and responsive to infant cues, providing a safe haven when the child was fearful or distressed and a secure base for the child's exploration (Bowlby, 1969/1997; Ainsworth, 1969a, 1979). A secure pattern was linked to optimal or adequate caregiver availability, sensitivity, and responsiveness at these times. Avoidant and resistant attachment patterns were found to be related respectively to the experience of indifference and/or rejection, or to inconsistency from the caregiver when the child's attachment needs

were activated (Ainsworth et al., 1978). Parents of insecure infants tend to "disregard their signals, respond belatedly or in a grossly inappropriate manner" (Ainsworth, 1979).

Disorganised or disrupted child behaviours were later found by Main and others to be related to the experience of needing protection and comfort from caregivers who they experienced as frightening or frightened (Main & Hesse, 1990; Hesse & Main, 2000, 2006; Schuengel, Bakermans-Kranenburg, & van IJzendoorn, 1999) and/or who showed a range of disrupted responses to child signals (Lyons-Ruth, Bronfman, & Parsons, 1999). Caregiver behaviours found to be associated with child disorganisation include hostile, punitive or harsh treatment of the child, failure to protect, abdication of the parental role, avoidance of hierarchy in the relationship, role reversal, boundary dissolution, caregiver helplessness, withdrawal, under-responding, and threats of abandonment and unavailability (physical and psychological) when needed by the child (George & Solomon, 1996, 2008; Lyons-Ruth & Jacobvitz, 2008; Solomon & George, 1996, 2011; Sroufe et al., 2005).

While Ainsworth's term "maternal sensitivity" has been interpreted in various ways to refer to the caregiver's behavioural style with the child (e.g., Mesman & Emmen, 2013), Ainsworth applied the notion to "maternal care" across a number of key dimensions, including sensitivity–insensitivity, cooperation–interference, acceptance-rejection, and accessibility-ignoring, and linked these to attachment patterns in the Strange Situation Procedure (Ainsworth, 1969a; Ainsworth, Bell, & Staynton, 1971; Bretherton, 2013). Ainsworth also used the term to encompass caregiver responsiveness to the infant's positive social overtures, not just secure base and safe haven behaviour (Bretherton, 2013). Later, Solomon and George (1996) proposed that sensitivity from a caregiving perspective is the *capacity to evaluate the level of care* required by the child (emphasis added), an idea echoed by other theorists and researchers who proposed that sensitivity had mental as well as behavioural components (Fonagy, Fearon, Steele, & Steele, 1998; Meins, 2013).

Other theorists and researchers (e.g., Beebe, 2003; Stern, 1974, 1985/1998; Trevarthen, 1979, 2011; Tronick, 1989, 2007) complemented and/or expanded on

Ainsworth's findings, including through the use of video-recorded observations, to consider all infant and maternal interactive behaviours as having a communicative function, and proposed that these "behavioural conversations" became the basis for personality development. Identifying the importance of maternal co-regulation, influenced by sensitive attunement, pacing, and timing in these relational interchanges, they deepened the understanding of how these early dyadic experiences in the caregiving relationship could shape later functioning.

Child's working models. Ainsworth inferred from the child's behaviour that he/she had developed a confident set of expectations (internal working model) of how the relationship works to achieve these goals "that moderate his or her responses to events, both internal and environmental" (Ainsworth, 1979, p. 933). A secure infant's working model is of a mother who is "generally accessible and responsive to him or her" (p. 933). An insecure (and consequently anxious) infant therefore builds an internal working model that involves either minimising or escalating distress in order to obtain proximity to an otherwise insensitive, inaccessible or inadequately responsive parent. A disorganised infant's internal working model is one in which the caregiver is simultaneously seen as the source of protection and danger, termed "fright without solution" by Main and Hesse (1990).

A large body of research has demonstrated that secure attachment is one of the cornerstones of healthy social-emotional development (see Cassidy & Shaver, 2008; Sroufe, 2005). Sroufe (2005) acknowledges that insecure attachment alone is not a predictor of psychopathology; rather, he proposes that insecurely attached children are more likely to have problematic social-emotional development and, in keeping with cumulative risk models, may be more at risk of later disturbance than secure children in the context of other risks (child factors, contextual factors). Disorganised attachment in particular is associated with disruptive/aggressive and dissociative disorders in childhood and adolescence (Hazen, Jacobvitz, Higgins, Allen, & Jin, 2011; Henninghausen, Bureau, David, Holmes, & Lyons-Ruth, 2011; Lyons-Ruth & Jacobvitz, 2008; Sroufe et al., 2005). The child's capacity for

emotion regulation, developed in the context of their attachment-caregiving experiences, is believed to be a pivotal capacity that influences their developmental trajectory (Cassidy, Jones, & Shaver, 2013; Fonagy & Target, 2002; Heckman, 2008, 2012; Shonkoff & Phillips, 2000; Sroufe, 2013).

Summary. The theory and research reviewed above suggest that some developmental problems, including behavioural and emotional difficulties in young children, may arise from inadequacies in caregiving responses to the child's protection, attachment and exploration needs, and may be reflected in insecure or disorganised attachment patterns. Attachment theory informed interventions therefore aim to prevent or shift already established negative developmental pathways by increasing child attachment security and decreasing attachment insecurity and disorganisation. A key target of many interventions is increasing caregiver availability and capacity to accurately read child cues and respond sensitively. Some interventions also seek to reduce caregiver behaviours that engender fear and chronic emotional dysregulation in the child. The Circle of Security intervention, the focus of the current research, discussed more fully in the following chapter, draws deeply on the preceding theory and research. It carefully evaluates the quality of the attachment relationship using the Strange Situation Procedure. The intervention explicitly addresses individual patterns of child attachment and caregiving behaviour and the working models that underpin them in order to improve the relational underpinnings of the child's development.

Parent Representations and Caregiving Quality

While Ainsworth emphasised the importance of caregiver behaviour, she anchored her construct of maternal sensitivity in the caregiver's capacity to notice child cues and *interpret them accurately* (Meins, 2013) (emphasis added). Bowlby suggested (Bowlby, 1969), and other attachment theorists and researchers have confirmed, that what parents think and feel (both consciously and unconsciously) about caregiving is also important and that defensive processes may come into play, influencing how caregivers perceive child cues and organise their own responses (e.g., George & Solomon, 2008; Slade, 2005).

Like children's internal working models, mental models held by parents (also termed "parent representations") can serve as a "lens through which a parent interprets interactions" (Powell, Cooper, Hoffman, & Marvin, 2009). These representations involve both cognitive and affective *content* that then serves to guide attention and *process information* by filtering, organising, and attaching meaning to the parent's experiences of self, others, and the relationship between them.

Parent attachment representations. Seminal work by Main and colleagues used the Adult Attachment Interview (AAI: George, Kaplan, & Main, 1984–1996) to elicit the adult's internal working model of his/her childhood attachment relationship (generally referred to as *attachment* representations or state of mind regarding attachment). Bowlby had earlier posited that insecure internal working models, based on experiences of inadequate early caregiving, would be less likely to be consciously accessible due to "defensive exclusion" or "segregation". Therefore this language-based assessment (AAI) was designed to uncover not only conscious but also unconscious aspects of the parent's thinking and feeling about their remembered attachment relationship and enabled researchers to empirically demonstrate that parents' own attachment representations influenced later social and emotional functioning in their infants (Main & Goldwyn, 1984a; Main, Kaplan, & Cassidy, 1985).

Parent attachment representations (measured on the AAI) have been found to predict up to 63–75% of the variance in child attachment (van IJzendoorn, 1995), providing strong evidence that attachment security is somehow transmitted from parent to child. A recent review has confirmed this link but found weaker effect sizes overall than found in the earlier analysis (Verhage et al., 2015) and that transmission was stronger for secure than for insecure attachment, less specific between sub-types of insecure attachment, weaker for disorganised attachment, and weaker in higher risk samples and with non-biological caregivers. Recent findings together suggest that child attachment security is also influenced by antecedents other than parent attachment representations, especially in contexts of multiple risk (Madigan

et al., 2006; Verhage et al., 2015). Discussion of mediators of attachment transmission follows in a later section of this chapter ("Explaining the transmission gap?").

Parent caregiving representations. George and Solomon (2008) have argued that, because different behavioural systems are involved, a distinction should be made between attachment-focused and caregiving-focused representations held by parents. Unlike attachment representations, which concern *seeking protection* and care for the self, caregiving representations concern *providing protection* and care for the child. A number of attachment theorists and researchers (e.g., Aber, Slade, Berger, Bresgi, & Kaplan, 1985; Bretherton, Biringen, Ridgeway, Maslin, & Sherman, 1989; George & Solomon, 1989, 1996; Zeanah, Benoit, Hirshberg, Barton, & Regan, 1994) have focused attention on the role of representations of the current live caregiving relationship with their child (*caregiving representation*) in influencing the parent–child attachment relationship. The content of these representations includes cognitions and affective states regarding the child, the self, and the relationship. Representations also include process aspects (Bowlby, 1969/1997), which some authors have endeavoured to delineate from the content of representations in their approaches to measurement (e.g., George & Solomon, 2008; Slade, 2005; Zeanah et al., 1994).

Like working models of attachment, mental representations of caregiving are theorised to be derived from actual experiences in caregiving situations (including the parent's own experiences of receiving and giving care), and recent research confirms their association with parents' own attachment representations (Madigan et al., 2015). They serve to interpret, regulate and forecast behaviours, thoughts and feelings of both the care-receiver and the caregiver in the relationship. Both reflecting and creating reality, they evolve and can be updated by new experiences and conscious reflection. They also involve different memory systems, existing at different levels of conscious awareness and with different affective intensity. In addition, like attachment representations, caregiving representations also reflect the operation of various defensive processes (Bretherton & Munholland, 2008; George & Solomon, 1996, 2008; Mayseless, 2006). Cognitive and affective content becomes a

continuing filter through which the relationship is perceived. The positive or negative valence of the representation (both cognitively and affectively) colours the ongoing interaction.

Measuring caregiving representations. Caregiving representations have been measured in a range of interview and coding approaches, each highlighting different aspects of content and processing (e.g., Aber et al., 1985; Bretherton et al., 1989; George & Solomon, 1989, 1996; Zeanah, Benoit, & Barton 1986.) Most are narrative interviews modelled after the AAI (George et al., 1984–1996) that ask the parent to provide a detailed description of their relationship with the child, how they perceive their child and his/her child's experiences, and/or how they typically respond to their child in emotional demanding interactions. Importantly, all of these interviews reveal both content and processing aspects of a parent's internal working models. Like the AAI, there is in most a focus on the quality of discourse; some, but not others, also consider metacognitive or defensive process aspects.

Measures differ in emphasis: some include more focus on attributions about the child in the relationship (e.g., Working Model of the Child Interview, WMCI: Zeanah et al., 1986); others focus more on parent perceptions of their relationship with the child (e.g., Parent Development Interview, PDI: Aber et al., 1985) or more on the parent's perceptions of self as a caregiver (e.g., Experiences of Caregiving Interview: George & Solomon, 1989, 1996). Some use categorical approaches to coding similar to that used in the AAI, where classifications are based on the overall quality and coherence of the discourse (George & Solomon, 1989, 1996; Zeanah & Benoit, 1995). Others use a dimensional coding system, either rating the interview globally (Parent Attachment Interview, PAI: Bretherton et al., 1989) or on various aspects of parent representations (e.g., affect such as joy, pleasure, anger) (Aber et al., 1985; Slade, Belsky, Aber, & Phelps, 1999). Slade and colleagues have argued that continuous measures are better able to capture change over time and are also amenable to more flexible approaches to data analysis.

Several lines of empirical enquiry suggest that caregiving representations can have important consequences for child social and emotional development.

Caregiving representations and child attachment. Bretherton and colleagues found that more positive caregiving representations characterised by greater sensitivity and insight (assessed on the PAI) were related to Strange Situation security in 2-year-olds (Bretherton et al., 1989). Using a measure highlighting the parent's perception of the child in the relationship (WMCI), mothers with more balanced representations (assessed prenatally or in early infancy) have been shown to be more likely to have securely attached children, while distorted or disengaged representations were more associated with insecure attachment at 12 months (Benoit, Parker, & Zeanah, 1997; Zeanah et al., 1994). A more recently identified "disrupted" category of representation on the WMCI has also been associated with disorganised attachment (Crawford & Benoit, 2009). (For a review see Vreeswijk, Maas, & van Bakel, 2012).

Other researchers (George & Solomon, 1989, 1996; Solomon & George, 1996) focused on the parent's evaluation of themselves as a caregiver using the Experiences of Caregiving Interview (adapted from the PDI), and coded parent responses in categories— *secure base*, *rejecting*, *uncertain*, and *helpless*—believed to reflect different styles of information processing and defensive exclusion (George & Solomon, 1996). A strong concordance between ratings of maternal representations of caregiving and child attachment was demonstrated in a small sample of 32 dyads (George & Solomon, 1996). Whether the parent did or did not see themselves as capable and able to protect was a key factor associated with caregiving adequacy reflected in child attachment. In particular, the authors found caregiver perceptions of their own helplessness were effective in identifying mothers whose children were controlling, concluding that evaluations of the self as helpless are associated with disorganised caregiving.

Compared with mothers of children with organised attachments who show coherent representations of caregiving, George and Solomon (2008) proposed that caregivers of disorganised children (unable to use adaptive forms of defense to regulate segregated caregiving experiences) have "dysregulated" (incoherent and chaotic) or "constricted"

representations that leave them unable to appropriately select, evaluate or modify caregiving behaviour. Dysregulated representations were associated with caregiving helplessness, while constricted representations (believed to prevent adaptive thinking about the separate roles of parent and child in the attachment-caregiving relationship) were expected to result in parentification of the child or role reversal (George & Solomon, 1988, 1993, 2005, 2007; Solomon, George, & De Jong, 1995). Two subsequent studies (Britner, Marvin, & Pianta, 2005; George & Solomon, 2011) confirmed a relationship between abdicated or "helpless" maternal representations and attachment disorganisation and dysregulated child behaviour and emotions, typically seen in disorganised children (Solomon & George, 2011).

Caregiving representations and caregiver behaviour. Caregiver behaviour has also been associated with caregiving representations, with influences found in both directions. Mothers' balanced representations on the WMCI have also been associated with more pleasure and positivity in interactions with their children; disengaged representations with more passivity or withdrawal; less sensitivity and responsiveness, encouragement, and guidance; and distorted representations with more intrusiveness, negativity and rejection (Rosenblum, McDonough, Muzik, Miller, & Sameroff, 2002; Korja et al., 2010; Schechter et al., 2005; Sokolowski, Hans, Bernstein, & Cox, 2007). Disrupted representations on the WMCI (measured during pregnancy) were also associated with disrupted caregiver behaviours in interactions with infants aged 12 to 18 months (Crawford & Benoit, 2009). These behaviours included elevated levels of affective communication errors; role/boundary confusion; fearfulness, dissociation, or disorientation; intrusiveness/negativity; and/or withdrawal in response to infant signalling.

Slade and colleagues (1999) using the PDI, also found that affective dimensions of parent representations of their relationship with the child were related to observed maternal behaviour. Joy and pleasure in the relationship were associated with more positive interactions, and anger with more negative parenting. Trapolini, Ungerer, & McMahon (2008) (also using the PDI) found that lack of pleasure and more sadness in the caregiving

representations of depressed mothers of 4-year-olds was associated with less observed sensitivity in caregiving interactions. Lower levels of maternal sensitivity were more likely in mothers who had experienced chronic depression, mediated by the mother's impaired capacity to take their child's perspective. These findings suggest that reducing negative caregiving representations and increasing perspective taking may be especially important intervention targets in parents who have histories of mental health problems, a feature of the sample in the current research.

Maternal representations of self as caregiver have also been found to be associated with earlier and concurrent emotional availability (EA) (Biringen, Robinson, & Emde, 1993), but the associations changed over time (Biringen, Matheny, Bretherton, Renouf, & Sherman, 2000). Biringen and colleagues found that, while observed sensitivity at 18 months predicted later maternal representations of caregiving, at 24 and 39 months the role of maternal structuring (e.g., limit setting and creating boundaries) became more important in predicting the mother's representations of self, especially maternal self-esteem, as a caregiver. Mothers who optimally structured interactions at 24 and 39 months were more likely to later feel positive about themselves and able to manage their own anger when interacting with their children. These findings suggest that caregiver behavioural experiences in the relationship, both of nurturing (sensitivity) when the child is young and of their own effectiveness in taking charge and providing guidance (structuring) as the child gets older, are important contributors to caregiving representations, and that self-esteem as a caregiver is predicted by the prior as well as the ongoing relationship with the child. They also suggest that a mother's perceived capacity to manage her own aggressive impulses is influenced by earlier sensitive and structuring behaviours with the child. These findings also imply that attachment-based interventions (such as the Circle of Security intervention, the subject of the current research) that target nurturing and structuring caregiving behaviours have the potential to thereby improve caregiving representations including self-esteem or self-efficacy as a parent.

Caregiving representations and child psychopathology. As attachment theory might predict, child psychopathology has also been associated with parents' representations of caregiving. Associations of "helpless" representations with dysregulated child emotions and behaviour have been mentioned above. Benoit, Zeanah and colleagues found that mothers of children (from infancy to 4 years old) with clinical problems were more likely to have distorted or disengaged representations than balanced ones, showing less empathic appreciation of their infant's experience (Benoit, Zeanah, Parker, Nicholson, & Coolbear, 1997). They suggested the caregiving representation may serve as a risk or protective factor for the development or perpetuation of child clinical problems in the context of other risks. These findings were based on aggregated findings from three small studies, two of which had comparison groups; therefore, some caution is warranted in generalising conclusions. A recent review (Vreeswijk et al., 2012) confirmed that clinical populations (where child and/or parent are referred) can be distinguished from non-clinical groups by balanced versus non-balanced caregiving representations measured on the WMCI. These findings suggest that measuring caregiving representations in clinical samples may reveal representational "ports of entry" to addressing clinical problems in young children (Stern-Bruschweiler & Stern, 1989; Stern, 2004), and that they may also be a useful approach to assessing change in the relationship after intervention.

Summary

In summary, working models both reflect and shape the reality of the relationship for the self and the relational partner. As Bretherton (2005) puts it, "Well organised, consciously accessible, well adapted internal working models" develop in the context of "emotionally open dialogue" and are associated with attachment security and "ill organized-internal working models of relationship" are associated with insecurity and "difficult to update adaptively" (Bretherton, 2005, p. 29). Because both attachment and caregiving working models of parents have been found to predict child attachment security, and are associated

with parent behaviours, parent representations have also been targeted in attachment-based interventions.

Changing Working Models

While Bowlby (1969/1997) proposed that working models could change, he also suggested that they generally become more embedded over time and that some form of conscious or even meta process might be needed to evaluate and/or change an existing working model that was no longer adaptive, or to resolve conflicts among multiple models. Questions about what kind of meta-process may be required have led to extensive theorising and research in the attachment field about what have been collectively termed "mentalising" processes.

Two areas of enquiry have converged: one from questions about what processes are involved in supporting the development of optimal working models or changing maladaptive representations, and the other from questions about how parents with insecure attachment representations are sometimes able to avoid passing on this insecurity to their children. Both of these questions imply that working models (from either past or current attachment caregiving relationships) can be modified, filtered or regulated in some way to adjust the parent's contribution to the current caregiving relationship, which in turn can influence the child's working model of the relationship. The answers to these questions have important implications for intervention, as presumably such processes could be engaged or developed to adjust maladaptive aspects of parent representations and/or behaviour that may be contributing to dysfunction in the parent–child relationship and child and parent distress. The following section reviews theory and research addressing the role of mentalising processes in the intervention context.

Mentalising Processes and Caregiving

While the content of caregivers' working models has been found to be important, recent developments in attachment theory and research have increased interest in the possible

role played by mental processes in caregivers in regulating emotion and behaviour in early caregiving interactions. Theorists and researchers have sought to understand the role such processes may play in child social and emotional development, as well as in enabling or preventing change in adverse trajectories.

Explaining the transmission gap? As noted earlier, large meta-analyses have shown that the strongest predictor of infant attachment is the parent's representations about their own early attachment experiences with their parents (van IJzendoorn, 1995; Verhage et al., 2015), but also presented a conundrum about what mediates this transmission, referred to as the "transmission gap" (van IJzendoorn, 1995, p. 398). While attachment theory predicts that representations might translate into caregiver behaviour, observed parental sensitivity has been found to account only for a modest amount of variance in the parent-to-child transmission of attachment (Meins, 1999; van IJzendoorn, 1995; Verhage et al., 2015). In addition, anomalous parenting behaviour only accounted for a small part of the transmission between unresolved states of mind and disorganised attachment (Madigan et al., 2006).

Some have suggested that certain caregiver mental processes may play a role. Metacognitive processes, revealed in narrative interviews that assess internal working models, or revealed in other forms of parent discourse regarding the child and the parent–child relationship (e.g., Koren-Karie, Oppenheim, Doley, & Etzion-Carasso, 2002; Meins, 1999, 2013; Slade, 2005) have been singled out for attention as potentially important factors mediating the intergenerational transmission of attachment (Fonagy, Steele, Steele, Moran, & Higgitt, 1991; Fonagy & Target, 2005; Meins, 1999; Slade, 2005; Steele & Steele, 2008). These metacognitive or "mentalising" processes in parents have also been linked to the development of social cognition, attachment security and emotional regulation in the child (Fonagy et al., 1991; Fonagy & Target, 2002; Meins et al., 2002; Steele & Steele, 2008).

While "mentalising" has come to be used as an umbrella term, theorists and researchers interested in these questions, have variously termed these processes reflective functioning (Steele & Steele, 2008), mind-mindedness (Meins, 1999), maternal insightfulness

(Koren-Karie et al., 2002), and representational flexibility (George & Solomon, 2008)

reflecting somewhat different emphases (caregiver, child, relationship, coherence) and

different approaches to operationalising them.

Reflective functioning. Fonagy and colleagues introduced the term "reflective

functioning" (RF) to signify these metacognitive processes and developed the Reflective

Functioning Scale (RF scale) (Fonagy, Target, Steele, & Steele, 1998), derived from the

metacognition scale on the AAI (Steele & Steele, 2008). They defined reflective functioning

as an essential human capacity to interpret behaviour in the light of underlying mental states

(feelings, desires, beliefs, and intentions)—i.e., thinking about self and other in terms of

internal experience rather than behaviour and personality (physical stance). This includes both

a self-reflective and an interpersonal capacity, and involves understanding mental states and

their interpersonal nature and function. While the term "mentalisation" refers to this process

in any relationship, it is operationalised as RF if it occurs in the context of an attachment

relationship. Parents' reflective capacities (assessed on the AAI prior to the birth of their

child) were found to be more predictive (than their overall AAI-based representations) of the

extent to which their children were securely attached at 1 year of age, and were subsequently

found to be associated with other positive aspects of child development (Fonagy et al., 1991;

Fonagy et al., 1998; Steele & Steele, 2008).

A recent review of theory and research relating to this construct suggests that, while

empirical research is still limited and some findings have been equivocal, a growing number

of empirical studies indicate that RF has relevance to attachment, psychopathology,

psychotherapy processes and outcomes (Katznelson, 2014). Research has also linked RF in

parents to other aspects of child social and emotional functioning. For example, in one

longitudinal study in the UK, child theory of mind at 5 years and narrative coherence at 11

years was predicted by mother's prenatal RF; lower parent-reported behaviour problems at

5 years and lower child-reported behaviour and peer problems at 11 years were predicted by

fathers' RF assessed prior to birth (Steele & Steele, 2008). Others have suggested that limited

parent mentalisation capacities may contribute to the development of child psychopathology, but more empirical evidence for this proposition is needed (Sharp & Fonagy, 2008). The idea that mentalising in parents not only supports their own self-regulation but also builds a child's theory of mind and capacity for emotional and behavioural regulation has relevance to the current research, examining a population of families referred with child behavioural and emotional problems.

Parental reflective functioning. While early research on parents' RF focused on parents' reflections on their own attachment relationship (elicited through the AAI), Slade adapted and applied this approach to the Parent Development Interview (PDI), an interview focused on the "ongoing, current, and evolving relationship to the child", and termed this parental reflective functioning (PRF) (Slade, 2005, p. 270). She defined PRF as the demonstrated capacity of a caregiver to reflect on and achieve an understanding of the emotional state of his/her own mind and the inner world of his/her child (Slade, Bernbach, Grienenberger, Levy, & Locker, 2004).

In a sample of 40 mothers from low-risk backgrounds, Slade and colleagues (Slade, Grienenberger, Bernbach, Levy, & Locker, 2005) found PRF partially mediated the link between parents' attachment representations and their own infant's attachment security (which were weakly positively correlated, $r = .24$). However, this study has not been replicated, and results were considered preliminary, leaving open the question about what role parent mentalising may have in the transmission of attachment. The mothers of secure infants had significantly higher PRF than those of disorganised and of resistant infants, but no PRF differences were found between mothers of secure and avoidant infants. Mothers of resistant infants also appeared to have lower PRF scores than mothers of disorganised infants, suggesting that the influence of PRF on child attachment is not straightforward.

Assessing parent reflective functioning with the PDI in relation to the current caregiving relationship has been undertaken by other researchers (e.g., Grienenberger, Kelly, & Slade, 2005; Sadler et al., 2013; Sleed, Baradon, & Fonagy, 2013; Suchman et al., 2010).

Parent reflective functioning has also been measured using the RF scale modified by Slade and colleagues (or adaptations of it) on other narrative interviews such as the Pregnancy Interview (PI) (Pajulo et al., 2012; Sadler et al., 2013), the Parent Attachment Interview (PAI) (Vrieze, 2011), the Working Model of the Child Interview (WMCI) (Rosenblum, McDonough, Sameroff, & Muzik, 2008; Schechter et al., 2005), and the Circle of Security Interview (COSI) (Challis, 2009).

Studies using the PDI and other interviews to measure PRF have linked it to caregiving quality, including both accuracy of perceiving and adequacy of responding. Caregivers with higher PRF have been found to have more balanced caregiving representations (Schechter et al., 2005) and less disrupted maternal affective communication (Grienenberger, Kelly, & Slade, 2005; Schechter et al., 2005). In the context of trauma, higher PRF was found to be associated with more balanced caregiving representations, irrespective of PTSD severity, suggesting it may have a protective effect on caregiving representations in the context of trauma (Schechter et al., 2005). Because of its associations with caregiving quality and child attachment, there has been a call for attachment-based interventions to focus on increasing reflective functioning in parents (Slade, 2005; Steele & Steele, 2008).

Summary. In summary, although there is a strong theoretical basis for arguing that PRF is crucial to sensitive parenting and secure attachment, and mentalising (operationalised as RF) from a psychodynamic tradition is viewed a crucial part of the psychotherapeutic process, empirical evidence to support these propositions is relatively limited and to some extent equivocal. How a parent behaves with the child (predictable availability, sensitivity, and responsiveness), *what* a parent says about what she/he thinks and feels in her relationship with the child (representations), how aware and able she/he is to talk about her own and the child's mental states and how they link to behaviour (parent reflective functioning, or mentalising), can all be measured, and have all been the targets of attachment-based interventions. Evaluating the outcomes of attachment-based interventions on these constructs

may advance understanding of attachment transmission and child social and emotional development.

Attachment-Based Interventions

Bowlby's intention in developing attachment theory was always that it be applied clinically, with the diagnosis and treatment of emotionally disturbed patients and their families a key objective (Bowlby, 1988/2005). However it has only been more recently that empirical attention has been given to the application of attachment theory through intervention approaches that may prevent and treat developmental disturbance by improving caregiving quality in at-risk or troubled dyads.

Therapeutic Tasks and Intervention Targets

Bowlby set out five therapeutic tasks that attachment theory implied were important components of therapy to address relationship-based problems (Bowlby, 1988/2005). Subsequently Berlin (2005) highlighted three of those tasks as the most crucial in the context of intervening to address early parent–child relationship difficulties: firstly, targeting parent behaviour; secondly, targeting parent working models or representations; and thirdly, using the relationship with the therapist as the vehicle for therapeutic change. Attachment-based interventions, although varied in implementation, duration and emphasis, share a focus on the caregiving relationship, particularly the parent's capacity to accurately perceive and appropriately respond to their child's needs for protection and support, with emotion regulation on the one hand and exploration and autonomy support on the other.

A number of attachment-based interventions have been developed that explicitly address parents' behaviour, thoughts, and feelings in their relationship with the child (see Berlin, Zeanah, & Lieberman, 2008 for a review). Some, but not all, also explicitly focus on the relationship between the intervener and the parent as a change enabler (e.g., Lieberman, Silverman, & Pawl, 2000; Powell et al., 2014; Slade, Sadler, & Mayes, 2005) and the activation of mentalising processes (Slade, 2005; 2007; Steele & Steele, 2008), viewed as a

key process in the therapeutic relationship (e.g., Powell et al, 2014; Slade, 2007; Slade, Sadler, & Mayes, 2005). In addition, because compromised parent mentalising processes are theorised to have a role in the development of childhood disorders (e.g., Sharp, 2006; Sharp & Fonagy, 2008; Slade, 2005), their inclusion in parent-level interventions to prevent and treat childhood social and emotional problems may be important. A review of different attachment theory informed approaches is presented, organised according to a primary focus on one of Bowlby's therapeutic tasks.

Targeting parent behaviour. Several interventions—e.g., Steps Toward Effective, Enjoyable Parenting (STEEP) (Egelund & Erickson, 2004); Interaction Guidance (McDonough, 2004); Attachment and Biobehavioural Catch-up, ABC—Dozier, Lindhiem, & Ackerman, 2005), and Video Intervention to Promote Positive Parenting (VIPP) (Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2008)—have primarily targeted parent behaviour, often through the use of supported feedback to parents through jointly viewing videotapes aiming to improve the caregiving relationship (thereby increasing secure attachment) by increasing parent sensitivity and responsiveness with the young child. More recent versions of ABC also specifically target the reduction of caregiver behaviours associated with disorganisation (Bernard et al., 2012). One early study of a very brief intervention targeting sensitivity produced strikingly positive findings of increased attachment security (van den Boom, 1994); however, this has not been replicated. While the target is changing parent behaviour, the process of viewing the videotapes, together with therapeutic probes, is also likely to elicit reflective functioning.

Studies of VIPP and its variants as prevention approaches have yielded mixed findings regarding efficacy in increasing child attachment security and maternal sensitivity and reducing child behavioural difficulties (Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2005; Kaulinauskine et al., 2009; Klein Velderman, Bakermans-Kranenburg, Juffer, & van IJzendoorn, 2006; Klein Velderman, Bakermans-Kranenburg, Juffer, van IJzendoorn, Mangelsdorf, et al., 2006; van Zeijl et al., 2006), with differential susceptibility and response

to the intervention moderated by ingredients of the intervention, child characteristics such as temperament and genetic make-up, and parent characteristics such as parenting stress and whether or not they had their own birth children.

There are several variants on the VIPP approach. Two controlled studies with different populations using versions of this intervention reported increases in maternal sensitivity but no changes in child attachment in the treatment group compared to controls (Klein Velderman, Bakermans-Kranenburg, Juffer, & van IJzendoorn, 2006; Kaulinauskine et al., 2009). A follow-up study of the first sample at age 3 showed no treatment-related differences in attachment security and maternal sensitivity but reduced numbers of treatment children in the clinical range for externalising behaviour problems compared to controls (Klein Velderman, Bakermans-Kranenburg, Juffer, van IJzendoorn, Mangelsdorf, et al., 2006).

Another study with adoptive parents (Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2005) reported treatment group changes in maternal sensitivity and a higher proportion of securely attached infants compared to the control group, but only for those who had received the version of the intervention that incorporated a consideration of parent representations (VIPP-R). For adoptive parents with their own birth children, VIPP-R had positive effects on maternal sensitivity, but not on infant attachment.

A hybrid version of the VIPP approach (VIPP-SD) draws on both attachment and social learning theory approaches to changing parent behaviour (Mesman et al., 2008; van Zeijl et al., 2006). This intervention incorporates sensitivity-focused psycho-education and coaching through use of video clips of moments of positive interaction (echoing some elements of McDonough's interaction guidance) alongside training parents to achieve child compliance through use of "sensitive discipline" based on Patterson's ideas about coercive cycles (1982). These "sensitive discipline" approaches to taking charge and setting limits when children show challenging behaviours include the use of induction and distraction as responses to difficult child behaviour, use of praise as positive reinforcement of positive

behaviour, ignoring negative "attention seeking" behaviour, and use of "sensitive time out to de-escalate temper tantrums" (van Zeijl et al., 2006, pp. 997–998).

At face value, encouraging "sensitive discipline" in these ways appears antithetical to Bowlby and Ainsworth's ideas about sensitive and responsive caregiving behaviour, which focused on the importance of bringing the child in close for physical and emotional support through comfort, protection and co-regulation of difficult behaviours and emotions. Perhaps not surprisingly, van Zeijl and colleagues (2006) reported no change in maternal sensitivity after VIPP-SD; however, changes in parent implementation of "sensitive discipline" strategies were found. At the same time, only small changes in overactive child behaviour were reported and only for stressed parents, with no decrease in oppositional or aggressive behaviours.

Overall these mixed findings suggest that brief video-based interventions targeting parent sensitivity (used in a prevention context) may increase parental sensitivity under certain conditions, when the approach is internally consistent based on a coherent theory of change, but that child attachment security only increases for some dyads. For others at higher risk (adoptive parents without birth children, children at risk of maltreatment), the inclusion of a consideration of parent representations appeared to be more effective than approaches targeting only behaviour, both in increasing the likelihood of secure infant attachment and in reducing disorganised and insecure attachment (Bernard et al., 2012; Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2005). In addition, specifically targeting the reduction of frightening and intrusive parent behaviours in a population at risk of maltreatment (e.g ABC; Bernard et al., 2012) was found to reduce rates of disorganisation in the treatment group.

Targeting parent representations. Other interventions have a greater focus on parent representations as well as on caregiving behaviour. Infant–parent psychotherapy (Fraiberg, 1980; Lieberman, Silverman, & Pawl, 2000) and child–parent psychotherapy (Lieberman, 2004) or variants on these approaches, where attachment theory foundations may be implicit rather than explicit, have incorporated many of Bowlby's ideas in their therapeutic focus on the parent–child relationship (Lieberman & Zeanah, 1999). While the primary intervention

target is parent representations, they may incorporate other aspects, including a focus on parent behaviour with the child, and sometimes on parent mentalising; all emphasise the importance of the relational process between parent and therapist.

These approaches (e.g., Cohen et al., 1999; Lieberman, 2004; Lieberman et al., 2000; Toth, Rogsosch, & Cicchetti, 2008; Toth, Rogosch, Manly, & Cicchetti, 2006) have been found to be effective in increasing child attachment security, but a recent meta-analysis indicated they have had limited impacts on other parent and child outcomes in families of children under 24 months, compared to treatment as usual or control conditions (Barlow, Bennett, Midgley, Larkin, & Wei, 2015). In general these interventions have a long duration, typically lasting at least a year. Change in representations has not always been measured, so it is often difficult to identify the mechanisms of change. In general these approaches have been used with higher risk populations, both for prevention and treatment purposes. They are discussed in more detail below.

Targeting parent reflective functioning. Interventions targeting improved reflective functioning have largely been prevention focused, and conducted with at-risk pregnant mothers and mothers of infants or toddlers. While some studies have shown improvements in attachment security (Sadler et al., 2013; Toth et al., 2008), findings of change in reflective functioning have been equivocal. Some report no change in RF (Sadler et al., 2013); others report only minimal improvement (Suchman et al., 2010) and/or improvement only for some subgroups (Sadler et al., 2013). Others have reported significant increases (Toth et al., 2008) or no decreases in RF for the treatment group compared with controls (Sleed et al., 2013). One sample showed improvements after child–parent psychotherapy when RF was measured on the AAI (Toth et al., 2008) but no change when it was measured using the PAI (Vrieze, 2011).

Interestingly, even where changes in parent reflective functioning have been reported, they have not been associated with changes in attachment security (e.g., Toth et al., 2008), raising questions about how these constructs are related. These RF-focused interventions have

also varied greatly in intensity, mode of delivery, duration, and ways in which reflective functioning has been assessed. The samples differed in risk profiles, so it is difficult to draw coherent conclusions from extant research about whether parent reflective functioning is a valid attachment-based intervention target alone or in combination with other foci and, if so, which approach is most effective to use and with which families. The theorised mechanisms of change—that increasing parents' mentalising will enable change in problematic working models of caregiving and/or caregiving behaviour, and ultimately attachment security with their child—have not been adequately tested. The inclusion of reflective functioning in attachment-based interventions used for treatment (rather than prevention) purposes has also not been empirically investigated.

What Works for Whom?

Reviews with conflicting conclusions—e.g., "Less is more" (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003) and "More is better' (Egelund, Weinfeld, Bousquet, & Cheng, 2000, p. 79)—have generated considerable debate about what form attachment-based interventions should take, what aspect of the relationship should be the primary target (e.g., parent behaviour, representations), and what timing and dosage of intervention is needed to be effective in increasing attachment security or preventing disorganisation (Bakermans-Kranenburg et al., 2003; Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2005; Egeland et al., 2000).

Some attachment theorists and researchers have sought to clarify some of the issues that need to be considered in order to decide which intervention may be suitable, in which circumstances, and for which purposes (e.g., Berlin, 2005; Letourneau et al., 2015). Berlin (2005), Letourneau et al. (2015), and others have suggested that interveners need to take account of the age of the child, the circumstances of the family (including demographic and psychosocial risk and protective factors), what "ports of entry" into the relationship may be available (including presenting issues) (Stern, 2004; Sameroff, 2004), and to what extent dysfunction is already established (in child, parent or relationship).

Stern (2004) suggested that, regardless of whether parent or child behaviour or representations are chosen as the entry points, change in one is likely to contribute to change in the others as they are all components of the parent–child relational system. However, echoing Bowlby and research by the Boston Change Process Study Group (2002), he also highlighted the role of "non-specific aspects of an intervention', including the "therapeutic holding environment" created by the relationship and regularity of connection between therapist and family. Because children and parents have different characteristics and susceptibilities and families are affected by different risk and protective factors, intervention approaches addressing problems in the parent–child relationship may need to flexibly tailor their focus to suit each dyad in order to be effective, by being responsive to opportunities for change via available "ports of entry" and processes.

Attachment-Based Interventions as Prevention

Many attachment-based interventions have taken a prevention focus, seeking to avert a likely negative trajectory for the child in a context of high demographic or psychosocial risk. It is not yet clear what impact intervening to prevent insecure attachment may have, and there are considerable empirical challenges to demonstrating positive outcomes. Though one meta-analysis (Bakermans-Kranenburg et al., 2003) reported overall positive findings after brief interventions, this masked some conflicting results for families at highest risk (Moran, Bailey, Gleason, DeOliveira, & Pederson, 2008), suggesting that a different approach to decision making about intervention intensity may be required. Findings of intervention effects may vary according to the designs of reviews and studies. Earlier reviews have found only marginal (Bakermans-Kranenburg et al., 2003; Berlin, 2005; Egeland et al., 2000) effects of intervention on child attachment security, and null findings for disorganisation (Bakermans-Kranenburg et al., 2005). Two recent reviews (Letourneau et al., 2015; Barlow et al., 2015) provide robust and modest evidence respectively for the effectiveness of attachment-based interventions (including parent–infant psychotherapy) in preventing attachment insecurity (in

infants under 1 or under 2 years respectively), but they raise many questions requiring further investigation.

Prevention in infancy. In their meta-analytic and narrative review, Letourneau and colleagues (2015) reviewed 10 studies (involving 1,628 mother–infant dyads) of attachment-based interventions that had randomised or quasi- randomised and the Strange Situation or Attachment Q sort (Waters & Deane, 1985) to measure child attachment outcomes. In contrast to findings of previous reviews, they found that interventions conducted in the first year of life, aimed at increasing maternal sensitivity alone or in combination with maternal reflective functioning, were robustly effective in promoting secure child attachments, and that interventions aimed at the highest risk families produced the most beneficial effects. Those interventions with a "reflective" component appeared to be more effective. While some studies reviewed reported improvements in parent–child interaction, there were few significant findings regarding improvements in parental mental health, stress, parenting self-efficacy, and child behaviour.

Another recent meta-analysis draws less positive conclusions regarding effectiveness of parent–infant psychotherapy with infants and toddlers under 2 years. Barlow and colleagues (2015) concluded that, while this was a promising model in terms of improving infant attachment security in high-risk families, there were no clear benefits for parent mental health, reflective functioning, sensitivity, and engagement or for child dysregulated behaviour and cognitive development. This review suggests that early parent–infant psychotherapy may be limited in its impact beyond increasing attachment security. Authors concluded that the impact of these interventions on potentially important mediating factors such as parent mental health, parent reflective functioning, and parent infant interaction needs to be established.

Both reviews also raise some challenging questions about the protective effects of improving attachment security, if other aspects of parent–child functioning do not appear to improve. Whether child behavioural functioning can be affected by attachment improvement also remains an open question.

Later years prevention. The prevention focus partly derives from the idea that there is a "sensitive period" in the first year of life for the formation of attachment, but Bowlby himself suggests that subsequent experiences with the caregiver, particularly if there is a change in the context or circumstances, continue to influence the development of the child's working model of the caregiving relationship. Attachment-based interventions have also been implemented with families of children beyond 1 year of age, especially in contexts of risk (e.g., Bernard et al., 2012; Hoffman et al., 2006; Sadler et al., 2013; Suchman et al., 2010; Toth et al., 2006, 2008). Findings of these studies suggest that rates of attachment security can increase and rates of disorganisation can decrease when the caregiving relationships are improved through attachment-based interventions focused on improving parents' relational capacities (including representations and mentalising). The same questions remain, however, about impacts on the wider aspects of parent and child functioning, with some programs not measuring these outcomes (Hoffman et al., 2006) and others reporting null or very limited findings of meaningful change in parent mental health (Sadler et al., 2013; Suchman et al., 2010; Toth et al., 2008) or child behaviour (Ordway et al., 2014).

In summary, attachment-based interventions have been most often used in a prevention context with families at high demographic or psychosocial risk. Outcomes in this context have been mixed, with increases in child attachment security most commonly reported. There have been equivocal findings regarding changes in parent–child interactions, parent behaviours, representations, and/or reflective functioning. Reports of clinically significant improvements in child behaviour and/or in parent mental health, stress, and/or self-efficacy have been rare or non-existent.

Attachment-Based Interventions as Treatment

Attachment-based interventions have been less frequently applied in a treatment context when children have been harmed and/or are already showing symptoms of disturbance. Where they have, limited available evidence suggests they may be effective when interventions are intensive, lasting a year or more (Larrieu & Zeanah, 2004; Lieberman,

Ippen, & Van Horn, 2006; Lieberman, Van Horn, & Ippen, 2005). These applications of attachment-based interventions have involved children up to the age of 6 years and, though not all have reported attachment outcomes for the child, they have reported significant improvements in child safety and social and emotional wellbeing.

Lieberman and colleagues (2005, 2006) reported improved child behavioural and emotional functioning after the use of child–parent psychotherapy with a population of families with children aged 3–5 years exposed to prior marital violence. There were improvements in both child (behaviour, trauma) and parent (mental health) symptoms for the treatment group, maintained 6 months after the treatment was completed. In a population of abused children up to age 6, attachment-based interventions (child–parent psychotherapy, interaction guidance) were included as part of a range of approaches (Larrieu & Zeanah, 2004). A 68% reduction in maltreatment recidivism for the target child and a 75% reduction for the subsequent child born to the same mother was achieved, suggesting that the overall treatment regime was effective in a significant proportion of cases in changing the safety of caregiving relationships. These rates compared favourably with a cohort of children from the same population in a previous time period, who did not receive these interventions (Zeanah et al., 2001). How much the different attachment-based intervention components (e.g., interaction guidance, child–parent psychotherapy) contributed to these outcomes is unclear.

A study of an 8-week attachment-based intervention using video feedback in the home with maltreated children aged 1–5 years and their parents, reported improvements in parental sensitivity and child attachment security, and a reduction in child disorganisation (Moss et al., 2011). This study also found reductions in parent-rated child internalising and externalising symptoms, but only in the 3–5-year-old children.

One feature of all of these effective treatment approaches in that they involve high levels of staff training and supervision, both to retain treatment fidelity and to support staff in the delivery of a relational treatment. While therapist contribution, treatment context, and therapeutic relationship aspects of the treatments have not generally been measured or

reported, it seems likely they contributed to outcomes (Moss et al., 2011; Norcross & Lambert, 2011; Stern, 2004). Indeed, Bowlby originally proposed that the therapeutic relationship would be a key mechanism of change (1988/2005), and some treatment approaches explicitly articulate the importance of the therapist–parent relationship in fostering a parallel process of change in the parent–child relationship (Lieberman & van Horn, 2008).

Summary

Together these studies suggest that attachment-based interventions may not only be effective as prevention by reducing some of the risks associated with adverse developmental pathways (attachment insecurity or disorganisation) but also serve as effective treatment, including with children older than 1 year, in high-risk contexts. At least one study also shows parent distress (psychological symptoms) can also be alleviated as a secondary outcome of improving the caregiving relationship (Lieberman et al., 2005, 2006). Questions remain about which aspects of the treatments—including treatment targets, dosage, content, and therapeutic process— were crucial to the changes seen, and it is hard to compare outcomes as there was very little overlap between outcomes measured and measurement tools. These findings suggest, however, that attachment-based approaches show promise in a treatment context with moderate to high-risk families, including with children older than 1 year, though more evidence is needed.

Attachment-based interventions have ambitious goals, trying to improve life trajectories. Compared to other parenting interventions that have more modest and focused goals (e.g., changing parent behaviour in discipline contexts), there is limited research on the efficacy and effectiveness of attachment-based interventions, in particular in treating established difficulties. Where evidence exists, effects sizes have often been small and are hard to compare because of the heterogeneous nature of the study designs, samples, and assessments used. While they share a theoretical framework of the parent–child relationship and broad aims to improve safety and security for the child in this relationship, different intervention approaches have emphasised different aspects of the therapeutic challenge, and

they have varied greatly in duration, delivery mode, and population targeted (e.g., parent/child

risk profile, age of children).

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Chapter 4   **The Circle of Security Intervention: Theory, Empirical Support, and Impetus for the Current Research**

Introduction

The Circle of Security intervention (Marvin, Cooper Hoffman, & Powell, 2002; Powell et al., 2014) has received considerable interest over the last decade. Variants of the approach have been widely disseminated and applied in a range of different contexts. Uptake of Circle of Security training by organisations and child and family health professionals from a range of disciplines has been particularly striking in Australia (personal communication, Glen Cooper, February, 2015). The current research originated through recognition that the clinical enthusiasm for the intervention needed to be complemented by empirical evidence regarding effectiveness. This chapter provides an overview of the key features of the Circle of Security intervention and the ways in which they are aligned with central tenets of attachment theory, as well as a critical evaluation of empirical research regarding its effectiveness, and research gaps that need to be addressed.

Intervention Focus and Aims

Originally designed by a group of experienced therapists for use as a prevention approach with high-risk families, the Circle of Security intensive intervention[1] has been described as the attachment intervention "most directly derived from attachment theory and research" (Berlin et al., 2008, p. 752). Unlike some other attachment-based interventions (which have been either more narrowly or more generally focused), this approach explicitly incorporates three of Bowlby's therapeutic tasks. The first two are intervention targets, namely *parenting behaviour* and *parent representations* (internal working model) regarding the child, the relationship with the child, and the self as parent. The third concerns the *intervention process*, the therapeutic relationship between intervener and parent as the enabler of therapeutic change. As well as targeting the content of parent representations (e.g., parent as competent, in charge; child as legitimately needing support rather than demanding), the intervention also includes an explicit focus on enhancing parent mentalising capacity

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[1] Unless otherwise specified, the term "Circle of Security intervention" is used in this thesis to refer to the intensive form of the intervention, which includes individualised assessment and treatment using the dyad's own videotaped material. Versions that do not include individualised videotaping as part of the intervention process are not covered by this term; the mostly commonly used of these versions is referred to as COS-P.

(*reflective functioning*), theorised to be a key pathway to sensitive parenting, including being aware of, reviewing, and changing representations, and regulating emotions and behaviour (Fonagy & Target, 2002; Powell et al., 2014; Slade, 2005).

The intervention aims to shift patterns of caregiving, thereby increasing child attachment security and decreasing disorganisation, through building a parent's relational capacities. These behavioural and mental capacities include: (a) understanding child needs for protection, exploration, and autonomy, and for emotional support in the caregiving relationship; (b) observational and inferential skills; (c) reflective functioning; (d) emotional regulation; and (e) empathy.

By targeting and working with caregivers using carefully chosen video clips of their interaction with their child, the intervention aims to increase sensitive responsiveness to the child's signals regarding their needs to move away to explore and move back in for soothing and comfort. The approach also explicitly targets the caregivers' capacity to reflect on their own and their child's behaviour, thoughts, and feelings regarding their caregiving interactions with their child. Finally it aims to encourage caregivers to reflect on aspects of their own caregiving histories that may affect their current patterns of caregiving (Powell et al., 2014) Through engaging parents in these processes of observation and reflection, the intervention specifically targets the use and development of reflective functioning and the revision of caregiving representations which may not be accurate or in line with child needs.

Assessment tools. The Circle of Security intensive intervention incorporates the videotaped Strange Situation Procedure (Ainsworth et al., 1978; Cassidy, Marvin, et al., 1992) as both assessment of the parent–child relationship and a source of therapeutic material. A narrative interview using some questions adapted from the PDI and AAI and some developed for the intervention (Circle of Security Interview) (Cooper, Hoffman, Marvin, & Powell, 1999; Powell et al., 2014), follows the interaction procedure and assesses parent perceptions of the filmed interaction process as well as representations of the child, self, and perceptions of self in the caregiving role. Representations explored also include the parents'

own experiences of being cared for. The way caregivers discuss these perceptions in the Circle of Security Interview (COSI) also reveals their capacity for reflective functioning. Together these assessments enable the therapist to formulate an individualised treatment plan and select appropriate video material to show the parent, focused on the attachment-caregiving issue that most needs addressing in each dyad (referred to as the *linchpin issue*—Powell et al., 2014, p. 129), also taking into account the parent's defensive style (Powell et al., 2014).

Intervention Content

At the centre of the Circle of Security intervention is a simple diagrammatic representation of the attachment-caregiving relationship, titled "Circle of Security: Parent attending to the child's needs". The circle graphic provides an accessible summary of the essential messages of attachment theory and research for parents and therapists alike. The circle serves as a "map" or template (working model) of a healthy attachment-caregiving relationship, encompassing the dynamically interlinked behavioural systems of child care-seeking (attachment) and exploration and parent- caregiving. See Figure 4.1 Circle of Security graphic (reproduced with permission).
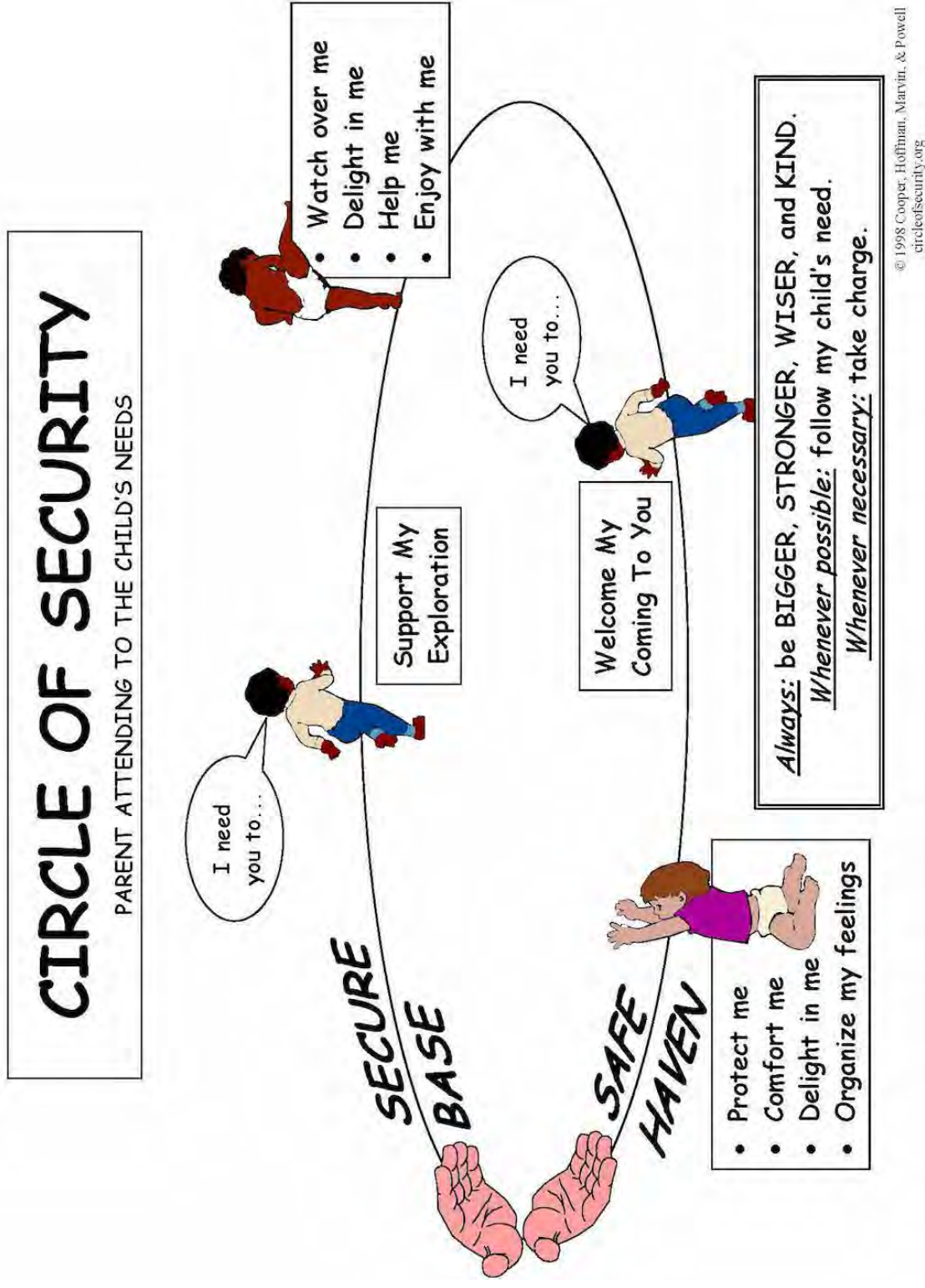
Figure 4.1 *Circle of Security graphic*

Exploration and attachment needs connected to caregiving. The Circle of Security graphic visually connects these three behavioural systems, encompassing Bowlby's idea of "goal corrected" systems (Bowlby, 1969/1997, p. 69), with the child needing an adequate caregiving response from the parent, in response to signalling of exploration and attachment needs. The message for parents is that, in order for the child to survive and develop optimally, the child has particular needs of the parent as caregiver. The parent first needs to be experienced as predictably available (*being the hands on the circle*), providing basic protection, and responsive enough to serve both as a *secure base* (when the child has exploration needs) and a *safe haven* (when the child has attachment needs). The metaphor and graphic of *hands* underline the parent's role as warm, strong, willing and able to "hold" the child in the psychodynamic sense, physically and psychologically (Powell et al., 2014).

Parents also learn that, in order for the child to adequately learn, develop skills and over time build a sense of their own autonomy, they need to respond to and support the child's exploration needs. Caregivers need to signal when and if it is safe for the child to follow their innate curiosity and explore (*support my exploration*); to monitor the child (*watch over me*); to provide scaffolding for learning and the acquisition of new skills (*help me*); to give joint attention to, encourage, and enjoy the child's endeavours (*enjoy with me*); and to share their delight in the child as a person (*delight in me*).

In addition, parents learn that, in order for the child to develop optimal social and emotional capacities, the child needs their caregiver to respond to their attachment needs. When the child feels fearful, distressed, or emotionally dysregulated, or their interest in exploration wanes, they need parents to willingly offer their availability for reconnection (*welcome my coming to you*); to provide comfort (*comfort me*), protection (*protect me*), and co-regulation of emotions (*organise my feelings*); and, once again, communicate to the child the fundamental message of their inherent self-worth (*delight in me*).

Through this graphical representation, along with the presentation of theory and research during intervention sessions, parents come to understand that, when a child's attachment needs are adequately addressed, the attachment behavioural system is de-activated, and this can in part contribute to a smooth balance between the child *going out* on the top of the circle (exploration) and *coming in* (attachment) on the bottom, which supports healthy development.

Caregiver role. In addition to the circle graphic, the role of the caregiver (as the *hands on the child's circle*) is also clearly articulated in a simple statement: "Always be bigger, stronger, wiser, and kind. Whenever possible: follow my child's need. Whenever necessary: take charge." (Powell et el., 2014, p. 33). Parents learn that caregiving requires predictable emotional availability. In addition, as Bowlby (1988/2005) and other family systems and developmental theorists have identified (e.g., Baumrind, 1966, 1967; Minuchin, 1974; Shaffer & Sroufe, 2005), the caregiver, as the adult and more capable partner in the relationship, needs to provide a balance between warmth and support on the one hand and appropriate structure, limit setting, and guidance on the other, adapted to the developmental needs and capacities of the child. Caregivers are also introduced to the notion of *taking charge* in circumstances where it is clear that more active intervention is necessary to ensure the child's safety, to scaffold problem solving, or to provide behavioural and emotional containment.

Framed in positive language, the intervention also addresses the requirement for caregivers to distinguish between the child's needs for caregiving and their own, and parents are guided to understand that child development is optimised when caregivers take responsibility for prioritising the meeting of the child's emotional needs (Bowlby, 1969/1997; Solomon & George, 1996) at the same time as seeking support for their own needs as a parent elsewhere (*hands holding hands*).

Behaviour as communication. This relational framework then becomes a lens through which to understand children's behaviour as a form of communication about their

needs. Parents also learn that the child's needs and behavioural cues may intensify if not adequately responded to. Behavioural and emotional "problems" can thus be reframed as signals of inadequately met protection, exploration, and attachment needs manifesting in emotional and behavioural dysregulation and distress (Carlson, Sampson, & Sroufe, 2003; Solomon & George, 2011). This helps to shift parents' focus from trying to eliminate a particular behaviour to finding relational opportunities to ameliorate the child's distress with adequate caregiving responses.

This reframing of dysregulated or challenging behaviour as signalling needs contrasts with other approaches to dealing with child behavioural and emotional problems. For example, many behavioural and social learning theory based approaches train parents to reinforce or ignore child behaviours as a way of increasing desirable or decreasing undesirable behaviours. In circumstances where the child's emotions and behaviour are out of control, parents may also be taught to withdraw from contact with or isolate the child, for example by placing them in time out (e.g., Thomas & Zimmer Gembeck, 2007). From an attachment theory perspective, responding to a child's behaviour by distracting, ignoring, or moving them away from the caregiver is viewed as an inadequate, dismissive, or antithetical response to the child's legitimate emotional need.

Intergenerational influences, defensive processes and caregiving. Through the Circle of Security intervention, caregivers learn that problems can ensue when a child defensively adapts to limited parent availability and responsiveness. This is framed as the child adapting to try to meet the parent's needs (*limited circles, limited hands*). Caregivers are also introduced in an accessible way to ideas about intergenerational influences on caregiving capacity that are fundamental to attachment theory (Bowlby, 1988/2005), and to more complex psychodynamic processes of defensive responding (Bowlby, 1980/1998).

Opportunities are provided to explore how representations of caregiving can be influenced (both positively and negatively) by childhood experiences of being cared for—serving as "angels" (Lieberman, Padrón, Van Horn, & Harris, 2005) or "ghosts in the

nursery" (Fraiberg, Adelson, & Shapiro, 1975)—and that at times inadequate caregiving responses may stem from their own similar experiences at the hands of their caregivers during childhood.

Bowlby and other attachment theorists proposed that defensive representational processes result from inadequate experiences of care and serve to protect the child from the psychic pain of seeing their caregiver as failing to care for them (Bowlby, 1980; George & Solomon, 2008; Solomon & George, 1999, 2011). These defensive processes, which include defensive exclusion (de-activation or cognitive disconnection and avoidance) and segregation (in which painful or threatening memories and affects are blocked from conscious awareness, similar to repression or dissociation) are fundamental to insecure and/or disorganised attachment representations, and can be carried forward into adulthood, including into caregiving representations.

The Circle of Security intervention openly addresses defensive processes (*shark music*) with caregivers, and ways in which they can be activated (in parents and children) if a child's need coincides with a caregiver's own unmet childhood need for care. These processes can distort or exclude caregiver perceptions of, and/or limit their responsiveness to, the child's real needs in the relationship. In the caregiver, de-activating defenses may reduce the need for emotional engagement or assistance (seen in insecure avoidant dyads), and cognitive disconnection may split attachment information and affect from their source, leading to a heightened activation of the caregiving system (seen in insecure, ambivalent dyads). Segregation is associated with dysregulated and polarised representations and responses, affective flooding and constriction, seen in disorganised dyads (George & Solomon, 2008; Solomon & George, 2011).

Over time, the child also defensively adjusts the expression of emotional needs, either through minimising them or through signalling in a contradictory way (*miscuing*) in an endeavor to keep the caregiver as safe, available and responsive as possible. Caregivers learn that some of these inadequate caregiving responses can regularly evoke fear in children, with

negative developmental consequences (especially the case with disorganised dyads). Behavioural and emotional problems, including dysregulated behaviour, may thus be seen as a developmental consequence of these caregiver defensive processes over time (Jacobvitz & Lyons-Ruth, 2008; George & Solomon, 2011; Sroufe, 2005). The Circle of Security intervention presents parents with this information (using theory and individualised interaction videotape clips) in a nonjudgmental and compassionate way, and also challenges them to take action to change such problematic relational dynamics once they become aware of how their own defensive processes (*shark music*) have been interfering with their capacity to adequately meet their child's needs.

The Circle of Security explicitly addresses these defensive processes in the caregiving relationship and give parents a language for understanding and talking about these complicated and often very rapid internal experiences. This awareness and language can then support necessary caregiver emotional regulation and attentional shifts to enable more adequate caregiving responses (Powell et al., 2014). Other programs (e.g., earlier versions of Attachment and Biobehavioural Catch-up, ABC—Dozier, Lindhiem, & Ackerman, 2005) incorporated some of these ideas.

Defensive personality styles: core sensitivities. Bowlby (1988/2005) postulated that attachment experiences also contributed over time to the development of personality. He indicated that working therapeutically with patients is assisted by taking into account the particular way a person may enact patterns of relating, including use of defensive strategies, derived from their early experiences in attachment relationships (1988/2005). The Circle of Security intervention takes into account some of these transference processes that can take place in the therapeutic relationship and also incorporates a framework for understanding and responding to particular styles of defensive responding. Based on Masterson's work on the clinical understanding and treatment of personality disorders (e.g., Masterson, 2005), the intervention incorporates an understanding of three main defensive styles, positively framed as "core sensitivities"—called esteem sensitivity, safety sensitivity, and separation

sensitivity—which, in their most rigid and pervasive forms, are akin to narcissistic, schizoid, and borderline personality disorders respectively.

By identifying the parent's sensitivity—i.e., how they tend to respond when they feel vulnerable (e.g., to perceived criticism, threatened abandonment, or feeling too exposed)—the therapist can frame the way they introduce the parent to areas in which the relationship with the child is not adequately serving the child's needs. The goal is to avoid activating strong defensive reactions in the parent, so that the parent can still hear, see, and begin to understand what needs to change. Over time, as the parent experiences the therapists and the group experiencing and accepting their real self in all its vulnerability, yet not attacking them, abandoning them, or leaving them isolated, a corrective relational experience is achieved.

These sensitivities, are identified as part of the assessment process, partly in the interaction assessment but mostly through the narrative interview (COSI) from the parent's defensive patterns of response. Over time, within the therapeutic relationship, parents are invited to see how their defensive pattern also prevents change. Therapists are trained and supervised so they can understand these sensitivities and how to notice and respond to individual defensive patterns acted out through the therapeutic process.

The fact that the intervention incorporates attention to both "shark music" and "core sensitivities", defensive processes that affect parents' relational behaviours with their children and in the therapeutic relationship, increases the opportunities for therapists to tailor the approach to respond to the needs of each parent, each dyad, and the group. Helping parents to be in their real self rather than their defensive self underlies the way therapists providing the Circle of Security intervention use these understandings to foster relational change.

Increasing security, reducing disorganisation, and relationship repair. Research indicates that ruptures (or individual instances of insensitive or frightening caregiving) in attachment-caregiving relationships frequently occur, and that they are not necessarily problematic for child development unless they become chronic and the child's attachment system remains chronically activated (National Scientific Council on the Developing Child,

2006; Solomon & George, 2011; Tronick, 2007). Circle of Security presents caregivers with a framework for interactive repair of these caregiver failures (*putting hands back on the circle*), including through maintaining proximity to the child and supporting co-regulation of emotion through "time-in" (Powell et al., 2014, p. 293).

Use of Video

The role of behavioural observation of self and child in the relationship is pivotal to the intervention. Like some other attachment theory informed interventions that seek to increase sensitive parental behavioural responses, Circle of Security incorporates the therapeutic use of selected video clips of parent–child interactions to assist parents to become consciously aware of aspects of the dynamics of the relationship that may be largely unconscious or defensively excluded. Beebe (2003) suggests that supported video feedback of parent–child interactions can serve as a "shock" to the unconscious (p. 45), not unlike the "surprise to the unconscious" elicited by narrative interviews such as the AAI.

However, unlike some other, shorter, interventions targeting behaviour (e.g., VIPP), Circle of Security uses the video material to support parents to become aware of not only child and parent behaviour but also representations and mental states, and how these are connected with behaviour (i.e. specifically targeting reflective functioning). Approaches that incorporate supported video feedback with the aim of eliciting and enhancing reflection may do so partly by providing a safe distance from the interaction (Beebe, 2003; Steele et al., 2014). They also enable relational changes to be observed and reinforced. All of these video-enabled adjuncts may add power to the treatment process (Beebe, 2003; Steele et al., 2014).

Other interventions that also focus on parent and child behaviour, defensive processes, and representations—e.g., infant–parent psychotherapy (Lieberman, Silverman, & Pawl, 2000)—are not generally video based and are of much longer duration. This suggests that the use of observational video footage as a stimulus for the therapeutic evaluation of behaviours, representations, and mental states may enable treatments targeting all three to be effective in a

shorter time; but the unique contribution of video footage requires empirical confirmation (Beebe, 2003; Fukkink, 2008; Steele et al., 2014).

Treatment Process

While the Circle of Security intervention includes both psycho-education and psychotherapy, a key aspect of the therapeutic process, directly incorporating one of Bowlby's therapeutic tasks (1988/2005), is a focus on relational processes between therapist and parent as a vehicle for influencing parallel change in the parent–child relationship. Some other attachment-based approaches focused on parent representations and/or parent reflective functioning also direct attention to this parallel process (e.g., Lieberman, 2004; Steele et al., 2014). A recent review has confirmed the significant independent contribution made by the therapeutic relationship to psychotherapeutic outcomes (Norcross & Lambert, 2011), but more empirical attention needs to be addressed to this phenomenon when evaluating attachment-based interventions.

Delivery mode. The original version of the Circle of Security intervention (Hoffman et al., 2006; Marvin et al., 2002) was designed for weekly group sessions with six parent–child dyads lasting approximately 20 weeks. Groups are theorised to add power to an intervention by reducing isolation and supporting change (Yalom, 2005). The Circle of Security group, together with the therapists, can come to serve as a secure base and safe haven for parents and to support vicarious learning, normalise struggles, and create a group momentum for change. While the originators state that the intervention can be adapted for individuals, couples, and families (Powell et al., 2014), adaptations require empirical testing to determine efficacy and effectiveness in different contexts. The current study examines the delivery of the intervention using the original group protocol.

Research Findings on the Circle of Security Intervention

To date there are just four published studies reporting findings after the Circle of Security intensive intervention or its adaptations. While findings are promising, studies have

substantial limitations and more evidence is needed. Given the small number of studies, each is summarised in detail here, together with implications for the current research.

Circle of Security 20-week group with high-risk Head Start families. The intervention originators tested the 20-week group delivery in a high-risk sample of families of preschoolers and toddlers engaged in an Early Head Start program in Washington State, USA. The study used a pre-post sequential cohort design. Strange Situation Procedures for 65 dyads who completed the intervention (86% of 75 treatment starters) were coded before and after and used to analyse categorical changes in child attachment. Coders were blind to the pre- and post-intervention status of dyads, and age-appropriate coding systems were used.

Results indicated that the proportion of children classified secure significantly increased (from 20% to 54%) and the proportion of children classified disorganised significantly decreased (from 60% to 25%) after the intervention compared to pre-treatment rates (Hoffman et al., 2006). While this study was limited by not having a control group, findings suggested the intervention could improve attachment outcomes for children from high-risk families aged between 11 months and 58 months. Further replication of these findings is required, as this is the only extant study of the 20-week group-based version. In particular, as the only outcome assessed was attachment, no information was available on caregiver changes in behaviour, representations, or reflective functioning, which are all targeted by the intervention, so it is not possible to draw conclusions regarding whether improved attachment outcomes were related to targeted changes in caregivers. The current study sought to replicate these findings regarding improvements in caregiver–child attachment and also to address some of these limitations.

Circle of Security group perinatal protocol with high-risk offenders. Subsequently Cassidy and colleagues (Cassidy et al., 2010) used an adapted prenatal / early infancy version of the Circle of Security intervention (group delivered) conducted as part of a 15-month jail-diversion program for a small group of pregnant, nonviolent offenders with a history of substance abuse. There was no control group. After the program, 14 of 20 infants were

classified secure (70%) and four were classified insecure-disorganised (20%). These results indicated that infants of the 20 women who completed the program had rates of attachment security and disorganisation comparable to rates typically found in low-risk samples (van IJzendoorn et al., 1999). At program completion, the mothers also showed levels of maternal sensitivity comparable to those shown by an existing group of 33 economically stressed mothers of similar-aged infants (recruited as controls for a different study of the Circle of Security intervention (see below)). This rating included consideration of maternal sensitivity to child distress, intrusiveness, and positive regard for her child (Cassidy et al., 2010). The study did not report on the relationship between maternal sensitivity and infant attachment.

Maternal psychosocial functioning was also examined across a range of domains, including attachment style, depression and dissociation symptoms, self- esteem, and perceived social supports. While overall depression symptoms reduced significantly and rates in the clinical range improved (38% compared with 69%), they were not significantly different (using McNemar's test), possibly due to low statistical power. Other aspects of maternal functioning (self-esteem, dissociative experiences, attachment style, social support) did not improve. Low numbers and absence of a comparison or control condition limit generalisability of these findings. In addition, the women received other interventions concurrently including trauma treatment and other wraparound social support services, so the study authors were unable to identify the unique contributions of Circle of Security to the outcomes.

Brief individual home-delivered Circle of Security intervention. A third study used a randomised controlled design (n = 169), to evaluate a very abbreviated individually delivered four-session version of the Circle of Security intervention (COS-HV4) delivered during home visits with economically stressed mothers of irritable infants 6–9 months of age (Cassidy, Woodhouse, Sherman, Stupica, & Lejuez, 2011). This version incorporated key components of the 20-week intensive version, including using individualised videotaped clips of the dyad in each session. The intervention comprised one session during which mothers

learned about the attachment theory and caregiving using the Circle of Security graphic, two sessions in which mothers reflected on their own parenting through individualised tape reviews, and a final session allowing for consolidation of learning and celebration of changes. An understanding of defensive processes using the "shark music" metaphor was also included and there was a focus on reflection as well as behavioural observation.

Results indicated there were no differences in rates of secure and insecure attachment at a 12-month follow-up for the intervention group as a whole (compared to controls). However, dyads were differentially susceptible to the intervention depending on infant irritability and maternal attachment style. The intervention was only effective with respect to attachment for highly irritable infants with secure caregivers, highly irritable infants with dismissing caregivers, and moderately irritable infants with preoccupied caregivers.

A fourth study (Woodhouse, Lauer, Beeney, & Cassidy, 2015) was conducted later using data collected during the intervention with treatment group participants (n = 85) in the study described above. Woodhouse and colleagues found that therapist relational warmth and engagement in the psychotherapeutic process of exploration were both positively associated with maternal engagement during the intervention. They concluded that relational and psychotherapeutic processes between therapist and parent may have contributed to positive intervention outcomes.

Circle of Security Parenting

More recently a psycho-education version of the Circle of Security intervention has been developed, called Circle of Security Parenting (COS-P) (Cooper et al., 2009). This eight-session variant incorporates the essential theory of the original version, introducing parents to attachment theory, child caregiving needs, and how parent defensive processes can impact on caregiving. COS-P can be delivered individually or in groups, requires only 4 days of facilitator training (compared with 10 days for the intensive version), and does not specify minimum qualifications or supervision requirements. Instead of individualised video-taping for assessment and treatment planning, stock footage of secure dyads is used to help parents

learn about and reflect on their relationship with their child. However, this requires parents to identify their own areas of difficulty, which, due to defensive processes, may or may not be an accurate perception (Ainsworth, personal communication, 1989, cited by Stevenson-Hinde (1999): Mary Ainsworth, p. 223).[2]

COS-P is now more widely used than the original intensive version but also lacks empirical research, with just two studies published to date. A small exploratory study (n = 15) with mothers in residential treatment for substance abuse problems (Horton & Murray, 2015) reported that treatment completers showed a small positive change on a self-report measure of parental discipline practices, and small improvements in self-reported emotional regulation and parent attributions. However, the small sample size and the reliance on self-report measures alone means that these findings need to be interpreted cautiously and that, as with the Cassidy et al. (2010) study described above, the intervention effects cannot be isolated from the effects of other services the mothers received.

Perrett, Spies, and Dolby (2015) reported results from a small (n = 28) randomised controlled study with a waitlist control group. No post-intervention differences were found in attachment security rates (using categorical measures) between treatment and control groups. While findings of decreased parenting stress and reduced child behaviour problems were positive (e.g., three of four children in the clinical range pre-intervention moved to the normal range after treatment), these were based on extremely low numbers. In addition there were no significant differences regarding change in parenting stress comparing treatment and control groups. Findings suggest future research may need to use more sensitive dimensional measures of attachment quality in larger samples to examine any changes in parenting stress and child behaviour problems.

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[2] "My experience of home visits was the first indication I had that what the mother said about her baby or about her infant care practices was not to be trusted in many cases, not all. Mothers of insecure babies were particularly untrustworthy. I don't mean that they consciously lied, but some of them were so highly defended that the information they gave in all good faith was likely to be false—to judge by direct observation." (Ainsworth, personal correspondence with J. Stevenson Hinde, April 20, 1989, cited in (1999) Mary Ainsworth 1913–1999 (Multi-author eulogy), p. 223.)

Both studies were also limited by the lack of clarity regarding treatment goals of the COS-P program. Therefore outcome measures may not necessarily reflect what the program was designed to address. For example, it is not clear whether the brief intervention seeks to alter parent–child attachment patterns in addition to subjective experiences of parenting. Empirical evidence would then be needed to test the efficacy of COS-P against explicit intervention goals.

Implications and Need for Empirical Research

The foregoing review of research on attachment-based interventions in general and Circle of Security in particular raises some important issues for future research. The most pressing is that the findings from the original 20-week Circle of Security intervention study have never been replicated and therefore there is scant empirical evidence about the efficacy of this intervention. Secondly, although they share a common goal of improving outcomes for children and families by increasing the likelihood of attachment security, attachment-based interventions vary greatly in their intervention targets (e.g., parent behaviour, representations, and mentalising) and there is equivocal evidence about the efficacy and effectiveness of the range of approaches taken, depending on what is measured and reported. Conflicting conclusions from reviews also suggest that interventions need to be tailored to the presenting problems and risk circumstances of participants, the age of the child, and whether prevention of future problems or treatment of current difficulties is the goal. Changes in aspects of caregiver functioning that are explicitly targeted need to be measured, both to assess intervention efficacy and to better understand possible mechanisms of change. For example, while some studies have measured attachment security, they have not measured caregiving processes thought to underlie secure attachment (e.g., Hoffman et al., 2006; Perrett et al., 2015).

Most attachment-based interventions, and the Circle of Security in particular, have not been adequately studied in a treatment context, including with families of children beyond 12 months of age, when parent–child relationship dysfunction can manifest in child behavioural

and emotional problems and concomitant parenting distress. Research into the use of attachment-based treatments with clinically referred families of young children has so far been limited to the highest risk families (e.g., maltreatment and family violence samples). At the same time, parent training approaches for child behaviour problems with a more extensive evidence base report promising results on the one hand but, on the other, difficulties engaging, retaining, and effecting change with many of the most needy families (Davis et al., 2012; Koerting et al., 2013; Scott & Dadds, 2009). Attachment-based approaches with a focus on the therapeutic relationship have much to offer in this regard, and therefore there is a pressing need for more research into the clinical uses of attachment-based interventions that also takes account of the therapeutic process.

The Current Study

Though not explicitly designed as a "treatment" for child behaviour problems, the Circle of Security approach is frequently implemented to deal with these issues in an Australian context. In relation to the current research, the Circle of Security intervention was being used in a treatment context with moderate- to high-risk families of young children referred with behavioural and emotional problems, so there was a clinical imperative to test its effectiveness in reducing these problems. Further, because parent distress is interlinked with child problems (e.g., Dubois-Comtois et al., 2013), measuring change in parent wellbeing is also needed to confirm whether improving the relationship can result in improved functioning for both children and parents, as theory might suggest.

Research questions. The overarching aim of the current research was to address the dearth of empirical evidence for the Circle of Security intensive intervention by replicating and extending the previous findings by Hoffman and colleagues (2006). The current study differed from Hoffman and colleagues' study in several ways: first, the sample of parents and infants were referred to a clinical service for child behaviour and emotional problems; second, the age range of the children was broader (1–7 years); third, the effectiveness (efficacy) of the

intervention with regard to changing child behaviour and parent wellbeing was explored for the first time. The following specific questions were addressed:

1. Does the intervention result in improved parent relational capacities (caregiving representations and parent reflective functioning) explicitly targeted by the intervention?

2. Does child attachment security increase and disorganisation decrease post intervention?

3. Do child behavioural and emotional difficulties decrease and child social and emotional protective factors increase post intervention?

4. Does parent emotional functioning improve after the intervention?

What works for whom? Previous research on parent-focused interventions to treat child behaviour problems, attachment-based interventions in general, and Circle of Security in particular has clearly indicated that not every family benefits equally (e.g., Berlin, 2005; Cassidy et al., 2011; Koerting et al., 2013; Scott & Dadds, 2009). Some approaches have been effective with low-risk families but not higher risk families (taking into account a range of parent and/or child risk demographic and psychosocial factors), while others have been effective only with families showing certain combinations of parent and child risk (e.g., Cassidy et al., 2011). Because of the potential lifelong impacts on child and/or parent psychological functioning, it was considered important to examine if the Circle of Security intensive intervention is differentially effective according to family need, as families presenting with more serious problems may be more vulnerable to lasting problems if improvements are not achieved through treatment. Therefore the current study sought to also examine if the intervention had differential outcomes, depending on level of presenting problem.

Research approach. In order to address these questions three separate studies were undertaken. Efficacy research is needed to test whether the intervention achieves its aims to increase attachment security and reduce disorganisation by increasing parents' relational capacities. Effectiveness research is also needed to examine if the intervention works to

engage, retain, and achieve changes in real-world populations, including in clinical applications. The first study (Chapter 5) was a partial replication of the original Hoffman et al. (2006) efficacy study and examines change in child attachment and disorganisation as well as parent reflective functioning and caregiving representations. The second (Chapter 6) examines the effectiveness of Circle of Security in reducing child behavioural and emotional problems and increasing child social and emotional protective factors. The third study (Chapter 7) examines secondary impacts on parents' emotional functioning after the intervention. The thesis concludes with an integrative discussion of findings across the three studies, including clinical and future research implications (Chapter 8).

Chapter 5   Efficacy of the 20 Week Circle of Security Intervention: Changes in Caregiver Reflective Functioning, Representations and Child Attachment in an Australian Clinical Sample

Author Contributions

Author Anna Huber contributed to the conceptualization and design of the present study, oversaw data collection and undertook data analyses, wrote the first draft and subsequent revisions of the manuscript for publication. Author Catherine McMahon contributed to the study design, plans for data analyses and writing and contributed to revisions of the manuscript. Author Naomi Sweller advised on statistical analyses and contributed to revisions of the manuscript.

Note: Because this chapter was prepared for separate publication, citations and references are presented as though for a stand-alone work.

Abstract

Circle of Security is an attachment theory based intervention that aims to promote secure parent–child attachment relationships. Despite extensive uptake of the approach there is limited empirical evidence regarding efficacy. The current study examined whether participation in the 20 week Circle of Security intervention resulted in positive caregiver-child relationship change in four domains: caregiver reflective functioning; caregiver representations of the child and the relationship with the child; child attachment security and attachment disorganization.

Archived pre and post intervention data was analyzed from 83 clinically referred caregiver-child dyads (child age-13–88 months), who completed the Circle of Security Intervention in sequential cohorts and gave permission for their data to be included in the study. Caregivers completed the Circle of Security Interview, and dyads were filmed in the Strange Situation Procedure before and after the intervention. Results supported all four hypotheses: Caregiver reflective functioning, caregiving representations, and level of child attachment security increased after the intervention and level of attachment disorganization decreased for those with high baseline levels. Those whose scores were least optimal prior to intervention showed the greatest change in all domains.

This study adds to the evidence suggesting that the 20-week Circle of Security intervention results in significant relationship improvements for caregivers and their children.

Keywords: Circle of Security, Attachment, Reflective Functioning, Parent Representations

Introduction

A large body of research has consistently confirmed that the quality of a child's attachment relationship with their primary caregiver is a key determinant of social-emotional development (Ainsworth, 1979; Bowlby, 1969/1997; 1988/2005; Cassidy & Shaver, 2008; Sroufe, Egeland, Carlson, & Collins, 2005). Consequently, attachment-based interventions seek to achieve more positive outcomes for children by promoting positive parent–child relationships. The current study reports an evaluation of one such intervention, The Circle of Security (Powell, Cooper, Hoffman, & Marvin, 2014), which explicitly focuses on caregiving patterns associated with individual differences in attachment and on the caregiving representations believed to underlie these different patterns of caregiving.

Three patterns of organized attachment have been identified (Ainsworth, Blehar, Waters, & Wall, 1978). Secure attachment reflects a relationship in which the caregiver provides protection and support, "a haven of safety", for the infant's emotion regulation when threatened or distressed (Bowlby, 1969/1997, p.303), as well as support for the child's exploration and learning, "a secure base" (Bowlby, 1988/2005, p.12). Two insecure patterns have been described and conceptualized as adaptations by the child to unpredictable and/or conditional responsiveness of the caregiver. Avoidant attachment is associated with caregiving responses that do not meet fully the child's safe haven needs with an over-emphasis on encouraging exploration, while ambivalent attachment is associated with unpredictable caregiver availability and/or inadequate support for secure base needs and reluctance to support autonomous exploration by the child (Ainsworth et al., 1978). In addition to these three organized patterns, a disorganized pattern was identified (Main & Solomon, 1986) in which the caregiver is thought to be experienced as frightening or frightened by the child (Main & Hesse, 1990), and/or unable to adequately modulate child arousal when the child needed protection or emotional support (Lyons-Ruth, Bronfman, & Parsons, 1999). This latter classification has been most consistently associated with adverse

child emotional and behavioral outcomes (Fearon, Bakermans-Kranenburg, van Ijzendoorn, Lapsley, & Roisman, 2010; Solomon & George, 2011).

Repeated experiences with a caregiver are believed to be mentally represented as internal working models that are carried forward into new relationships (Bowlby, 1969/1997, 1973/1998; Solomon & George, 1996). Internal working models are also important determinants of caregiving quality. Caregivers' internal working models, or "representations", of attachment and caregiving (derived from their own early experiences with parents) have been shown to be powerful predictors of the quality of the attachment-caregiving relationships they develop with their own children (Benoit, Parker, & Zeanah, 1997; George & Solomon, 1996; 2008; van IJzendoorn, 1995; Vreeswijk, Maas, & van Bakel, 2012).

Central to the theory, and a core assumption underlying attachment-based interventions, is the view that internal working models are dynamic and can be influenced and revised in response to later relationship or therapeutic experiences, especially if brought to conscious awareness (Bretherton & Munholland, 2008; Bowlby, 1969/1997). In this regard, metacognitive processes (Main, 1991), particularly awareness of mental states in the self and others (Fonagy & Target, 2005; Fonagy, Gergely, & Target, 2008), have become an important therapeutic focus. This capacity to reflect on mental states and their connection with behavior is theorized to be a crucial pre-requisite for change in caregiving representations and ultimately in caregiving behavior (Grienenberger, Kelly, & Slade, 2005; Slade, 2005; Steele & Steele, 2008).

The Circle of Security Intervention distils the essence of attachment theory and research into an understandable/accessible relational model that parents and therapists can use together to address difficulties in attachment-caregiving relationships, including child behavior problems (Powell et al., 2014). Simply stated, the intervention aims to enhance child attachment security by targeting parent behavior, representations, and reflective functioning (Berlin, Zeanah, & Lieberman, 2008). The provision of a therapeutic safe haven and secure base for the caregiver is central to the approach.

The intervention seeks to achieve these objectives by (1) developing the caregiver's capacity to accurately observe themselves interacting with their child and describe how they behave in response to their child's signaling of attachment, exploration and caregiving needs; (2) helping parents to become aware of their own mental representations of caregiving and attachment and how these influence their own and their child's behavior in the relationship; and changing maladaptive mental representations of caregiving to more accurate and adaptive ones, by (3) developing the caregiver's capacity for reflective functioning. Figure 1 summarizes the proposed therapeutic pathway.
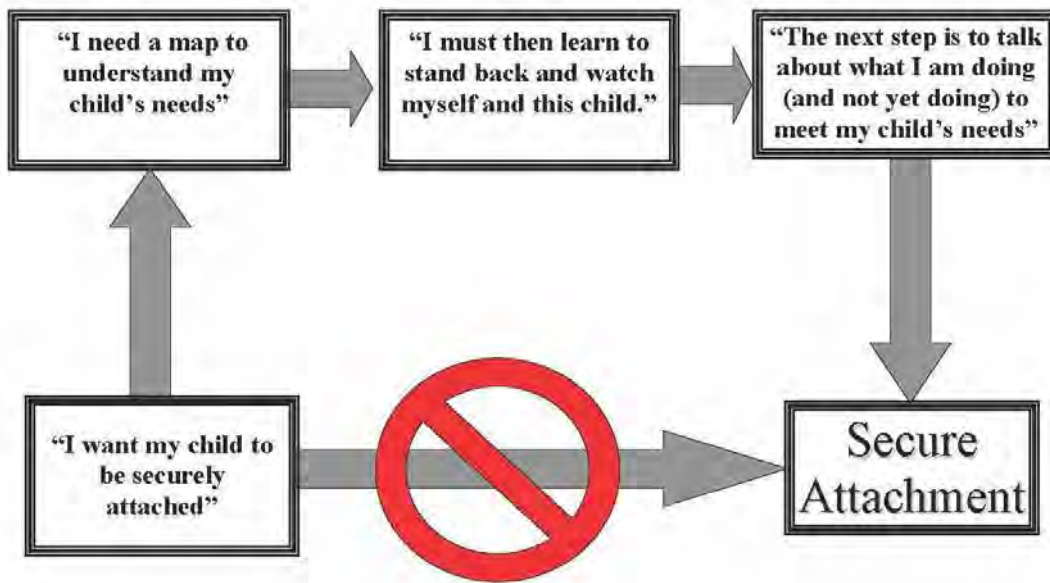
Figure 1. The Path to Secure Attachment.
Reproduced with permission from Cooper, G., Hoffman, K., Marvin, R. & Powell, B. (2000) Circle of Security Facilitator's Manual. Unpublished Manuscript. p98.

Figure 5.1 *The Path to Secure Attachment*

While the Circle of Security intervention is strongly theoretically grounded and shows promise for improving caregiver-child attachment in high-risk families (Cassidy, et al., 2010; Cassidy, Woodhouse, Sherman, Stupica, & Lejuez, 2011; Hoffman, Marvin, Cooper, & Powell, 2006), empirical support for the effectiveness of the approach is limited. Only one previous study (Hoffman et al., 2006) has demonstrated the effectiveness of the 20 week Circle of Security Intervention, with results indicating that in a sample of preschool and toddler children from high risk families the proportion of children classified as securely attached and with organized attachment increased significantly after the intervention. Further research is needed to replicate and extend these findings. It remains unclear whether the approach would also be effective for older children and in samples outside of North America. There is also scope to consider alternate approaches to assessing attachment, which may enable detection of more subtle treatment effects.

A number of attachment researchers have argued for the use of dimensional as well as categorical indicators of attachment quality (e.g., Cummings, 2003; Fraley & Roisman, 2014; Fraley & Spieker, 2003a, 2003b; Hesse, 2008; Waters & Beauchaine, 2003) Use of continuous ratings can allow for detection of more subtle variations between individuals on more than one scale, can increase statistical power and can reduce potential errors in measurement associated with categorical decision-making. In addition, security and disorganization can be successfully measured as continua, giving a clearer picture of the relative security and disorganization of each dyad, as well as different patterns within each categorical group of attachment (Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2005). These continuous measures can also be used to identify associations between security and disorganization and other variables. No study to date has evaluated the Circle of Security intervention in this way.

Importantly, as caregiver reflective functioning and representations are the central therapeutic focus of the Circle of Security approach, empirical studies also need to examine whether the intervention changes the way caregivers think about themselves and their child. The current study set out to address some of these gaps and to explore the effectiveness of the 20 week intervention across a broad age-range of clinically referred children and their caregivers. We considered the following questions:

(1) Does the Circle of Security Intervention improve: a) caregiver reflective functioning, b) caregiver representations of self and child, c) child-caregiver attachment?

(2) Does the effectiveness of the intervention differ depending on: a) caregiver characteristics (reflective functioning, caregiving representations) and b) child characteristics (age, attachment security or disorganization) prior to treatment.

We hypothesized that compared to scores prior to treatment, after treatment:

(3) Caregiver Reflective Functioning scores would increase

(4) Caregiving representations would be more positive

(5) Attachment security would increase

(6) Attachment disorganization would decrease

We also sought to investigate if there were differences in intervention effects depending on indices of relationship functioning prior to treatment. The treatment manual suggests that at least a modest level of reflective functioning is a pre-requisite for parents to engage effectively in the reflective dialogue integral to the approach (Cooper, Hoffman, Marvin, & Powell, 2000). This suggests those with more reflective capacity may respond better to the treatment, consistent with other attachment-based programs that have found more benefit for those starting with more secure states of mind (Bick, Dozier, & Moore, 2012). On the other hand, some previous research using Circle of Security has found families with high rates of insecurity or adversity showed benefit (Hoffman et al., 2006; Cassidy et al., 2010), possibly because there was more room to show improvement. Therefore it is difficult to propose a directional hypothesis regarding differential effects. We therefore decided to undertake exploratory analyses to find out whether more impaired or less impaired families benefited more from the intervention. Accordingly, baseline levels of caregiver reflective functioning, representations, child attachment security and disorganization were examined as moderators to test if the intervention worked differently for those commencing with higher or lower levels of these relationship indices.

Method

Participants

Study participants were 83 of 95 parent–child dyads referred to a metropolitan community-based infant and early childhood mental health service because of concerns about child behavioral or emotional difficulties and/or the parent–child relationship. All referred families were offered the Circle of Security (COS) intensive treatment if willing and able to commit to a 20 week group program. Those who completed the intervention were included in the study (See Figure 2).

Children were 48 boys (58%) and 35 girls (42%) aged 13 to 88 months at pre assessment (Mean = 47.80 months, SD = 17.48 months). The majority (n = 52; 63%) were 48 months or younger at commencement. Caregivers included 73 biological parents (88%), five foster/adoptive parents (6%) and five kinship carers (6%). Most caregivers (n = 75, 90%) were female and most had post secondary school education (n = 50, 60%). Thirty-two (39%) were single parents; three families (4%) identified as Aboriginal or Torres Strait Islander (ATSI) and 20 (24%) identified as coming from other culturally or linguistically diverse backgrounds (CALD). Family psychosocial risk factors since the child was born included histories of family violence (n = 27, 33%), parental divorce or separation (n = 35, 42%), caregiver reporting of prior or current mental health problems (n = 74, 89%) and substance abuse by a family member (n = 21, 25%). Sixteen (19%) of the children had experienced substantiated abuse or neglect according to intake records.

Procedure

The study was conducted in a clinical setting. Ethics approval was a staged process. In stage one, the clinical organization sought consent from clients after treatment completion for their clinical data to be included in any future research evaluating the intervention. Subsequently consent was obtained from the clinical service to use this archived data from consenting caregivers in a research project to evaluate the Circle of Security intervention (hereafter referred to as COS) and the project was also approved by relevant institutional ethics committees. A pre-post sequential cohort design was used to examine change after the COS intervention, using caregiver reflective functioning, caregiving representations and indices of child attachment security and disorganization as the primary outcome measures.

Pre Assessment. Participant dyads attended the clinic (no more than six weeks before the intervention commenced) for an initial assessment session lasting approximately 90 minutes. This included a videotaped 30–45 minute parent–child semi-structured interaction to activate the attachment system followed by a book reading interaction and pack up task with the caregiver. All caregivers then participated in a videotaped, semi-structured, narrative

Circle of Security Interview (COSI; Cooper, Hoffman, Marvin, & Powell, 1999). Demographic and psychosocial risk information was obtained from questionnaires completed by caregivers, as well as from intake information at the clinic.

COS Intervention Protocol. The Circle of Security assessment and treatment protocol, described in detail in the facilitator's manual (Cooper et al., 2000; Powell et al., 2014), focuses on improving caregiver relational capacities associated with child attachment security. For each dyad, a core parental difficulty in meeting the child's attachment and exploration needs, termed the "linchpin struggle" (Powell et al., 2014, p. 83), is identified and video clips are chosen from the initial assessment to assist the parent to see both their capacities and difficulties in relation to this issue.

The treatment sessions were comprised of 20 weekly 90-minute group sessions with two COS trained therapists. Therapists were psychologists or social workers. All had completed a ten day training program delivered in Australia by one of the Circle of Security originators (Cooper, Hoffman, or Powell), and passed an exam certifying capability to conduct the assessment and treatment planning. They subsequently gained certification as COS providers by delivering two 20 week Circle of Security group programs under the supervision of one of the program originators or another COS accredited supervisor.

The program included three sessions of psycho-education about attachment theory and psychological defenses (referred to as "shark music") and fifteen individualized psychotherapeutic/tape review sessions (three in total for each caregiver) using selected clips from the initial and a later interaction assessment. An interaction taping session at week 16 captured changes taking place in the relationship, providing material for the third tape review. The intervention concluded with a final session reflecting on and celebrating change in each relationship.

Eighteen groups, each with four to six caregivers, completed the 20 week intervention over a six year period. Of 90 who commenced, 83 (92%) caregivers were deemed to have completed the intervention, having attended (i) the three theory sessions and (ii) all three of

their individual tape reviews and (iii) missed no more than four sessions in total, i.e., completed a minimum of 16 of 20 sessions (80%). Those who met these completion criteria did not differ on demographic or psychosocial indicators from those who did not. Caregivers were assigned to treatment groups (all using the COS protocol) according to child age: "Circle of Security" (COS) groups for younger children and "Secure Relationships" (SR) groups for older children (see Figure 2). Children did not participate in sessions and childcare was provided if needed in an adjacent location.

Treatment fidelity was ensured by the use of the manualized COS protocol (Cooper et al., 2000) and both therapists participated in weekly supervision with one of the COS program originators (Glen Cooper), or a trained clinician accredited as a COS supervisor (first author). Sessions were videotaped and reviewed in supervision.

Post Assessment. The post intervention assessments (repeat video-taped interaction and COSI interviews) were conducted within six weeks of the final group session. While precise data are not available regarding the exact timing of the post-assessment, all were conducted within two weeks with the exception of those few families where illness or emergency meant a somewhat later assessment was required.
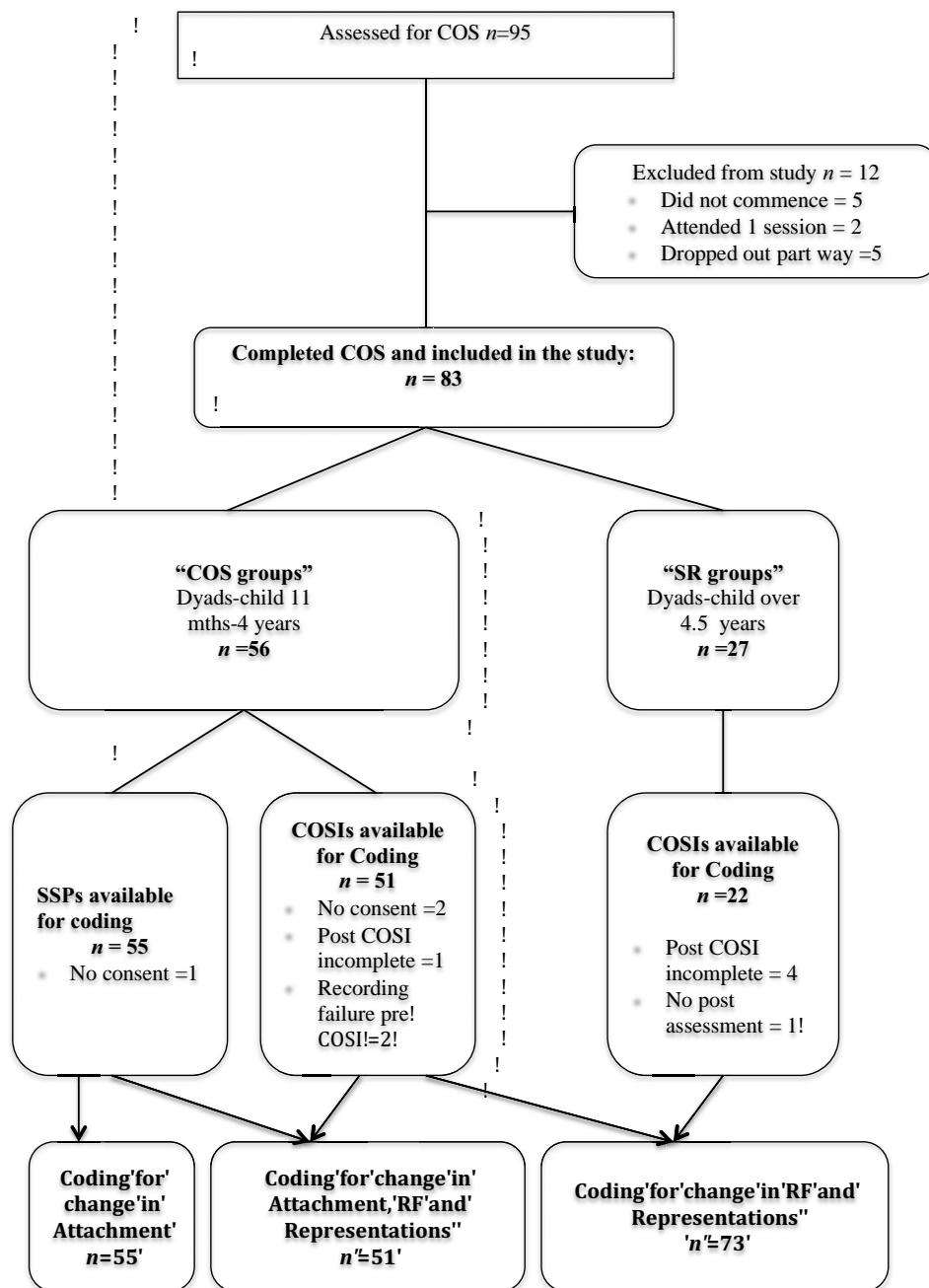
Figure 5.2 *Flow Chart showing participant numbers*

Measures

Interview: Circle of Security Interview (COSI). The COSI is fully described in Powell et al. (2014). The earlier version used in this study (Cooper et al., 1999) includes three parts: (i) six questions about the caregiver's perception of their own and their child's experience in the interaction assessment (ii) 13 questions about the caregiver's perception of self as parent and of his/her relationship with the target child adapted from the Parent Development Interview (Aber, Slade, Berger, Bresgi, & Kaplan, 1985), (iii) nine questions adapted from the Adult Attachment Interview (George, Kaplan, & Main, 1984–1996) describing the relationship with the caregivers' own attachment figure/s, and how this may affect how they care for the target child. The interview finishes with a final question about what the caregiver hopes the child learns from his/her experiences of being parented.

The videotaped interviews were de-identified, converted to audiotape, then transcribed verbatim by experienced transcribers. Transcripts were corrected and assigned a dummy code to obscure the pre and post status of the assessment. While any explicit references to program participation were redacted from interview transcripts, coders might have inferred pre or post condition from patterns of difference in emotional tone, emphasis and phrases parents used as they spoke about their relationship with their children before and after intervention. In all, 146 interview transcripts for n = 73 dyads (across the age-range) were available for coding (see Figure 2). The COSI interviews were independently coded in two different ways by different coders: for Caregiver Reflective Functioning (CRF) and for caregivers' representations of their child and themselves in the caregiving role.

Caregiver Reflective Functioning (CRF). CRF was coded using the reflective functioning (RF) coding scale, originally developed by Fonagy, Target, Steele, & Steele (1998) for use with the Adult Attachment Interview (George et al., 1984) and subsequently adapted for the Parent Development Interview-Revised (Slade, Aber, Bresgi, Berger, & Kaplan, 2004; Slade, Bernbach, Grienenberger, Levy, & Locker, 2004). CRF scores (ranging

from -1–+9) were assigned by three independent coders from the Anna Freud Center, London, certified as reliable in coding RF on both Adult Attachment Interview and Parent Development Interview transcripts. Scores were assigned to 16 demand questions that contain probes which explicitly ask the parent to state what they think the child may be thinking and feeling and also what they may have been thinking and feeling themselves. An overall score is assigned, based on these responses and the interview as a whole. Coders were blind to the intervention and to whether interviews were from pre or post assessments, but were given the child's age in months and gender. Transcripts were assigned so that each coder scored a mix of pre and post interviews with caregivers of different aged children, but not both pre and post interviews for the same dyad. Twenty-five interviews (17% of total) were independently coded by the three coders, in two sets and disagreements resolved through conferencing. Inter-rater reliability was high for both the first set of 12 interviews (ICC, single = .83) and the second set of 13 interviews (ICC, single = .88). Overall CRF scores were used for analyses. Participants were also classified dichotomously at Time 1 according to whether they had definite RF, score of ≥ 5 or not, scores < 5 (Fonagy et al., 1998, Slade et al., 2005).

Parental Caregiving Representations. Using the same interview transcript, a coding scale was developed for the current study to measure caregiving representations. The approach and scales were based in part on other approaches using multiple caregiver dimensions such as the Emotional Availability Scales (4th Edition, Biringen, 2008) the Parent Development Interview-R (Slade et al., 2004) and the Caregiving Interview (George & Solomon, 1989). Eight scales yield scores for two affect dimensions (Hostility, Joy) coded from statements indicating feelings about the child and/or the relationship, and six dimensions reflecting caregivers' perceptions of self as a caregiver to their child closely aligned with the core principles and language used in the COS intervention (Bigger/Stronger, Kind, Mean, Weak, Gone, Role Reversed). While some dimensions are informally termed, reflecting their use within the intervention (Powell et al., 2014), they capture widely researched aspects of parent affect and cognitions associated with child behavioral and emotional functioning and

caregiving adequacy (See Table 1 for details and contact the first author for the coding

manual).

Table 5.1 *Coding Dimensions for Caregiving Representations*

Dimension	Description	Example Caregiver statement
Hostility	Presence of words or phrases that indicate hostility/lack of respect/criticism of child	*Sometimes I wish I never had this child, she can be such an embarrassment*
Joy	Joy/Pleasure in descriptions of relationship with child	*I think it's the interactions we have. At—at the moment, she's, um, trying to develop her sense of humour, and telling jokes.. that just, um, makes me feel happy. Yeah, I enjoy that*
Bigger Stronger	Statements that clearly suggest parent feels in charge, able to take control and manage the child when needed	*It takes a lot of effort to deal with that, but I still feel in control and that I'm her mother and I can help her through it*
Kind	Parent reports behaving in a kind way towards child, showing concern for, and/or offering support to the child	*Last night he had a nightmare and he come out to the lounge room, and I just cuddled him, and reassured him*
Mean	Parent describes relating to the child using power over the child in a punitive, cruel, harsh or frightening way	*Mo of 3 yr old: She just started up again, screaming and being ridiculous. Um, [pause] so I think yesterday I ended up smacking her across her leg because I was just so frustrated*
Weak	Parent describes self as incapable, powerless, helpless and lacking in confidence in her/his ability to parent this child (especially when parent needs to take charge)	*She just—just seems to get irrationally angry and uncooperative and it's not something that I feel like I have any control over ...—I don't know how to stop it*
Gone	Parent reports being physically and psychologically unavailable and/or unresponsive when needed by this child	*I do emotionally shutdown, um, I detach and I guess it's a self defence thing or a, um, [pause] don't know what to do so let's shut it down.*
Role reversed	Statements showing lack of appropriate hierarchy in caregiving relationship, including seeing child as in control, or seeing self & child as peers	Self and child as peers e.g. *Mo of 5 yr old: we can still be really good, like, helping each other.* Role reversal e.g., *Mo of 4 yr old: He says "it's okay mummy, it'll be alright." He, sort of, I guess steps up and be ...s the man,*

A trained coder assigned a continuous score (range 1–5) based on reading the complete transcript for each dimension with anchor points as follows: 1) no statements/indicators, 3) A few indicators or partial indicators (e.g., if statements indicative of the dimension are present, but idealized, qualified, poorly supported or partly contradicted), 5) definite and/or frequent indicators (the construct is clearly and consistently apparent throughout the interview). Scores of 2 or 4 can be allocated, as appropriate. Coders were blind to pre and post condition, and all information about the dyad except for child gender and age in months. Interviews were assigned to coders in random order with pre and post interviews mixed. A reliability subset of 30 interviews (20%) was independently coded by a second coder (first author). Scores from the primary coder were used and substantial differences were resolved through conferencing. Correlations between the two coders on each dimension ranged from .92 (Hostility) to .72 (Gone).

Two additional indicators were coded based on the caregivers' responses when explicitly asked if there are times the child is afraid of them, e.g., "*He gets scared when I yell*" or that they are frightened of the child, e.g., "*I'm frightened of him, of his anger, you know*". These were coded as present/absent as such statements were relatively infrequent, but considered important clinical indicators of risk of disorganized caregiving (Hesse & Main, 2000; Solomon & George, 2011a). A chi-square analysis indicated a high level of agreement between coders: $\chi^2 = 25.45$ (1), $p = .000$ for *frightened of* and $\chi^2 = 22.50$ (1), $p = .000$ for *frightening to* the child.

A composite score was derived for overall caregiving representations (mean of eight dimensions, negative dimensions reverse coded, frightened/frightening categories not included). Higher scores on this composite score, hereafter referred to as Positive Representations, indicated more positive (optimal) representations. Subsequently a dichotomous variable delineating caregivers with Positive Representations scores <3 (positive

indicators not present) from those with scores ≥ 3 (at least a few positive indicators present) was created to allow for pre and post intervention comparisons of outcomes depending on initial presentation.

Parent–child attachment (Strange Situation). Parent–child attachment for 55 dyads (children four years and under at baseline) was coded from pre and post intervention videotapes of the Strange Situation Procedure (SSP) (Ainsworth et al., 1978). Children older than 48 months (n = 27) participated in an attachment activating interaction session including a stranger, separation and reunion from the caregiver, and an attachment activating story stem prompt (e.g., child loses parent in shopping center) provided by the stranger for the child to complete. Attachment coding is not available for these children.

The Strange Situation Procedure has been extensively validated for use across infancy and with some minor modifications (e.g., age appropriate toys, child walks into room) for use with children over two years (NICHD Early Child Care Research Network, 2001). The Ainsworth Coding system (Ainsworth et al., 1978) was used for infants under 24 months (n = 8) and the Preschool Attachment Classification System (PACS; Cassidy, et al., 1992) for children between 24 and 48 months (n = 47). Coding for disorganization was based on Main and Solomon's guidelines (1990). Infancy and preschool coding systems are regarded as "highly compatible both conceptually and technically" (Moss, et al., 2011, p 202), with any differences reflecting developmental changes in the child. For example the preschool system accounts for the fact that more verbal behavior and more controlling behaviors (as an indicator of disorganization) are seen with preschool aged children. Videotapes were assigned to two independent coders (Ellen Moss, University of Quebec at Montreal and her PhD student) expert in both systems and blind to the intervention and pre and post status of each dyad. Tapes were assigned so each coder scored a mixture of pre and post tapes from different aged children, but not the pre and post tape for the same child.

Attachment was coded categorically and dimensionally. Coders assigned one of four attachment categories Secure, Insecure/Avoidant, Insecure/Ambivalent,

Insecure/Disorganized to each dyad. In both systems, a secure (B) child shows behaviors indicative of using the caregiver as a secure base from which to explore and a safe haven in times of stress. An insecure avoidant (A) child shows physical and emotional avoidance of the caregiver at times of stress, while an insecure ambivalent child (C) shows resistance, and/or excessive fussiness or anger with the caregiver when stressed, and limited capacity to be comforted, which also limits their exploration. An insecure/disorganized (D) child shows inexplicable, odd, contradictory and/or fearful behavior in the presence of the caregiver especially when stressed. While the preschool system also enables two further classifications, Insecure Other and Disorganized Controlling, these were included with the Disorganized/Insecure group for analyses in line with PACS guidelines, because all indicate the lack of a coherent strategy to organize behavior and emotions with the caregiver at reunion (Moss, Cyr, Bureau, Tarabulsy, & Dubois-Comtois, 2005).

Coders also assigned dimensional ratings (range 1–9) on scales of Security (B) Avoidance (A), Ambivalence (C) and Disorganization (D) with higher scores indicating higher levels of the dimension. These scales have been recently developed and validated by Ellen Moss and colleagues (E. Moss, personal communication, April, 2014; Moss, Lecompte, & Bureau, 2015), based in part on existing security (Cassidy et al., 1992; Main & Cassidy, 1985), avoidance (Main & Cassidy, 1985) and disorganization scales (Main & Solomon, 1990). Scores are assigned on each scale depending on the occurrence and quality of several behavioral dimensions (proximity/contact maintaining, body orientation, speech, gaze and affect), and their combination in an overall strategy, as well as whether the child takes an appropriate role in the parent child relationship.

While we included the avoidance and the ambivalence scales in our preliminary analyses to demonstrate how the four attachment dimensional scales were associated (see Table 2), our testing of attachment hypotheses concerned only changes in security and disorganization levels. Higher security level (Scale B) scores are assigned when children show direct proximity seeking and/or contact maintenance and face to face interaction

(including through language for older children) when distressed, and fewer of these behaviors when calm and exploring. Scores for disorganization level (Scale D), indicate the degree to which the child is behaviorally disorganized with the caregiver, and unable to use the caregiver either as a secure base for exploration or as a source of support for emotional regulation when distressed. These children may show confusion, apprehension, inexplicable and/or contradictory behaviors, for example combined approach/avoidance with the caregiver, especially when distressed. Scores of 1 indicate no indices of disorganization were seen in the interaction. A scale score of 5 or more generally represents a cut-off point for classification, unless scores on the other scales are equal or higher. For example, a security level score of five or more typically aligned with a primary attachment classification of secure, unless the child also had a disorganized level score of 5 or more. A disorganization level of 5 or more aligned with a child who had one of the disorganized classifications.

Using a reliability set of 21 (19%) tapes to assess coder agreement, Kappa was .78 on the assignment of one of the four (ABCD) primary attachment categories indicating acceptable agreement between coders. Inter-rater reliability was high for the dimensional scales (ICC, single = .86 for security level, Scale B; .85 for disorganization level, Scale D) indicating excellent agreement between the two coders.

Statistical Analyses

All continuous variables were normally distributed with the exception of disorganization level (Scale D), which was skewed; the majority of dyads showed no indices of disorganized behavior (scores of 1). Square root transformation did not resolve the skewed distribution. Because we hypothesized that disorganization would decrease, for hypotheses examining reduction in disorganization level, we were only concerned with those dyads showing some disorganization at baseline (n = 21). Therefore dyads with no disorganization at the start (n = 34, disorganization level (D) scores of 1) were excluded from this analysis, and the remaining scores (2–9) showed a normal distribution. Post hoc testing of any change in disorganization level was also carried out for those showing no disorganization (n = 34) to

see if their disorganization level remained low. Hypothesis testing for the parent representation measure used the composite score, *Positive Representations* (mean of all 8 continuous dimensions including negatively worded scales reverse scored) to minimize inflation of the Type 1 error rate.

Following Hoffman et al., (2006) the significance of changes in pre-post proportions of dichotomous attachment categories: Secure (B) /Insecure (ACD) and Organized (ABC)/Disorganized (D) were tested using McNemar tests (Adedokun & Burgess, 2011). In addition this approach was used for the two dichotomous scores from the Caregiver Representations measure (presence or absence of parent statements acknowledging being *frightened of/frightening to* child).

Hypotheses involving continuous dependent variables (reflective functioning, overall representations, security level and disorganization level) were tested using mixed design repeated measures Analyses of Variance. In order to test whether the intervention had differential effects depending on initial scores, interaction effects were also tested using dichotomous groups derived from Time 1 threshold (scale cut- off) scores as follows: "less than definite RF" (overall RF level $\leq$5), "no positive representations" (Positive Representations <3), "secure" (security level $\geq$5 and disorganized level <5) and "disorganized" (disorganization level $\geq$5). Relevant covariates were included and interaction effects involving these variables tested as appropriate. Significant interactions (probability values $p \leq .05$) were followed up with pairwise comparisons (with Bonferroni adjustments). Ns vary in analyses as 73 parents completed the COSI interview, but Strange Situation data were available for only 55 of 56 participants aged 48 months or younger.

Results

Preliminary Analyses

Table 2 presents baseline pre-intervention Means and Standard Deviations for all continuous variables and correlations among variables, including demographic variables.

Bivariate correlations (Pearson's; Spearman's as appropriate) and independent samples t-tests were used to explore relationships among the outcome variables and any potential covariates.

Lower baseline reflective functioning was noted in caregivers reporting a history of family violence (n = 29), M = 3.52, SD = 1.35, compared to caregivers not reporting family violence (n = 44), M = 4.34, SD = 1.48, t (71) = 2.41, p = .017, d = -.57. RF was also lower for those caregivers who had divorced or separated during the child's life (n = 32), M= 3.59, SD = 1.46, compared with non divorced/separated caregivers (n = 41), M = 4.34 SD = 1.43, t (71) = 2.20, p = .031, d = .52. Children of parents reporting a history of mental illness (n = 48) were rated lower on baseline security level, M = 4.53, SD = 1.52, compared with those whose parents did not report mental illness histories (n = 7), M = 5.93, SD = 1.20, t (53)= 2.79, p = .021, d = .94. Divorced/separated parents (n = 32) had higher Positive Representations, M = 3.26, SD = .84, compared with non divorced/separated parents (n = 41), M = 2.95, SD = .51, $t(71)$ = -2.00, p = .050, d = .46. Single parents (n = 29) also had higher Positive Representations, M = 3.36, SD = .80, compared to 44 partnered parents, M = 2.90, SD = .53, $t(71)$ = -2.73, p = .009, d = .71. There were no other significant associations between psychosocial risk and demographic variables and RF, positive representations, attachment security and/or disorganization levels.

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Table 5.2 *Means, standard deviations and correlations among dependent variables at baseline (T1)*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Mean	SD
1. Scale B n = 55	1														4.68	1.51
2. Scale A n = 55	-.48**	1													2.84	1.87
3. Scale C n= 55	-.61**	-.14	1												3.08	2.14
4. Scale D n = 55	-.74**	.43*	.42**	1											2.41	2.21
5. RF n = 73	.21	.01	-.12	-.08	1										4.01	1.48
6. Overall Reps n = 73	.14	.06	-.09	-.24	.13	1									3.08	.69
7. Hostility n = 73	.03	.03	-.07	.11	-.04	-.80**	1								2.95	1.32
8. Joy n = 73	.27	.08	-.17	-.20	**.26***	.66**	-.49**	1							2.95	.85
9. Bigger Stronger n = 73	.22	.03	-.23	-.22	.18	.74**	-.50**	.55**	1						2.16	.91
10. Kind n = 73	.04	.05	-.13	-.16	**.25***	.67**	-.57**	.56**	.60**	1					2.67	.87
11. Mean n = 73	.05	-.13	-.10	.11	.03	-.56**	.55**	-.28*	-.17	-.29*	1				2.60	1.08
12. Weak n = 73	**-.28***	.02	.07	**.32***	.00	-.69**	.29*	-.31**	-.49**	-.20	.24*	1			3.06	1.20
13. Gone n = 73	.02	.12	-.01	.06	-.15	-.61**	.47**	-.38**	-.42**	-.34**	.20	.41**	1		2.10	1.02
14. Role Reversed n = 73	-.03	-.19	.12	.08	.04	-.47**	.21	-.05	-.25*	-.12	.01	.51**	-.01	1	2.49	1.23

*Correlation is significant at the 0.05 level (two tailed)
** Correlation is significant at the 0.01 level (two tailed)

Attachment scales and representation scales were generally correlated in theoretically expected directions. Overall RF score was significantly positively correlated with positive representational dimensions *Joy* and *Kind*. The *Weak* representational dimension was significantly positively associated with disorganization level (Scale D) and negatively with security level (Scale B). Independent t tests indicated that parents who made explicit statements indicating they felt *frightened of* their children (n = 26) had higher mean scores on *Weak* and *Gone* dimensions, lower scores on the *Bigger Stronger* dimension and lower Positive Representations scores at baseline than *not frightened* parents, *p*s < .005. Parents who made explicit statements indicating they were *frightening to* their children (n = 47) scored significantly higher on dimensions of *Hostility* (*p* = .05*)*, *Mean* (*p*<.0005), and *Weak* (*p* = .019) and lower on Positive Representations than parents who did not make such statements, *ps* < .005). RF scores were not related to security (Scale B) or disorganization level (Scale D) scores and did not differentiate parents who made and did not make statements about being frightened or frightening.

RF scores varied in relation to child age, gender and caregiver education. Scores were lower for caregivers of older (> 48 months) children, M = 3.48, SD = 1.25, compared with caregivers of younger (< 48 months) children, M = 4.33, SD = 1.52, *t* (71) = -2.44, *p* = .017, *d* = 0.59. Caregivers with post-secondary education had higher RF scores, M = 4.44, SD = 1.57, compared with those with no post-secondary education, M = 3.30, SD = .99, *t* (70.45) = 3.81, *p*<.0005, *d*= 0.83. Caregivers of boys scored lower for RF, M = 3.72, SD = 1.44, than caregivers of girls, M = 4.43, SD = 1.45, *t* (71) = 2.07, *p* = .042, *d* = 0.49. Sixteen (76%) of the 21 children showing any disorganization (scores >1) at baseline were boys. Male gender was also associated with greater likelihood of reaching threshold "disorganized" level (disorganization level ≥ 5) (Kruskal-Wallis test *p* = .009), with ten (77%) of these 13 children being boys.

Consequently when testing hypotheses concerning change in RF and disorganization level, child gender, child age, and parent education were included as covariates where relevant and possible moderator effects were also considered.

Hypotheses Testing

Change in Reflective Functioning. The mixed design ANOVA included child gender and age, and caregiver education as covariates. Time 1 threshold group (overall RF scores <5 or ≥5) was examined as a potential moderator. Initially all potential two-way interaction effects (time x child gender, time by child age, time x caregiver education and time x threshold group) were tested. Time by child gender and time by child age interaction effects were not significant, ps > .27 so the analysis was re-run without these interaction terms. Results showed there was a significant main effect for time, $F(1,69) = 8.33$, $p = .005$, partial $\eta^2 = .11$, a significant time by threshold group interaction, $F(1,69) = 9.00$, $p = .004$, partial $\eta^2 = .12$ (both with medium effect sizes), and a significant time by caregiver education interaction, $F(1,69) = 5.65$, $p = .02$, partial $\eta^2 = .08$ (small to medium effect size). Follow-up pairwise comparisons showed that the change in RF was accounted for by the group of 47 caregivers with low RF scores (<5) pre-treatment, $F(1,69) = 38.72$, $p<.0005$, partial $\eta^2 = .36$ (large effect size), while those with pre-treatment RF scores above 5 (n = 26) did not change, $F(1,69) = 2.12$, $p = .95$, partial $\eta^2<.005$. Pairwise comparisons also showed that parents without post-secondary education (n = 27) had significantly increased RF scores post treatment, $F(1,69) = 8.99$, $p = .004$, partial $\eta^2 = .12$ (medium effect size), while those with post-secondary education (n = 46) showed no significant increase in RF, $F(1,69) = .26$, $p = .60$ partial $\eta^2 = .004$, see Figure 3.
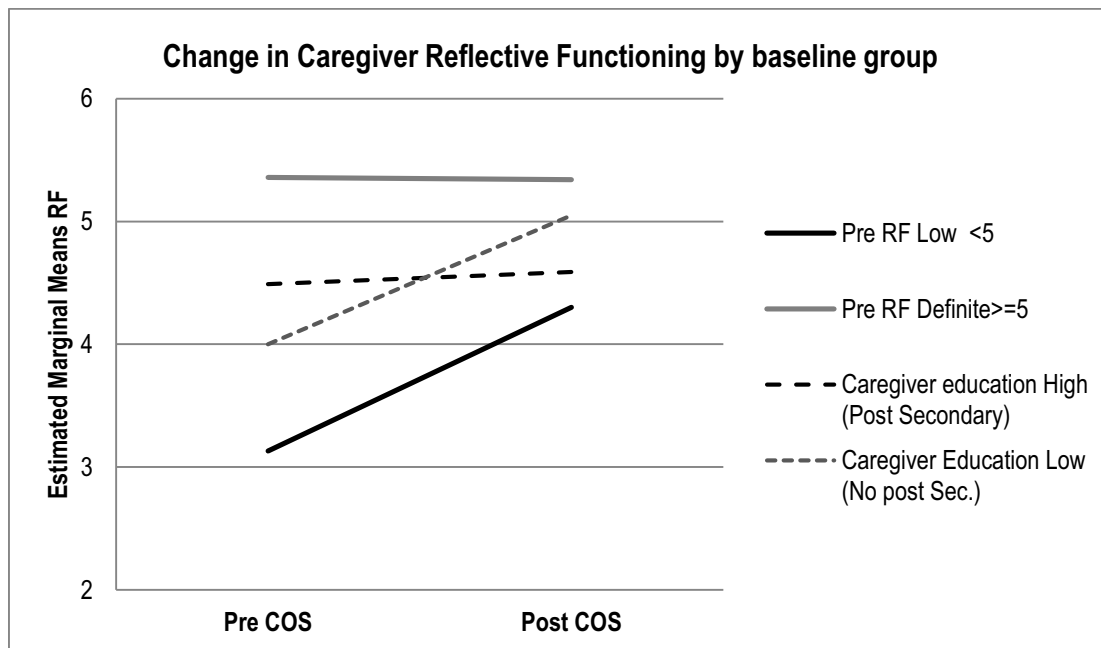
Figure 5.3 *Change in Caregiver Reflective Functioning after COS by baseline group*

Change in Caregiving Representations. The composite score for overall caregiving representations (Positive Representations) was used for hypothesis testing. Time 1 threshold group (Positive Representations scores <3 or ≥3) was included as a potential moderator variable. There was a significant main effect for time, $F(1,71) = 115.52$, $p<.0005$, partial $\eta^2 = .62$, and a significant time by threshold group interaction effect, $F(1, 71) = 29.92$, $p<.0005$ partial $\eta^2 = .30$, both with large effect sizes.

Pairwise comparisons showed that there was a significant difference in overall representations scores between the two threshold groups prior to treatment, $F(1,71) = 123.98$, $p<.0005$, partial $\eta^2 = .64$. Both groups increased their Positive Representations score after the intervention. However, the improvement was greater for the group with no positive representations at baseline (n = 32) compared with those with at least a few positive representations (n = 41) at baseline, with only a small difference between the two groups at time 2, $F(1,71) = 4.83$, $p = .031$ partial $\eta^2 = .06$, non-significant after Bonferroni adjustment, see Figure 4.
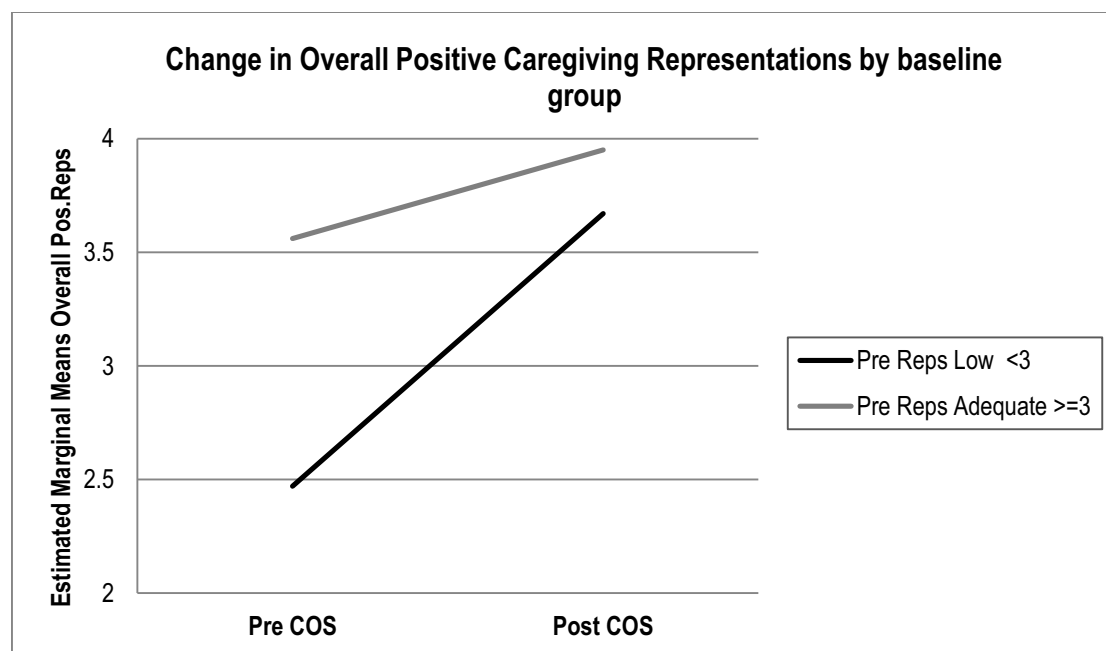
Figure 5.4 *Change in Overall Positive Caregiving Representations after COS baseline group*

The number of caregivers who made statements about being either *frightened of* their child, or *frightening to* their child decreased after the intervention (see Table 3) and McNemar tests indicated that these changes were significant for both *frightened* ($p<.0005$) and *frightening* classifications ($p = .023$).

Table 5.3   *Pre-Post Intervention Change by Category: Caregiver Frightened/Frightening Representation, Child Attachment Security/Organization*

Pre-treatment Category	Post Treatment Category				Pre-Treatment Total
	Frightened		Not Frightened		
	n	%	n	%	
Frightened	4	15.4%	22	84.6%	26
Not Frightened	2	4.3%	45	95.7%	47
Post-treatment total	6		67		73
	Frightening		Not Frightening		
	n	%	n	%	
Frightening	29	63%	18	38.3%	47
Not Frightening	6	23.1%	20	76.9%	26
Post-treatment total	35		38		73
	Secure		Insecure		
	n	%	n	%	
Secure	22	71.0	9	29.0	31
Insecure	12	50.0	12	50.0	24
Post-treatment total	34		21		55
	Organized		Disorganized		
	n	%	n	%	
Organized	36	85.7	6	14.3	42
Disorganized	9	69.2	4	30.8	13
Post-treatment total	45		10		55

Note. Percentages provided reflect the percentage of children classified in each group at Time 1 (listed in rows) who were then classified in each group (listed in the columns) at Time 2.

Change in attachment classifications. Of the 55 dyads assessed, 31 (56.4%) were classified secure before and 34 (61.3%) after the intervention; 13 children (23.6%) were classified disorganized before and 10 (18.2%) after the intervention. McNemar's tests indicated that neither change was significant, $p = .66$, $p = .61$, respectively (see Table 3).

Change in attachment dimensions. Changes in security level and disorganization level were then tested. For security level, the baseline "secure" group (according to whether they met criteria of scale B score ≥ 5 and scale D<5) was examined as a potential moderator variable. Results indicated a significant main effect for time, $F(1, 53) = 8.26$, $p = .006$, partial $\eta^2 = .14$, and a significant time by baseline group interaction effect, $F(1,53) = 33.36$, $p < .0005$, partial $\eta^2 = .39$, with medium and large effect sizes respectively. Pairwise comparisons showed that mean security level decreased for the 32 dyads who were in the "secure" group at baseline, $F(1,53) = 5.03$, $p = .029$, with a small effect size (partial $\eta^2 = .09$), however this change was not significant after Bonferroni adjustment, and the mean score at post intervention remained above the clinical threshold for security (5). On the other hand, there was a significant increase in mean security level for the 23 "insecure" dyads (i.e., security level <5, and/or disorganization level ≥ 5) at Time 1, $F(1,53) = 32.15$, $p < .000$, with a large effect size, partial $\eta^2 = .38$ (see Figure 5).
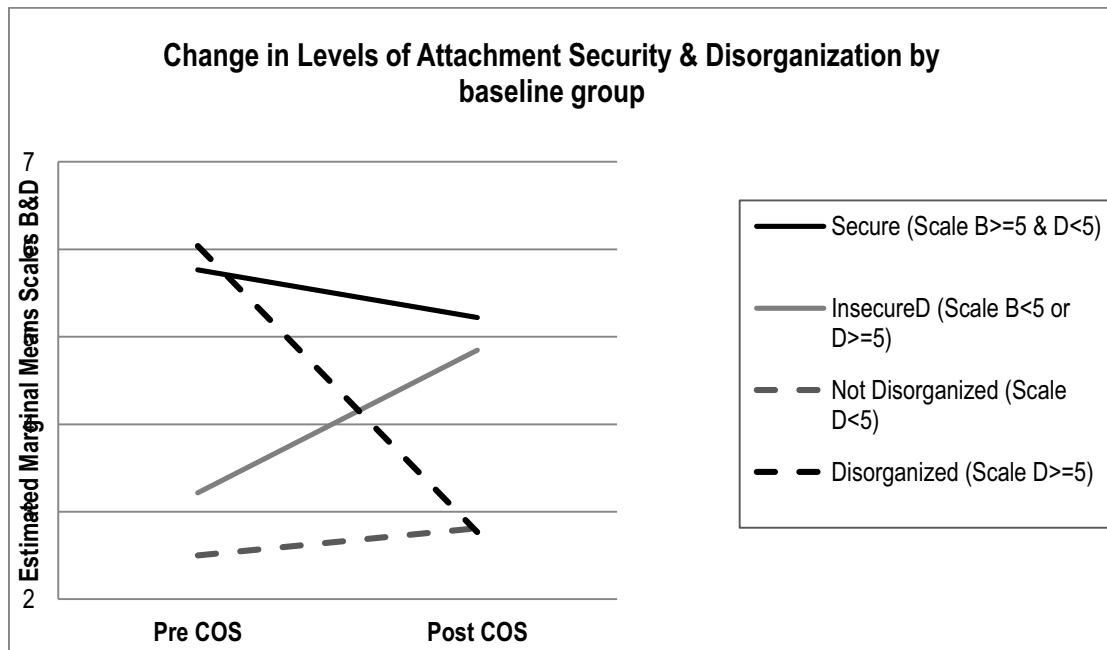
Figure 5.5 *Change in Level of Attachment Security and Disorganization after COS by baseline group*

For the analysis regarding change in disorganization level only the 21 children with some indices of disorganization (disorganization level scores > 1) were included. It was not possible to examine moderation by child gender in the repeated measures ANOVA because of the unbalanced group sizes (16 boys, 5 girls). Time 1 threshold group ("disorganized": disorganization level $\geq$ 5) was considered as a moderator. There was a significant main effect for time, $F (1, 19)= 7.26$, $p = .014$, partial $\eta^2 = .28$, and a significant time by baseline group interaction effect, $F (1,19) = 10.66$, $p = .004$, partial $\eta^2 = .36$, both with large effect sizes. Pairwise comparisons indicated that disorganization level decreased significantly for those children (n = 13) who were "disorganized" (scores $\geq$ 5) at baseline, $F (1,19) = 23.31$, $p<.0005$, partial $\eta^2 = .55$, but did not change for those who were "not disorganized" (n = 8, baseline scores < 5), $F (1,19) = .13$, $p = .721$, partial $\eta^2 = .007$) (See Figure 5). To account for the possible impact of gender, the analysis was repeated just for boys (n = 16), and results were essentially the same with a significant main effect for time, $F (1,14)= 7.62$, $p = .015$, partial $\eta^2 = .35$, and a significant interaction effect with baseline "disorganized" group, $F (1,14) = 9.08$, $p = .009$, partial $\eta^2 = .39$. This suggested changes in disorganization levels for those with any disorganization at time 1 were not related to gender.

A further analysis examined changes in disorganization level for the 34 children who showed no disorganization at baseline (disorganization level score = 1). Mean scores increased significantly to 1.64 (SD 1.3), t = 2.90(33), $p = .007$, but remained well below the "disorganized" threshold level ($\geq$ 5) at Time 2.

Post Hoc Tests: Caregiver Representations

Because the caregiver representations measure was developed for the current study, and a composite score used for hypothesis testing, post hoc paired t-tests were conducted to examine change on the various scales. Results indicated that all dimensions of caregiving representations improved significantly, with medium to large effect sizes, with the exception of Joy/Pleasure (small effect size), see Table 4.

Table 5.4   *T1 and T1 Means, standard deviations and differences in caregiver representations*

Scale (n=73)	T1 Mean (SD)	T2 Mean (SD)	Mean Difference (SD)	T score (df)	Sig. (2 tailed)	Effect size: Cohen's d
Overall Reps	3.08 (0.69)	3.83 (0.57)	0.75 (0.74)	8.57 (72)	.000	1.01
Hostility*	2.95 (1.32)	2.16 (1.09)	–0.78 (1.25)	–5.34 (72)	.000	–0.62
Joy	2.95 (0.85)	3.29 (0.74)	0.34 (1.06)	2.77 (72)	.007	0.33
Bigger Stronger	2.16 (0.91)	3.25 (1.00)	1.08 (1.15)	8.03 (72)	.000	0.94
Kind	2.67 (0.87)	3.27 (0.84)	0.60 (1.04)	4.96 (72)	.000	0.58
Mean*	2.60 (1.08)	1.92 (0.76)	–0.69 (1.04)	–5.63 (72)	.000	–0.66
Weak*	3.06 (1.20)	2.00 (0.94)	–1.06 (1.40)	–6.42 (72)	.000	–0.76
Gone*	2.01 (1.02)	1.51 (0.80)	–0.51 (1.13)	–3.83 (72)	.000	–0.45
Role Reversed*	2.49 (1.23)	1.59 (0.57)	–0.90 (1.30)	–5.95 (72)	.000	–0.69

For positive representation dimensions, optimal or adequate scores are at or above cut off score 3

* For negative representation dimensions, optimal or adequate scores are below cut off score 3

Cohen's d effect sizes: 0.2 to 0.3 = "small", around 0.5 = "medium" and 0.8 to infinity = "large" (Cohen, 1988)

Discussion

The Circle of Security 20 week intervention aims to increase child attachment security and reduce disorganization by optimizing caregivers' relational capacities, targeting caregiving representations and capacity for reflective functioning in particular (Powell et al., 2014). Current findings suggest the intervention is effective in achieving these objectives for those who completed in this clinically referred sample, with changes largely explained by improvements for those caregivers and dyads with suboptimal scores on the various indices of relationship functioning at the pre-treatment assessment.

Those caregivers with no definite reflective functioning prior to intervention showed improved reflective functioning, and caregiving representations became more positive across the sample. Further those children whose scores indicated probable "insecure" attachment prior to the intervention showed significant increases in security levels, and those who were disorganized prior to the intervention showed significant reductions in disorganization scores.

Change in Reflective Functioning

The change in caregivers' reflective functioning was clinically as well as statistically meaningful with the overall mean score after treatment approaching the cut-off score of five, indicative of definite reflective function (Fonagy et al., 1998; Slade et al., 2004). The medium to large effect sizes compare favorably with those reported by other researchers after both short or longer term attachment based interventions targeting reflective functioning (e.g., Suchman et al., 2010; Toth, Rogosch, & Cicchetti, 2008), however the absence of a control group and some potential coder bias needs to be acknowledged in the current study. While every effort was made to ensure coders were blind regarding whether transcripts were from pre or post interviews, and any references to participation were removed from interview transcripts, coders may have inferred program participation because the way parents spoke about their relationships with their children differed, for example through use of Circle of Security language, before and after intervention.

Previous findings on changing reflective functioning through attachment based interventions have been mixed, with some studies reporting small improvements (Suchman et al., 2010; Pajulo et al., 2012), one reporting no change in a treatment group compared to a decrease in reflective functioning in a comparison group (Sleed, Baradon, & Fonagy, 2013), one reporting small changes, but only for subgroups within the intervention group (Sadler et al., 2013) and others reporting conflicting findings on the same study population, i.e., improvement (Toth et al., 2008) versus no change (Vrieze, 2011), perhaps related to the use of different narrative interviews to score reflective functioning on different occasions.

Indeed comparing results across studies is difficult because of differences in study design. Some studies include control groups, but the current study did not. Different narrative interviews have been used to elicit reflective functioning, although most use the same scoring scale (Fonagy et al., 1998) or its (PDI-R) adaptation (Slade et al., 2004). Most have used the central tendency to calculate an overall score, however one study reported a mean score (Suchman et al., 2010) and some have used lower cut off scores (four) to delineate adequate levels of reflective functioning (Toth et al., 2008; Sadler et al., 2013).

Reflective functioning in the current study was lower for caregivers of older children, caregivers of boys and caregivers with low education. We note also lower reflective functioning in parents reporting prior family violence and/or separation and divorce. An association between lower parental reflective functioning and lower education has previously been reported by Stacks and colleagues (2014). Together these findings raise interesting questions about parental reflective functioning and education: if RF reflects a higher order metacognitive capacity (Slade, 2005), does education play a role in its development, or does low RF limit participation in education in some way? Our finding that parent education level moderated the effects of the intervention on reflective functioning, whereby less educated parents showed most improvement, suggests, however, that low education level does not preclude the subsequent development of RF through an intervention like Circle of Security.

Taken together, findings to date suggest demographic and psychosocial risk profiles of study populations may play a role in contributing to different findings about reflective functioning in parents (Ordway et al., 2014; Sadler et al., 2013; Stacks, et al., 2014; Vrieze, 2011) and that more research is needed. Although two shorter interventions have had some positive effects on parents' reflective functioning (Sleed et al., 2013, Suchman et al., 2010), treatment dosage may also be important (Suchman et al., 2010). Most interventions that have shown improved reflective functioning have been intensive, and of at least 20 weeks duration. Whilst acknowledging that the current findings need to be replicated in a larger sample in a study including a control group, they provide preliminary evidence that the 20 week Circle of Security Intervention promotes reflective functioning.

Change in Caregiver Representations

In a novel contribution, the current study examined not only changes in reflective capacity, but also the content of caregiver representations about themselves in the caregiving role and their child. A coding scale was developed with a particular focus on aspects of caregiving targeted by the Circle of Security intervention. Results indicated more positive representations after the intervention and subsequent analyses showed each of the dimensions improved, with medium to large effect sizes. Broadly speaking, after treatment, caregivers described themselves in ways more aligned with the Circle of Security dictum "bigger, stronger, wiser, kind" (Powell et al., 2014, p31). Not only did caregivers make statements indicating more joy and less hostility in relationship with the index child, they also perceived themselves as more capable of parenting the child *("bigger stronger"),* and spoke of showing more support for, and kindness towards, the child *("kind"),* and being less punitive or withholding of emotional support *("mean")* and less helpless *("weak")* when the child needed the parent to be firm or take charge. Importantly, in relation to caregiving styles associated with risk for disorganized attachment, caregivers made fewer comments suggesting they were physically or psychologically absent (*gone*), gave fewer examples of role-reversal

and were less likely to make references to themselves as frightened of or frightening to the child.

There is still limited research examining change in caregiving representations after attachment-based interventions with an explicit focus on mentalization. Suchman and colleagues (2010) reported modest positive changes in "coherence" and "sensitivity" of caregiver representations assessed using the Working Model of the Child Interview (Benoit, Zeanah, Parker, Nicholson, & Coolbear, 1997) after a 12 week *Mother Toddler Program* with a small sample of substance abusing mothers of toddlers. In contrast, Sleed and colleagues (2013) found no treatment group differences in "warmth" and "invasion" indices of a self-report caregiver representations measure after an eight week treatment with incarcerated mothers. The type and duration of the intervention, sample characteristics and differences in how representations were measured may all contribute to these different findings.

While some caution is warranted in interpreting current findings given the absence of a comparison group, results suggest the new representations measure used in conjunction with the Circle of Security Interview may have both clinical and research utility, as it can assist in identification of individualized treatment goals as well as in assessment of the effectiveness of the intervention. Further, study findings support the proposition that reflective functioning and representations are related but distinct constructs (Slade, 2005; Steele & Steele, 2008) that can be separately identified from different aspects of the same narrative. Overall, after the intervention, parents/caregivers in the current study made fewer negative and more positive statements when talking about their relationship with their child, associated with an enhanced sense of capacity as a parent (*Bigger stronger*) and desire/willingness to support the child (*Kind*).

Attachment Security and Disorganization

Given the high levels of demographic and psychosocial risk as well as clinical issues in the referred population, it was surprising that so many children (56%) were categorized secure at baseline. While the number of children categorized secure increased slightly, and the

number classified disorganized decreased, these changes were not significant, and a small number of children moved from a secure to an insecure classification. It is perhaps for these reasons, and the already high rates of security, that we were unable to replicate earlier findings showing an increased proportion of those classified with secure and disorganized attachment after Circle of Security therapy (Hoffman, et al., 2006).

Other researchers using a shorter 10–12 week Circle of Security intervention with a clinical population of depressed or traumatized mothers (Rosenblum, Muzik, Marcus, Marvin, & Whelan, 2010) found all preschool aged children to be classified disorganized in immediate post intervention strange situation assessments of attachment (Cassidy, et al., 1992), but classified secure six months later, perhaps related to timing of follow-up. These findings raise the possibility that our post assessments, conducted in the immediate aftermath of treatment, may have captured incomplete changes taking place in parent–child attachments, and that a longer follow-up may have yielded different categorical results.

We also considered dimensions of attachment security and disorganization and found an overall increase in the level of security after the intervention, and that this effect was largely explained by those who showed low levels of secure behaviors prior to the intervention. Our consideration of post treatment changes in attachment disorganization level for the 21 children who showed at least minimal signs of disorganization at baseline, indicated substantial reductions in disorganization levels only for the most at risk i.e., the "disorganized" subgroup. These changes were both statistically and clinically significant, with mean disorganization level after treatment for this subsample well below the cut-off score. The small, but significant increases in disorganization levels in the group of children showing no indices of disorganization before intervention, was unexpected, though overall levels of disorganization in this non-disorganized group remained low. This small elevation may reflect a process of re-organization in the relationship as the child adjusts to changes experienced in interaction with the parent, as suggested by Rosenblum and colleagues (2010) in the study discussed above.

Unlike some other attachment based interventions, the intensive Circle of Security Intervention explicitly targets the caregiving antecedents of disorganization (van Ijzendoorn, Bakermans-Kranenburg, & Juffer, 2005; Zanetti, Powell, Cooper, & Hoffman, 2011) and prior research suggests it may be effective in preventing disorganization in high risk populations (Cassidy et al., 2010). Findings in this study suggest the intervention may also be effective in reducing already established high disorganization levels, but caution is warranted in interpreting these findings, due to the small number of children, especially girls, with disorganized attachment in the current study.

Taken together study findings also confirm the value of using both categorical and dimensional approaches for analysis of attachment data (Cummings, 2003; Fraley & Roisman, 2014). The small sample size (attachment data could only be examined for the 55 younger children) precluded more fine grained analyses of different insecure patterns and findings on dimensional changes in security and disorganization levels, though highly significant with large effect sizes, are preliminary and would need to be replicated with a larger sample.

Do All Families Respond to Circle of Security in the Same Way?

Cassidy and colleagues (2011) previously reported that response to a four session version of the Circle of Security intervention differed depending on maternal and child characteristics (in this case maternal attachment style and infant irritability level). In the current study, we sought to explore whether the 20-week intervention worked regardless of child age, parent education and child gender, and were particularly interested in differential effects related to relationship indices prior to treatment. None of the demographic variables moderated the effectiveness of the intervention with the exception that caregivers with lower education showed more improvement in reflective function. Importantly those starting with less optimal reflective function, caregiving representations, attachment security and disorganization levels showed most benefit. To date, no study has reported on the use of Circle of Security with children older than preschool age. While attachment effects were not

examined for children older than four years, findings that child age did not moderate positive intervention effects on caregiver reflective functioning and representations suggest the intervention is effective for clinically referred caregivers with children up to age eight years.

Relationships Among Constructs and Models of Change

While the primary objective of the study was to evaluate change across three key indicators of relationship functioning, findings regarding relationships among the constructs assessed are also informative. As noted earlier, the use of a measure of parent/caregiver representations alongside assessment of reflective functioning, confirmed these constructs are related, but distinct. The question remains as to whether higher levels of reflective functioning result from, or foster, more positive aspects of a caregiver's representation of their relationship. The effect size for change in overall representations was greater than that for change in reflective functioning and improvement in representations occurred across the sample, not only for those starting with low scores, unlike RF, where change was limited to those whose scores were low to start with.

Contrary to theoretical prediction (Slade, 2005; Steele & Steele, 2008) and some prior empirical evidence that higher reflective functioning in parents was associated with subsequent secure attachment in infants (e.g., Fonagy, et al.1991; Slade, Grienenberger, Bernbach, Levy, & Locker, 2005), reflective functioning in the current study was not correlated with indices of attachment security or disorganization before or after treatment. Toth and colleagues (2008) have also reported that maternal reflective functioning (assessed from the Adult Attachment Interview) did not differ according to child attachment classification before or after an attachment based intervention with depressed mothers of toddlers. This study also reported that change in reflective functioning did not mediate change in child attachment, raising questions about the role of reflective functioning as a mechanism of change in attachment based interventions.

Recently, Stacks and colleagues (2014) have suggested that reflective functioning is more likely to be associated with maternal sensitivity and attunement, not assessed in the

current study. We did find, however, some modest associations between parent representations and child attachment indices. Higher scores for *weak* representations (indicating greater caregiving helplessness) were associated with lower security scores and more child behaviors indicative of disorganization. This finding is in line with Solomon and George's research (George & Solomon, 1989, 1996, 2011; Solomon & George, 1996, 2011), showing that caregiving representations indicating a perceived capacity to stay in charge and protect children, were associated with a lower likelihood of disorganized attachment.

Reviews discussing relations between intensity and effectiveness of attachment based interventions (Bakermans-Kranenburg, van IJzendoorn & Juffer, 2003; Egeland, Weinfeld, Bousquet, & Cheng, 2000; Ziv, 2005) suggest that for some families with lower levels of background risk, a short, targeted intervention may be most effective in improving maternal sensitivity and attachment security, while for those with overall higher levels of risk, "more is better" (Ziv, 2005, p. 71). More recently, Moss and colleagues (2011) have reported positive changes in sensitivity and attachment security with a high risk sample after an eight week home based individualized attachment based intervention, however, they highlighted the need for randomized trials "to examine the issue of dosage" (page, 206) particularly with higher risk samples.

Results of the current and a prior study (Hoffman et al., 2006) suggest the Circle of Security 20 week group intervention is not only effective in improving all aspects of the relationship that it directly targets (parent reflective functioning and representations and child attachment, including reducing disorganization levels), but also that costs, benefits, engagement and retention compare favorably with other individualized intensive attachment based interventions (see Berlin et al., 2008 for a review). Intensive interventions require significant resources, however, associated with the use of videotape, the provision of therapist training and reflective supervision and/or staffing for the extended duration of the intervention. In this regard the Circle of Security 20-week intervention has some advantages:

it is time limited, center based, and delivered in groups (while still providing an individualized approach).

Nonetheless it is important to acknowledge that resources to support an intensive treatment approach, like the 20-week Circle of Security intervention, may not be readily available and that intensive treatment approaches in general may be beyond the capacity of many smaller clinics. The Circle of Security originators have developed a shorter, and less intensive, eight session protocol called Circle of Security Parenting (COS-P; Cooper, Hoffman & Powell, 2009) which can be delivered in groups or individually, whose facilitators attend a shorter training workshop (4 days compared with 10 days) and which has fewer supervision requirements. This intervention provides a framework to help parents understand and respond to individual struggles in their own caregiving relationships. Unlike the 20-week protocol, the shorter version does not involve individualized assessment and treatment planning (including video taping of each dyad), and so requires parents to accurately assess their own struggles based on observing video examples of other parent–child interactions, and use this learning to respond to their own specific issues (Glen Cooper, personal communication, May, 2015). Combined evidence suggests different interventions are needed for different people and contexts (Berlin, 2005) and more research is needed to explore the relative benefits of both forms of the Circle of Security intervention, to compare these with other interventions, treatment as usual and/or no treatment, and to clarify what works best for whom.

Limitations and Future Directions

While findings are encouraging, several limitations need to be acknowledged. Because the current study used clinical data already collected and archived, it was not possible to include a control or comparison group, and the follow-up assessment was done very soon after treatment ended. While minimal attendance (16 out of 20 sessions) was required for treatment completion, we do not have complete "dosage" data. Replication of these results with a control group and with a longer term follow-up is therefore important. Further,

although attachment based interventions in general aim to change child attachment by changing parent behavior (increasing sensitivity and responsiveness to child needs), this study did not assess changes in caregiver behavior, so an explanatory model could not be tested. Questions about the attachment transmission gap from caregivers' attachment and caregiving representations to their child's attachment remain open. Future research needs to examine whether parent behavior changes in response to the Circle of Security intervention, whether these changes are associated with changes in reflective functioning and parent caregiving representations, and whether these changes mediate or moderate changes in child attachment and disorganization.

Various features of the sample also need to be considered in interpreting the findings. The sample size was small. This precluded a more detailed analysis of the different insecure attachment categories, however effect sizes were generally impressive. As noted earlier, the small number of children showing disorganized behavior limits interpretation of these findings. Further, while the sample was ethnically representative of the broader Australian population, and high-risk in many respects, (89% of caregivers reported histories of mental illness, 33% reported histories of domestic violence and there was evidence of substantiated maltreatment in 19% of families), 60% were well educated, typical of the demographic profile in the city where the research was done. Consequently, caution is indicated in generalizing these findings to samples higher on overall social adversity.

Finally, the follow-up assessment was conducted soon after treatment finished, and attachment changes in some children may have been still emerging (Rosenblum et al., 2010). It may also be too early to conclude that parent changes in reflective functioning and representations were integrated, ongoing and meaningful. So soon after treatment there may have been some "teaching" effect where some parents may have learned to "talk the talk" repeating ideas and phrases just learned, but not fully integrated. A longer follow-up after six months is therefore recommended.

Conclusions

This study of clinically referred families who participated in the 20 week Circle of Security intervention showed improvements in caregiver reflective functioning, representations and indices of child attachment security and disorganization. Findings suggest the intervention is effective with those who need it the most and that change occurs in the aspects of relationship functioning particularly targeted. A new measure of caregiving representations, tailored for use with the Circle of Security Intervention, was a novel contribution with both clinical and research application. Questions remain whether these treatment effects are likely to be integrated and sustained, about mechanisms of change, and more broadly, how caregiver reflective functioning, representations and behavior interact to influence child attachment outcomes.

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Chapter 6   **Improved Child Behavioural and Emotional Functioning After Circle of Security 20-Week Intervention**

Author Contributions

Author Anna Huber contributed to the conceptualisation and design of the present study, oversaw data collection and undertook data analyses, wrote the first draft, and made subsequent revisions of the manuscript for publication. Author Catherine McMahon contributed to the study design, plans for data analyses, and writing, and contributed to revisions of the manuscript. Author Naomi Sweller advised on statistical analyses and contributed to revisions of the manuscript.

Note: Because this chapter was prepared for separate publication, citations and references are presented as though for a stand-alone work.

Abstract

This study examined the efficacy of the attachment-based Circle of Security 20-week intervention in improving child behavioural and emotional functioning. Participants were 83 parents of children (1–7 years) referred to a clinical service with concerns about their young children's behaviour. Parents (and teachers, when available) completed questionnaires assessing child protective factors, behavioural concerns, and internalising and externalising problems, prior to and immediately after the intervention. The following were considered as potential moderators: child gender and age, parent representations, reflective functioning, child attachment indices, and severity of presenting problems, prior to treatment. Results showed significant improvement for parent ratings of child protective factors, behavioural concerns, and internalising and externalising symptoms, all $ps < .05$, and children with more severe problems showed most improvement. Teachers also reported improvements, but change was significant only for externalising problems ($p = .030$). Findings suggest Circle of Security is effective in improving child behavioural and emotional functioning in clinically referred children aged 1–7 years.

Keywords: Circle of Security, child behavioural and emotional problems, child protective factors, parent–child relationship, attachment-based intervention

Introduction

Behavioural and emotional difficulties in young children are relatively common, with estimated prevalence rates between 15% and 20% (Egger & Angold, 2006; Sawyer et al., 2000; Skovgaard et al., 2007). Severe and/or persistent early onset problems that co-occur with other child, family or environmental risks may be early markers of psychopathology (Briggs-Gowan, Carter, Bosson-Heenan, Guyer, & Horwitz, 2006; Egger & Angold, 2006; Fanti & Henrich, 2010; Greenberg, Speltz, DeKlyen, & Jones, 2001). Therefore early intervention is important to deal with presenting behaviour problems and also to prevent future family, educational and social difficulties, thereby minimising economic and social costs to society (Bayer, Ukoumunne, et al., 2011; Heckman, Pinto, & Savelyev, 2013; Sawyer et al., 2000).

Existing evidence regarding the effectiveness of interventions for child behaviour problems predominantly concerns approaches that target parent behaviours and indicates they are effective in reducing internalising or externalising problems (see Barlow, Smailagic, Ferriter, Bennett & Jones, 2010; Forehand, Jones, & Parent, 2013, for recent reviews). Limitations have been identified, however, particularly difficulties with engagement and high attrition rates (Koerting et al., 2013), suggesting a need for approaches that can be individualised, holistically address a range of behavioural and emotional problem presentations in young children (Greenberg et al., 2001; Barlow et al., 2010; Webster-Stratton & Herman, 2008), and successfully engage and retain families, especially those from high-risk backgrounds (Koerting et al., 2013).

Relationship-based approaches have the potential to address some of these limitations. Attachment theorists and researchers have argued that many child behavioural and emotional problems originate in the parent–child relationship, particularly in the parents' capacity to support the child's developing behavioural and emotional regulation capacities (Carlson, Sampson, & Sroufe, 2003; Lyons-Ruth, 1996; Madigan, Moran, Schuengel, Pederson, & Otten, 2007; Sroufe, Egeland, Carlson, & Collins, 2005). Evidence that insecure and

particularly disorganised attachment is associated with increased rates of behavioural and emotional disturbance in children (e.g., Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010; Groh, Roisman, van IJzendoorn, Bakermans-Kranenburg, & Fearon, 2012; Sroufe et al., 2005), suggests that interventions designed to promote attachment security and reduce disorganisation may have indirect positive effects on child behaviour and enable sustained change through improved family functioning. However there is currently very limited empirical support for this approach (Berlin, Zeanah & Lieberman, 2008). The current study sought to address this issue by reporting on the effectiveness of the attachment-based Circle of Security 20-week intervention (Powell, Cooper, Hoffman, & Marvin, 2014) in reducing child behavioural and emotional symptoms.

A few studies have reported prevention of, or reduction in, externalising symptoms in young children in response to attachment-based interventions in infancy (e.g., Lieberman, van Horn & Ippen, 2005; Ordway et al., 2014). While treatment approach, duration and effectiveness varied, both targeted high-adversity samples and sought to enhance the parent–child relationship by addressing both behavioural (parent sensitivity and behavioural responsiveness to the child's needs) and representational (parent perceptions of themselves and the child and/or parent mentalising capacity) aspects of the caregiving relationship. Two further studies (van Zeijl et al., 2006; Klein Velderman et al., 2006) examined the efficacy of an attachment and social learning theory based preventive intervention using video feedback with parents during their child's infancy and reported marginally better outcomes for externalising behaviour in the treatment group compared to the control condition. In the study by van Zeijl and colleagues, intervention effects were apparent only for families with high discord and/or daily hassles.

Moss and colleagues (2011) noted the need for studies of attachment-based interventions in older children as most clinical referrals for problematic behaviour involve preschool and school-age children. They conducted an attachment-based intervention with families of maltreated children aged between 1 and 6 years and reported improvements in

parent–child attachment indices. Child age moderated intervention effects, with reductions in behaviour problems apparent only for the older children. Questions remain as to whether attachment-based interventions are effective in reducing child behavioural and emotional problems in young children across a broad age range.

The group-delivered 20-week Circle of Security intervention (Powell et al., 2014) incorporates both psycho-education and individualised psychotherapy with parents, and aims to enhance child attachment security by targeting three identified parent level influences: behaviour, representations, and reflective functioning (Berlin et al., 2008). The provision of a therapeutic safe haven and secure base for the caregiver is central to the approach. Though various versions of the Circle of Security intervention are being widely used with families for clinical and psycho-educational purposes, the approach has been little researched and no studies have examined whether child behaviour changes.

Two previous studies, both using pre-post designs with community-based samples, provide some evidence that the 20-week group-based intervention improves child–parent attachment. Circle of Security originators (Hoffman, Marvin, Cooper, & Powell, 2006) reported increased numbers of children classified as securely attached and fewer classified disorganised, after the intervention with a sample of 65 toddler and preschooler–caregiver dyads.

An earlier study of the efficacy of the Circle of Security 20-week intervention with the current sample (Huber, McMahon, & Sweller, 2015) found significant increases on a dimensional measure of attachment security and significant reductions in indices of disorganisation (for those with any disorganisation at baseline), with moderate and large effect sizes respectively. Changes in categorical measures of attachment security (56% secure prior to intervention and 62% after) and disorganisation (24% disorganised prior to intervention and 18% after) were not significant. Caregiver reflective functioning and caregiver representations of the self as caregiver and of the child also improved after

intervention, providing evidence that the intervention is also effective in changing caregiver relational capacities.

Therefore the first aim of the current study was to extend these findings by examining whether post-intervention improvements in child attachment and parent reflective functioning and representations were accompanied by improved child behavioural and emotional functioning in the same sample. We predicted that both parent- and teacher-rated child behavioural and emotional problems would decrease and child social/emotional strengths (protective factors) would increase after the intervention.

Our second objective was to examine any differential effects of the intervention by considering whether any behaviour change was moderated by child attachment (security level, disorganisation level), parent characteristics (caregiving representations, reflective functioning) demographic variables (child gender, child age) and severity of behaviour problems at the time of presentation to the clinic.

Method

Participants

Study participants comprised 83 parent–child dyads referred to a clinical service for problems with their children's behaviour and or/emotional wellbeing. All families with children aged between 12 months and 8 years who were able to commit to the 20-week group program were offered the intervention. Exclusion criteria were as follows: families with acute current parent mental health problems; families with uncontrolled substance abuse; and/or families where the child or family was not currently safe (e.g., due to reported ongoing family violence or child maltreatment). Ninety-five families were eligible and offered the intervention; 90 (95%) commenced and, of these, 83 (92%) completed the intervention and provided consent for their data to be used for research purposes (See Figure 6.1). Clinic records indicated that five families did not commence because they were unable to commit to attending over a 6-month period, due to work or other commitments. Data are not available

for the seven families who did not complete, as consent to archive clinical data was

retrospective and contingent on program completion. Available demographic data from clinic

notes indicated these families did not differ from the 83 completers on demographic

indicators and family risk factors at intake.

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Assessed for COS *n* = 95

Completed COS and included in the study: *n* = 83

Excluded from study *n* = 12
- Did not commence = 5
- Attended 1 session = 2
- Dropped out part way = 5

"Younger COS groups"
Dyads—child 11 mths – 4 years
n = 56 (67%)

"Older COS groups"
Dyads—child over 4 years
n = 27 (33%)

SSPs available for coding
n = 55 (66%)
- No consent =1

COSIs available for coding
n = 51 (93%)
- No consent =2
- Post COSI incomplete =1
- Recording failure pre COSI = 2

COSIs available for coding
n =22 (81%)
- Post COSI incomplete = 4
- No post assessment = 1

DECA-C *a
2–5 years
Eligible by age:
n = 66 of 83 (80%)

Parent rated:
Pre n = 58 (Pre only n = 14)
Post n = 48 (Post only n = 4)

Parent rated pre & post n = 44
(67% of age eligible; 53% of total)

Teacher rated:
Pre n = 35 (Pre only n = 14)
Post n = 28 (Pre only n = 7)

Teacher rated pre & post n = 21
(38% of all chn receiving care;
32% of age eligible; 25% of total)

CBCL *a
1.5-5 or 6–18 years
Eligible by age:
n = 79 of 83 (95%)

Parent rated:
Pre n = 75 (Pre only n = 18)
Post n = 62 (Post only n = 5)

Parent rated pre & post n = 57
(73% of age eligible; 69% of total)

Teacher rated:
Pre n = 54 (Pre only n = 23)
Post n = 36 (Post only n = 5)

Teacher rated pre & post n = 31
(56% of all chn receiving care;
39% of age eligible; 37% of total)

Note: *Percentages are of the total sample n = 83, or of specified subsample. **a.** Children attending child care, preschool or school at both time points (max n = 55; 66%).

Figure 6.1 *Flow diagram showing study participation*

Children were aged 13 to 88 months at pre-assessment (M = 47.80 months, SD = 17.48 months), with most (n = 52; 63%) 48 months or younger. Forty-eight were boys (58%) and 35 girls (42%). "Parents[1]" included 73 biological parents (88%), five foster/adoptive parents (6%) and five kinship carers (6%). Most parents had post secondary school education (n = 50, 60%), most were female (n = 75, 90%), and 32 (39%) were single parents. Twenty (24%) identified as coming from culturally or linguistically diverse backgrounds (CALD), and three families (4%) identified as Indigenous Australians (Aboriginal or Torres Strait Islander).

Clinic records revealed the following psychosocial risk factors during the child's life: parent reports of prior or current mental health problems (n = 74, 89%), parental divorce or separation (n = 35, 42%), family violence (n = 27, 33%), and substance abuse by a family member (n = 21, 25%). Sixteen (19%) of the children had experienced substantiated abuse or neglect.

Procedures

The study was conducted in collaboration with the clinical service provider. On completion of the Circle of Security intervention (COS), parents were invited by the clinical organisation to give consent for their clinical data to be archived for inclusion in any future research project to evaluate the effectiveness of the COS treatment approach. Study investigators subsequently obtained consent from the clinical service to use the data archived from the consenting families, and approval from relevant institutional ethics committees, for the current project. A pre-post sequential cohort design was used to examine change after the COS intervention using the pre- and post-intervention data from program completers, collected by the clinical program and archived for research purposes when families consented.

Pre and post assessment. Participating parent-dyads attended the clinic no more than 6 weeks before the start of the intervention and were videotaped participating in a separation-

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[1] All primary caregivers are referred to as "parents", and caregivers outside the home (childcare workers, preschool and school teachers) are referred to as "teachers".

reunion procedure (Strange Situation Procedure) for dyads with children under 49 months, or an attachment-activating semi-structured interaction assessment for dyads with children 49 months or older. Videotaped interviews with parents were then conducted using the semi-structured narrative Circle of Security Interview (COSI) (Cooper, Hoffman, Marvin, & Powell, 1999). Parents completed two questionnaires about child behaviour, where applicable depending on child age. Some demographic and psychosocial risk information was obtained from these questionnaires as well as from intake information at the clinic. For children receiving any form of out-of-home childcare, or attending preschool or school, parents were also asked to request the child's teacher[1] complete the behaviour questionnaires. All measures were repeated after the intervention, for most families within 2 weeks of completion and for a small number, where family circumstances intervened, within 6 weeks. Pre-post intervention change in parent relational capacities (parent reflective functioning [PRF], caregiver representations) and child attachment are reported elsewhere (Huber, McMahon, & Sweller, 2015). Baseline scores for relational capacities (PRF, representations), and child attachment indices (security level, disorganisation level) were considered as potential moderators along with severity of presenting behaviour difficulties.

COS intervention protocol. The Circle of Security assessment and treatment protocol, described in detail in the facilitator's manual (Cooper, Hoffman, Marvin, & Powell, 2000) and by Powell and colleagues (2014), focuses on improving caregiver relational capacities associated with child attachment security. For each dyad, therapists preview the videotaped footage and identify a core area of difficulty in the relationship, or "linchpin struggle" (Powell et al., 2014, p. 83), in which the parent experiences challenge with the adult role in the relationship and/or with adequately supporting the child's exploration and/or emotional regulation needs.

Treatment was conducted over 20 weeks in groups of four to six parents who met weekly for 90-minute sessions with two COS-trained therapists. Children did not participate in sessions, and childcare was provided in an adjacent location for those who needed it. The

program involved three psycho-education sessions about attachment theory and psychological

defenses, three individualised psychotherapeutic / tape review sessions per parent using

selected video clips taken from the initial or a later interaction assessment in week 15, and a

final session celebrating changes in the relationship and reflecting on the experience.

Parents were assigned to COS treatment groups according to child age: those with

children under 49 months (n = 56) joined "younger children" groups, and those with children

49 months or older (n = 27) joined "older children" groups (see Figure 6.1). A total of 18

groups completed the intervention over a 6-year period. Completion was defined as follows:

parent had (a) attended the three theory sessions, (b) attended all three of their individual tape

reviews, and (c) missed no more than four sessions in total—i.e., attended 16 of 20 sessions

(80%).

The manualised COS protocol (Cooper et al., 2000) was used to ensure treatment

fidelity, and both therapists participated in weekly supervision with one of the COS program

originators (Glen Cooper) or a trained clinician accredited as a COS supervisor (first author).

Supervision included both support with treatment planning and preparing tape reviews, and

reflection on videotaped treatment sessions.

Measures

Child behavioural and emotional functioning. Two questionnaires were used to

assess child behavioural and emotional adjustment. Both have both parent and teacher

versions.

Devereux Early Childhood Assessment-Clinical (DECA-C) (LeBuffe & Naglieri,

2003). The DECA-C is a standardised, norm-referenced, behaviour rating scale of 62 items

that assesses both social/emotional resilience (protective factors) and behavioural/emotional

concerns in children aged 2 through 5 years. The DECA-C includes three "protective factors"

scales (Initiative, Self Control, Attachment) and four "behavioural concerns" scales (Attention

Problems, Aggression, Withdrawal/Depression, Emotional Control Problems). Raters endorse

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items as *Never*, *Rarely, Occasionally, Frequently*, or *Very Frequently* according to how often

over the past 4 weeks the child engaged in each behaviour. Composite scales, "Total

Protective Factors" and "Total Behavioural Concerns", provide an overall index of the child's

social/emotional resilience and behavioural/emotional problems respectively.

Alpha coefficients for parents and teachers were excellent, ranging from .91

(Protective Factors Pre) to .90 (Total Behavioural Concerns Pre) for parent ratings and from

.94 (Protective Factors Pre) to .95 (Behavioural Concerns Pre) for teacher ratings. T scores

indicate ratings in the clinical or subclinical range as follows: low levels of social/emotional

resilience (protective factors) (T scores $\leq$ 40); and/or high levels of emotional/behavioural

concerns (T scores $\geq$ 60).

Child Behavior Checklist and carer/teacher report forms (Achenbach & Rescorla,

2000, 2006). Because of the age range in the sample, compatible versions of the widely

validated Child Behavior Checklist were used: CBCL 1.5–5 and C/TRF for young children

(100 items) or the CBCL 6–18 and TRF 6–18 for older children (113 items). Problem

behaviours are rated on a three point scale: 0 = *not true*, 1 = *somewhat or sometimes true*, and

2 = *very true or often true*, according to the extent to which each item describes their child

"now or within the past 2 months". For the CBCL 1.5–5, scores on four subscales

(emotionally reactive, anxious/depressed, somatic complaints, withdrawn behaviour) are used

to compute internalising problems, and two subscales (attention, aggressive behaviour) are

combined for the externalising problems score. For the CBCL 6–18, an internalising score

(anxious/depressed, withdrawn/depressed, somatic complaints) and an externalising score

(attention problems, aggressive behaviour, rule-breaking behaviour) are computed. T scores

(separately computed for boys and girls and for each age group) were used to assess change in

problem scores, as they can then be combined for the two genders across the age range into

single variables (parent internalising and externalising, teacher internalising and

externalising).

Potential moderators.

Parent–child attachment (indices of security and disorganisation). Because the clinic only conducted Strange Situation Procedures for those children aged 4 years and under at baseline, parent–child attachment could only be coded for 55 dyads using pre- and post-intervention videotapes of the Strange Situation Procedure (SSP) (Ainsworth, Blehar, Wall & Waters, 1978). The Ainsworth Coding System (Ainsworth et al., 1978) was used for infants under 24 months (n = 8) and the Preschool Attachment Classification System (PACS—Cassidy, Marvin & the Macarthur Attachment Working Group, 1992) for children between 24 and 48 months (n = 47). Videotapes were coded by two independent coders both blind to the intervention and to the pre-post status of each dyad (Ellen Moss, University of Quebec at Montreal, and her PhD student). Though categorical and continuous attachment coding was obtained, continuous scores (security and disorganisation) prior to intervention were used to test moderation. These dimensional scales (Moss, Lecompte, & Bureau, 2015) allow scores ranging from 1 to 9 to be assigned (where 1 = no indices and 9 = very high-level indices) and are in part based on established guidelines for classifying attachment behaviour (Cassidy & Marvin et al., 1992; Main & Cassidy, 1988; Main & Solomon, 1990). Higher security level scores are assigned when children show more direct proximity seeking and/or contact maintenance and face-to-face interaction (including through language for older children) when distressed, and fewer of these behaviours when calm and exploring. Scores for disorganisation level reflect behavioural disorganisation with the caregiver (e.g., signs of confusion, apprehension, inexplicable and/or contradictory behaviours especially when distressed), and inability to use the caregiver either as a secure base for exploration or a source of support for emotional regulation when distressed (Main & Solomon, 1990). Inter-rater correlations for the dimensional scores were high (.86 for scale B; .85 for scale D) indicating excellent agreement between the two coders.

Parents' caregiving representations and reflective functioning. The Circle of Security Interview (COSI) (Cooper, Hoffman, Marvin, & Powell, 1999; Powell et al., 2014) is

a narrative interview derived in part from the Parent Development Interview-Revised (PDI-R) (Slade, Aber, Bresgi, Berger, & Kaplan, 2004) and the Adult Attachment Interview (AAI) (George, Kaplan, & Main, 1984). The interview explores parent perceptions of their relationship with the index child (immediate experience and everyday patterns), and of their own childhood experiences of being cared for. The earlier version was used in this research. Videotaped interviews were transcribed, de-identified, and sent to two independent coding teams to be coded for (a) parental reflective functioning (PRF) and (b) parents' representations of their child and themselves in the caregiving role with the index child. All coders were blind to the intervention and to the pre and post status of the interviewees, but knew child gender and age in months. In all, 146 interview transcripts for n = 73 dyads (all ages) were available (see Figure 6.1).

Parental reflective functioning on the COSI was coded using the reflective functioning (RF) coding scale developed for the AAI (Fonagy, Steele, Steele, & Target, 1998) and adapted for the PDI-R (Slade et al., 2004; Slade, Bernbach, Grienenberger, Levy, & Locker, 2005). Three trained coders from the Anna Freud Centre, London (certified reliable in coding RF on AAI and PDI-R) assigned PRF scores (ranging from −1 to +9) to 16 "demand questions" (designed to elicit reflective functioning) in the COSI and also to the overall interview. Two reliability sets (for n = 25, 17%) were triple-coded with high inter-rater reliability (set 1–12 interviews: ICC = .83; and set 2–13 interviews: ICC = .88) using consistency model, single rater. Overall PRF scores at time 1 were examined as potential moderators.

A separate coding scale (Huber, McMahon, & Sweller, 2015b) was used to measure parents' caregiving representations from transcripts of the same interview. Eight subscales are derived: two affect dimensions (Hostility, Joy) are coded from statements indicating feelings about the child and/or the relationship, and six dimensions are coded from statements that index perceptions of self as a caregiver to the child, using language aligned with the Circle of Security approach (Bigger/Stronger, Kind, Mean, Weak, Gone, Role Reversed). Based on

reading the complete interview transcript, a trained coder assigned continuous scores (range 1–5) for each dimension as follows: 1 = no statements or indicators; 3 = a few indicators or partial indicators (e.g., if statements indicative of the dimension are present but idealised, qualified, poorly supported, or partly contradicted); 5 = definite and/or frequent indicators (the construct is clearly and consistently apparent throughout the interview). Scores of 2 or 4 can be allocated as appropriate. Thirty transcripts (20%) were independently coded by a second coder (first author). Inter-rater correlations on all dimensions were high, ranging from .92 (Hostility) to .72 (Gone).

A composite score was derived for "positive representations" (mean of eight dimensions, negative dimensions reverse coded). High scores indicated more positive representations, with a score of three or more considered adequate, based on scale descriptors. The full rating scale is available from the first author.

Data Analysis

All continuous variables were normally distributed except disorganisation level (scale D), which was skewed as the majority of dyads showed no indices of disorganised behaviour (i.e., scale D scores of 1). Ns vary in the analyses as teacher ratings were not available for some children; not all parents and teachers returned post checklists; and DECA-C questionnaire could only be completed for children aged 2 through 5 years; and, of the potential moderators, PRF and representations scores were available for 73 dyads, but attachment scores (security level (B) and disorganisation levels (D) were only available for the 55 children younger than 49 months. With the exception of child age, there were no pre-intervention differences on behaviour, attachment and demographic variables comparing children whose parents completed both sets of behaviour questionnaires and those who did not. Teachers and caregivers of younger children were more likely to return both checklists (ps < .05) (see also Figure 6.1).

Hypotheses were tested using mixed design repeated measures analyses of variance (RM-ANOVAs) for "protective factors" and "behavioural concerns" (T scores, DECA-C

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scales) and internalising and externalising problems (T scores, CBCL scales). Separate

analyses were conducted for parent and teacher ratings. Based on results of preliminary

analyses, specified moderators for each outcome variable were examined. Where interaction

effects (proposed moderator × time) were not significant, these variables were removed and

the analysis repeated. Results reported are based on final analyses, with only significant

interactions included. Significant interactions (probability values $p \leq .05$) were followed up

with pairwise comparisons, using dichotomous (high-low) variables. Bonferroni's corrections

were applied to account for multiple tests.

Because of missing questionnaire data, a mixed model analysis was also conducted

with stacked data; however, results were essentially unchanged, so only RM-ANOVAs results

are reported.

Results

Preliminary Analyses

Bivariate correlations (Pearson's for parametric and Spearman's for non-parametric

variables) and independent samples t tests were used to explore relationships among the

outcome variables and any potential moderators. Table 6.1 presents baseline correlations,

means and standard deviations for all study variables; significant correlations are highlighted.

Table 6.1 *Means, standard deviations and correlations among dependent variables and co-variables at baseline*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Mean	SD
1. Child Age in mths n = 83	1														47.8	17.59
2. Parent Education[1] n = 83	−.02	1													2.87	1.19
3. Scale B n = 55	.19	.14	1												4.70	1.54
4. Scale D n = 55[2]	−.20	−.15	−.63**	1											2.41	2.21
5. RF n = 73	−.23	.38**	.21	−.05	1										4.01	1.48
6. Overall Reps n = 73	.23	.10	.14	−.20	.13	1									3.08	.69
7. P: Protective Factors	.04	.03	.24	−.42**	.18	.45**	1								39.88	8.53
8. P: Behavioural concerns	.02	−.13	−.18	.20	−.13	−.27	−.54**	1							64.66	9.55
9. T: Protective Factors	−.10	−.10	.32	−.24	.20	−16	.42*	−.34	1						46.49	10.03
10. T: Behavioural concerns	.18	.11	−.09	.16	−.34	.07	−.23	.31	−.64**	1					48.94	12.71
11. P: Internalising problems	.16	−.06	−.21	.08	.05	−.18	−.53**	.60**	.06	−.04	1				61.95	10.28
12. P: Externalising problems	.20	−.14	−.19	.24	−.18	−.26*	−.46**	.70**	−.25	.25	.56**	1			63.17	11.69
13. T: Internalising problems	**.35****	−.06	**−.36***	.28	−.05	.19	−.29	.24	−.69**	.64**	.201	.181	1		57.09	10.99
14. T: Externalising problems	**.32***	.03	−.22	.31	−.08	.19	−.36*	.36*	−.62**	.81**	.18	.44**	.67**	1	55.67	12.31

[1,2] Spearman's rho for non-parametric variables

Parent education 1 = secondary school to year 10; 2 = year 12 completion; 3 = post secondary training; 4 = undergraduate degree; 5 = postgraduate degree

P: Parent rated

T: Carer/teacher rated

Parent and teacher ratings of child behaviour were all positively correlated, significantly for DECA-C protective factors, CBCL externalising and CBCL total problems, $ps < .05$, but not significantly for DECA-C behavioural concerns and CBCL internalising problems. Expected correlations for subscales within the CBCL and DECA-C were observed.

Teacher ratings of behaviour problems using the CBCL were positively correlated with child age (more problems for older children); parent education was not correlated with reports of behaviour problems pre or post intervention. Attachment security level (scale B) was negatively correlated with teacher-rated internalising problems, and disorganisation level (scale D) was negatively correlated with parent-rated protective factors prior to intervention. More positive parent representations of the relationship were correlated with parent ratings of higher protective factors and fewer externalising problems. Parent reflective functioning showed no significant correlations with behaviour or protective factor ratings by parents.

At baseline, parents rated children on average in the borderline or clinical range for protective factors (mean T score ≤ 40), behavioural concerns, internalising and externalising problems (mean T scores ≥ 60). Mean teacher ratings of children's protective factors and all behaviour problem scales were in the normal range at baseline (see Tables 6.1 and 6.2). Prior to the intervention, 72% (n = 43 of 60) of children were rated in the borderline/clinical range by one or both raters for behavioural concerns: 66% (n = 51 of 77) for internalising and 69% (n = 53 of 77) for externalising problems.

T-tests indicated significant (or marginal) gender differences as follows: Teachers rated boys higher than girls on behavioural concerns ($p = .054$) and internalising problems ($p = .007$). Parents and teachers rated girls higher than boys on protective factors ($p = .06$; $p = .01$ respectively).

Intervention Effects: Change in Child Behavioural and Emotional Functioning

Detailed statistics from the mixed design repeated measures analyses of variance (RM-ANOVAs) are presented in Table 6.2. Statistics for significant interaction effects are

noted in the text. Mean changes on all scales were in the expected directions for both teacher and parent ratings: children on average moved from the borderline/clinical range to the normal range on all parent ratings (protective factors, behavioural concerns, internalising and externalising problems) and remained in the normal range on all teacher ratings. After intervention, 42% (n = 20 of 48) of children were rated in the borderline/clinical range for behavioural concerns, 50% (n = 31 of 62) for internalising problems and 37% (n = 23 of 62) for externalising problems (based on parent/teacher or both ratings).

Table 6.2   *Change in T1 and T2 means—protective factors and behavior problem T scores (mixed design repeated measures ANOVAs)*

Variable	T1 Means (SD)			T2 Means (SD)			(All): Combined genders Main effect of time		
	Boys	Girls	All	Boys	Girls	All	F ratio (df)	Sig. (2 tailed)	Effect size: Partial eta squared ηp²
DECA-C Variables:									
P: Protective factors n = 44 24 boys/20 girls	37.96 (8.70)	42.70 (7.96)	**40.34 (8.75)**	40.70 (7.77)	47.05 (10.01)	**43.71 (9.55)**	**4.75 (1,39)**	.035	.109
T: Protective factors n = 21 10 boys / 11 girls	44.60 (12.47)	50.36 (8.15)	**47.62 (10.58)**	43.90 (10.09)	53.82 (6.45)	**49.10 (9.61)**	**0.30 (1,20)**	.591	.015
P: Behavioural concerns n = 44 24 boys / 20 girls	65.00 (8.96)	64.15 (10.10)	**64.61 (9.39)**	60.38 (9.46)	54.45 (12.17)	**57.68 (11.06)**	**8.18 (1,42)**	.007	.163
T: Behavioural concerns n = 21 10 boys / 11 girls	53.30 (14.14)	44.09 (9.15)	**48.48 (12.41)**	51.30 (13.10)	41.64 (12.89)	**46.24 (13.59)**	**0.96 (1,20)**	.338	.046
CBCL Variables:									
P: Internalising problems n = 57 34 boys / 23 girls	62.21 (10.06)	61.44 (11.12)	**61.89 (10.41)**	56.47 (9.46)	55.39 (12.51)	**56.04 (10.70)**	**9.05(1,55)**	.004	.141
T: Internalising problems n = 31 17 boys / 14 girls	61.29 (11.00)	51.71 (11.00)	**56.97 (11.85)**	55.29 (13.72)	51.64 (11.85)	**53.65 (12.83)**	**2.54 (1,30)**	.122	.078
P: Externalising problems n = 57 34 boys / 23 girls	64.12 (11.83)	59.87 (13.12)	**62.40 (12.43)**	59.00 (11.81)	53.00 (9.08)	**56.58 (11.11)**	**8.95 (1,55)**	.004	.140
T: Externalising problems n = 31 17 boys / 14 girls	57.88 (13.01)	52.86 (10.11)	**55.61 (11.88)**	52.82 (13.26)	50.43 (9.07)	**51.74 (11.44)**	**5.22 (1,30)**	.030	.148

Note: Means for T1 All and T2 All, and statistics (all bold) are taken from mixed design repeated measures ANOVAs with significant moderators included.

T1 and T2 Means for Boys and Girls are unadjusted means. P: Parent rated; T: Carer/Teacher rated.

For behavioural problems T scores > = 60 are borderline or clinical range; for protective factors T scores <= 40 are in the concern range.

Effect sizes—partial eta squared: .02 = "small", around .13 = "medium", and .26 = "large". Cohen (1988, pp. 413–414) defined an η2 of .02 as small, one of .13 as medium, and one of .26 as large (Bakeman, 2005).

Protective Factors (DECA-C). Moderators tested were child gender, disorganisation level (for both parent and teacher ratings), and overall positive representations for parent ratings. For parent ratings, the only significant interaction effect was time x parent representations, $F(1,39) = 4.95$, $p = .034$, $\eta_p^2 = .113$. There was a significant main effect for time with a medium effect size indicating that parent-rated protective factors were higher after the intervention (see Table 6.2). Using a dichotomous variable for parent representations prior to intervention (adequate ≥ 3, not adequate <3), Figure 6.2 shows that parents with more negative representations of the child and of their relationship with the child prior to intervention showed a greater increase in protective factors. The analysis for teacher ratings of change in child protective factors showed no significant effect for time and no significant interaction effects.
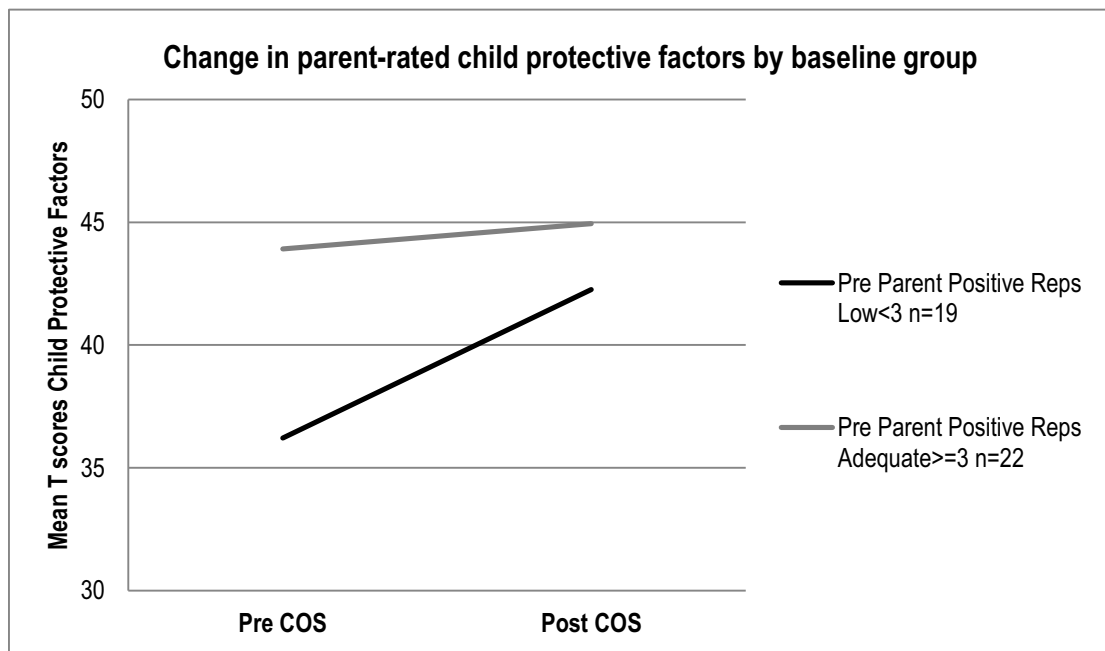
Figure 6.2 *Change in parent-rated child protective factors after COS by baseline group*

Behavioural Concerns (DECA-C). Following results of preliminary analyses, the following variables were examined as potential moderators: overall positive representations (for parent ratings); severity of baseline behavioural concerns (parents and teachers); and child gender (teacher ratings only). For parent ratings, there was a significant time x baseline behavioural concerns interaction effect, $F(1,42) = 5.48$, $p = .024$, $\eta_p^2 = .115$, and a significant main effect for time, indicating reductions in parent-rated behavioural concerns with a medium effect size. Follow-up analyses were conducted using clinical cut-off scores on the DECA-C and showed that children rated with concerns in the borderline/clinical range (T scores ≥ 60) prior to the intervention showed most improvement. (See Figure 6.3.) There was no significant main effect for time for teacher ratings of behavioural concerns and there were no significant interaction effects.

Change in parent-rated behavioural concerns by baseline severity group
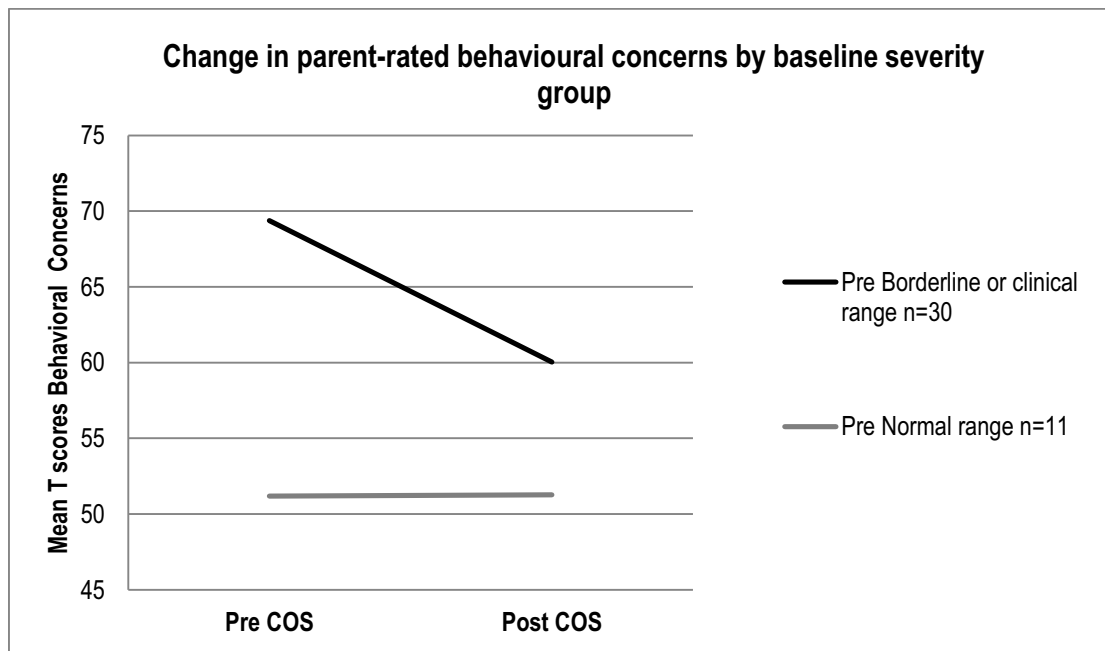
Figure 6.3 *Change in parent-rated behavioral concerns after COS by baseline severity group*

Internalising Problems (CBCL/C/TRF). Based on results of preliminary analyses, the RM-ANOVA examining change in parent-rated internalising problems included severity of internalising problems at time 1 (borderline/clinical: T scores $\geq$ 60 vs. T scores < 60) as a potential moderator. Results showed that there was a significant time by baseline severity interaction effect, $F(1,55) = 12.78$, $p = .001$, $\eta_p^2 = .188$, and a significant main effect for time with a medium effect size. Follow-up analyses showed that the reduction in parent-rated internalising problems was accounted for by the 38 children with problems in the borderline/clinical range prior to the intervention. (See Figure 6.4.)

For teacher ratings of internalising problems, moderators tested were child age and gender and security level prior to intervention. There was no significant main effect for time and there were no significant interaction effects.
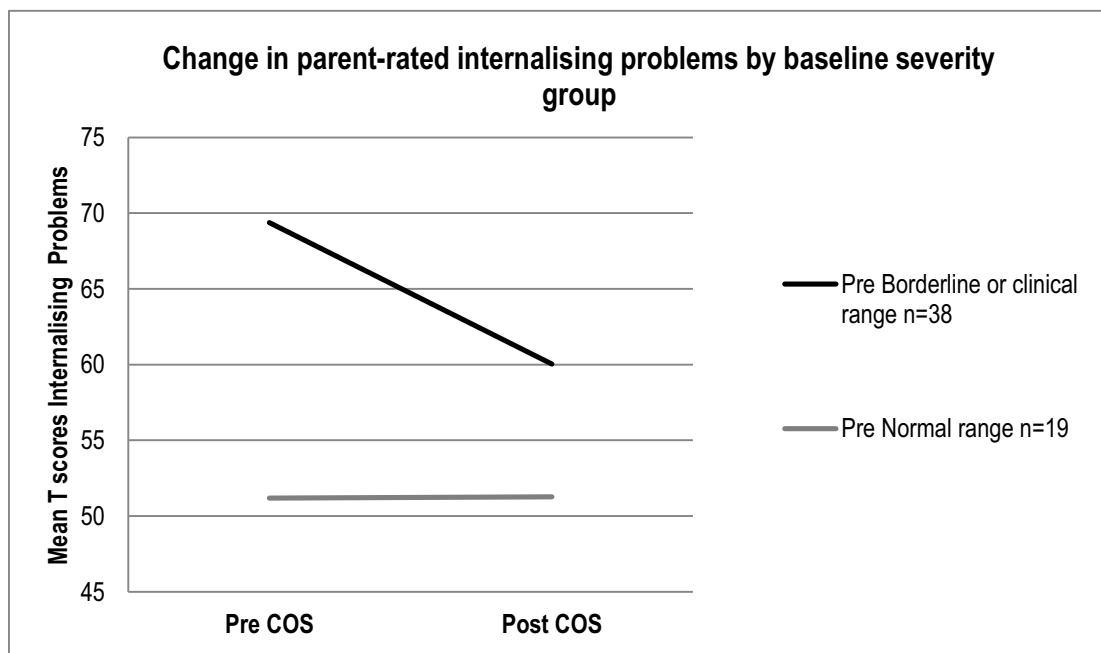
Figure 6.4 *Change in parent-rated internalising problems after COS by baseline severity group*

Change in Externalising Behaviour. Based on preliminary analyses the following moderators were tested: baseline scores for disorganisation level; parents' overall positive representations; and externalising problem severity (borderline/clinical T scores $\geq$ 60 vs. <60). There was a significant time x severity interaction effect, $F(1,55) = 9.15$, $p = .004$, $\eta_p^2 = .143$, and a significant main effect for time with a medium effect size. Children who were rated in the borderline or clinical range for externalising problems (T scores $\geq$ 60) showed a decrease in parent rated behaviour problems after the intervention, whereas children with normal range externalising problems showed no change. (See Figure 6.5.)

Moderators tested in analyses of change in teacher-rated externalising problems included child age, disorganisation level, and baseline problem severity. There was a significant main effect for time with a medium effect size, but there were no significant interaction effects.
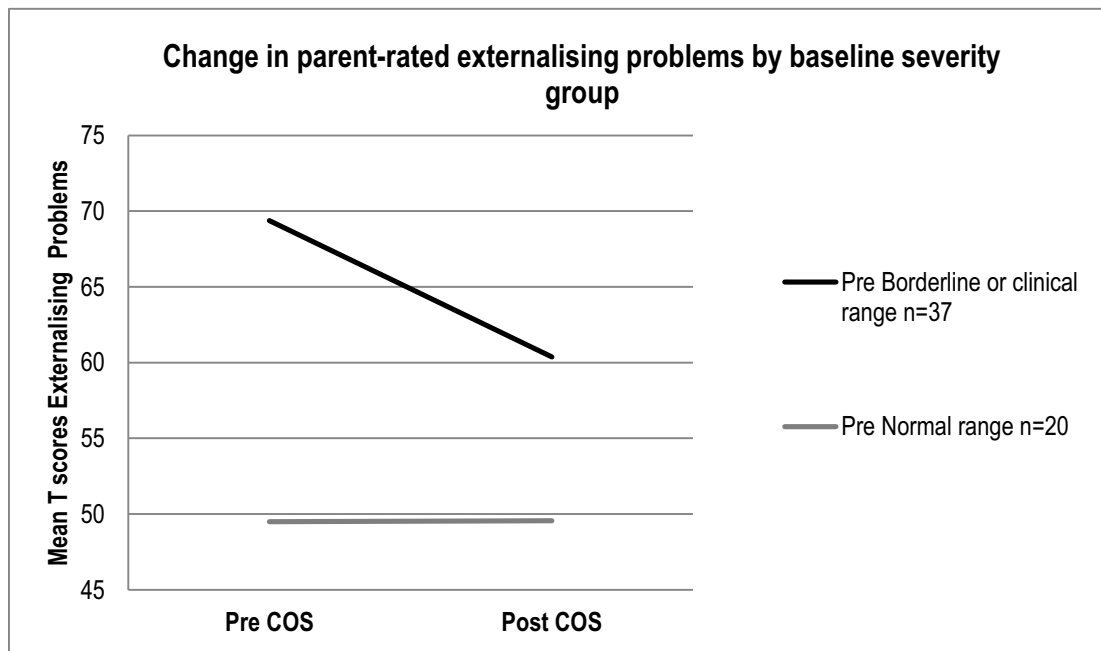
Figure 6.5 *Change in parent-rated externalising problems after COS by baseline severity group*

Discussion

This study sought to examine whether child behaviour difficulties decreased and child protective factors increased after parents participated in a 20-week Circle of Security therapeutic intervention group. Our findings show significant improvement in child protective factors, and reductions in behavioural concerns, internalising and externalising problems, as reported by primary caregivers. The reported changes in child behaviour problems were also clinically significant: mean levels of parent-rated behavioural concerns, internalising and externalising problems, moved from the borderline/clinical range prior to the intervention to the normal range afterwards. There was some corroboration of these findings, with teachers (childcare, preschool, school) also reporting a significant reduction in externalising problems, but no significant change in teacher-rated internalising problems or child protective factors.

Reported changes in behaviour applied irrespective of child age and gender, but children presenting with problems in the borderline/clinical range showed more improvement than those with less severe problems, consistent with recent research (Shelleby & Shaw, 2014). Interestingly, parents who had more negative caregiving representations prior to intervention showed a greater improvement in their view of their child's social and emotional protective factors afterwards. There were no differences in responsiveness to the intervention related to indices of child attachment security or disorganisation prior to treatment.

The families in the current study were referred primarily because parents were experiencing difficulty with their child's behaviour. Accordingly, approximately two-thirds of the children were rated either by their parent, their teacher or both, as having clinically significant internalising or externalising problems. Overall teacher ratings were moderately correlated with parent ratings; however, teachers reported fewer problems. The strongest agreement across informants was for child externalising problems, which is consistent with prior research (Fihrer, McMahon, & Taylor, 2009; De los Reyes & Kazdin, 2005). It is plausible that children may behave differently for different caregivers and also that problems located in the parent–child relationship were more severe than those in the teacher–child

relationship. It is also possible, however, that parents had more negative perceptions than other observers of similar child behaviour (Lau, Valeri, McCarty, & Weisz, 2006; Ordway, 2011); however, observations in both settings would be needed to confirm this. It is most likely the case that there were changes in both actual child behaviour and parent perceptions. In the absence of a control group, the corroboration by teachers of improvement in child externalising behaviours is encouraging and suggests some meaningful behavioural change did occur.

The Circle of Security intervention explicitly targets parent interpretations of child behaviour, encouraging them to reframe "demands" as "needs". Irrespective of changes in actual behaviour, the way the parent views the child's behaviour and their own parenting capacity is important (Bugental & Johnston, 2000). There is extensive evidence that parents of children with behavioural and emotional problems attach negative meanings to their child's behaviour, and that these negative perceptions are associated with more negative parenting behaviours and/or parent–child interactions (e.g., Benoit, Zeanah, Parker, Nicholson, & Coolbear, 1997; Dollberg, Feldman, & Keren, 2010; Healy, Murray, Cooper, Hughes, & Halligan, 2015; Shamir-Essakow, Ungerer, Rapee, & Safier 2004). There is also evidence that, when parent negative perceptions persist, they may contribute to the maintenance of child behaviour problems (Johnston, Hommersen, & Seipp, 2009) and also some evidence that positive changes to these parent perceptions are associated with improvements in the way parents relate to their children and reductions in child behaviour problems (Lieberman et al., 2005; Sanders et al., 2004).

The Circle of Security intervention also targets how parents view themselves in relation to the child. Research suggests that a greater sense of competence or efficacy as a parent is associated with better child behavioural and emotional functioning (George & Solomon, 2008; Webster-Stratton & Herman, 2008). In the current study, those parents with more negative representations of the child and of their relationship with the child prior to intervention rated their child as having fewer protective (positive) characteristics and more

externalising problems, and demonstrated a greater shift in their view of positive aspects of the child after the intervention. It seems likely, therefore, that parent reports of child behavioural change in the current study reflect, at least in part, the improvement in caregiver representations of themselves and of their child (previously reported in this sample), both explicitly targeted by the COS intervention (Huber, McMahon, & Sweller, 2015b). As we did not measure parent behaviour in the current study, it was not possible to determine if changes in parent representations were accompanied by more responsive and emotionally available parenting behaviour. However, recent research suggests that improving caregiving representations through video-based intervention with parents can also improve parents' behaviour with their children (Smith, Dishion, Moore, Shaw, & Wilson, 2013).

In contrast with behavioural interventions that typically focus on either externalising or internalising problems, the current study indicates that Circle of Security is effective in reducing both internalising and externalising problems, known to occur separately and/or together across the early years (Fanti & Henrich, 2010; Forehand et al., 2013). The focus of the intervention is individualised for each dyad, with a "linchpin issue" in the parent–child relationship, and factors underpinning it, identified in assessment and treatment planning (Powell et al., 2014). Thus the treatment is based on case conceptualisation and etiology rather than lists of symptoms (Forehand et al., 2013).

The current study sought to address gaps in the research on the efficacy of attachment-based approaches in improving child behaviour. As noted earlier, while there is limited evidence that attachment-based interventions are effective in reducing externalising problems in children under 2 years (Lieberman et al., 2005) and in children aged 3 to 5 years from maltreating families (Moss et al., 2011), the current study showed improvements for children across a broad age range from 18 months to 7 years. Interestingly, effectiveness of the intervention was not related to child gender, levels of child attachment security or disorganisation, or parent reflective functioning, all measured prior to intervention. While more boys were referred with behavioural and emotional problems, consistent with other

research (Furlong et al., 2012; Webster-Stratton & Herman, 2008) and boys in our sample were rated as having more severe problems and fewer protective factors than girls, our findings of comparable responses to intervention for parents of boys and girls is consistent with recent research (Rapee, Schniering, & Hudson, 2009; Shaw, 2013; Webster-Stratton & Herman, 2008).

Higher levels of disorganisation were associated with lower parent-rated protective factors, and lower levels of security were associated with higher teacher-rated internalising problems; however, the intervention was effective regardless of child attachment indices prior to treatment. Attachment theory and research suggest than improving security and reducing disorganisation should be associated with reduced child behavioural and emotional dysregulation (Carlson et al., 2003; Guttmann-Steinmetz & Crowell, 2006; Madigan et al., 2007; Sroufe et al., 2005). The current study design did not enable changes in attachment security or disorganisation to be tested as mediators or moderators of change in child behavioural and emotional outcomes because measurement of attachment and behaviour change were concurrent. A study design in which attachment change was measured post intervention and behaviour assessed some time later may enable these mechanisms to be identified.

While theory also suggests that higher levels of parental reflective functioning might be associated with more positive ratings of child behaviour due to greater parental capacity to understand and respond to behavioural and emotional needs (Slade, 2005), the current study found no association between baseline parent reflective functioning and parent reports of child behaviour strengths or difficulties, raising questions about how parental reflective functioning influences the parent–child relationship, and also how it is related to perceptions of child behaviour. One possibility is that parent reflective functioning works together with parents' caregiving representations, and that parent reflective functioning may only matter if parent representations are problematic (Moran, Hawkins, & Pederson, 2006). Another possibility is that, although the demand questions on the Circle of Security Interview and

coding approach are similar to those used with the Parent Development Interview-Revised (PDI-R), different results may have been obtained if reflective functioning had been scored from the PDI or Adult Attachment Interview. Thirdly, while poor parent mentalisation has been proposed as one possible pathway in the development of child psychopathology (Sharp & Fonagy, 2008), our approach, coding only explicit mentalising capacity from verbal statements, may mean we did not capture every parent's full mentalising capacity, especially in less articulate parents. Several authors suggest that implicit or non-declarative forms of mentalising in parents might also be related to child behavioural and emotional functioning (Fogel, 2011; Shai & Belsky, 2011).

Study Strengths and Limitations

Study strengths included an excellent participation and retention rate; the use of multi-informant, multi-method assessments of child behavioural and emotional functioning; and the consideration of a wide range of possible moderators. Participation and retention rates are likely attributable to key features of the intervention rather than to the research implementation per se, and are consistent with conclusions from previous work (Hoffman et al., 2006) that suggest the COS approach is particularly engaging for families with complex problems who have been difficult to reach with other approaches (Koerting et al., 2013; Thomas & Zimmer-Gembeck, 2012). Berlin and colleagues (2008) suggest this may be in part due to the relationship participants develop with the therapists and with others in the group.

The study also included a measure of protective factors, providing information about positive changes in the child as well as reductions in negative behaviours. It was also a strength that, as with the original study of this intervention conducted by Hoffman and colleagues (2006), the current research was conducted in a real-world clinical setting, confirming the effectiveness of the intervention with moderate- to high-risk families concerned about behavioural and emotional problems in their young children.

The main limitation was the lack of a control or comparison group. Future studies should include comparison with an alternative individualised intervention of similar duration

(e.g., Parent–Child Interaction Therapy—Zisser & Eyberg, 2010) or a waitlist control condition. The absence of a control group means it was not possible to fully exclude the conclusion that social desirability factors may have influenced parent reports post intervention. However the similar, albeit more modest, pattern of change reported by teachers supports an interpretation of meaningful change in child behaviour as well as in parent perceptions.

Small numbers on some of the behaviour measures were a limitation, particularly with respect to teacher ratings. Not all children were in non-parental care at either or both time points; and, while most parents completed the intervention, not all completed both sets of questionnaires, and the pursuit of missing questionnaire data was not possible once clinical goals had been met. Another approach to corroborating change would be the inclusion of behaviour ratings by the parent who did not attend the intervention and/or observer ratings of child behaviour in home or childcare settings. There is some evidence to suggest that some higher risk parents may rate their child's behaviour more negatively than an independent observer (Lau et al., 2006; Ordway, 2011); therefore triangulating measures of child behaviour would be important in any future study.

Conducting a study using archived data collected by clinicians was necessarily limited by clinical priorities. Clinic choice of the DECA-C (limited to children aged 2 through 5 years) meant "protective factors" and "behavioural concerns" data were not available for the whole sample. Though the broad age range posed some challenges for outcome measurement in the current study, we sought to accommodate developmental variation in behaviour problem expression by limiting our focus to overall problem types (e.g., externalising) rather than more specific types of behaviour (e.g., aggression) that might vary with age, and we used T scores to enable cross-age and cross-instrument comparison.

Finally, it was a substantial limitation that the mechanisms through which behaviour changes occurred could not be elucidated, as we did not include observational measures of parent behaviour; nor do we have follow-up data to indicate whether changes were

maintained. Future studies could include a naturalistic observation to determine if parents were behaving differently as a result of the intervention. A follow-up assessment of behaviour some time after completion of the intervention would also allow testing of whether behaviour change was related to change in parent emotional wellbeing, caregiving representations, reflective functioning, or child attachment indices.

Conclusions and Clinical Implications

The current study provides new evidence that the Circle of Security attachment-based intensive 20-week group intervention is effective in improving child behavioural and emotional functioning with families of children aged 18–88 months. Children were found to have increased social and emotional resilience as well as reduced behavioural concerns. Although families had moderate to high levels of psychosocial and demographic risk, engagement and retention rates were high, and children starting with more severe difficulties showed most improvement. This study adds to the evidence base for the use of attachment-based interventions to address child behaviour problems.

Further replication of these findings with a control and/or comparison group and a longer term follow up is warranted to enable comparison with other interventions that take a different approach. Given the availability and wide usage of a shorter, 8-week version of Circle of Security (Cooper, Hoffman, & Powell, 2009), it would also be important to test the relative effectiveness of the 20- and 8-week versions in changing child behavioural and emotional functioning.

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Chapter 7   **Improved Parental Emotional Functioning After Circle of Security Parent–Child Relationship Intervention**

Author Contributions

Author Anna Huber contributed to the conceptualisation and design of the present study, oversaw data collection and undertook data analyses, wrote the first draft, and made subsequent revisions of the manuscript for publication. Author Catherine McMahon contributed to the study design, plans for data analyses, and writing, and contributed to revisions of the manuscript. Author Naomi Sweller advised on statistical analyses and contributed to revisions of the manuscript.

Note: Because this chapter was prepared for separate publication, citations and references are presented as though for a stand-alone work.

Abstract

This study examined the effectiveness of the attachment-based Circle of Security (COS) 20-week intervention in improving parent emotional functioning in 83 families referred to a community clinical service with concerns about their young children's behaviour. Parenting stress and parent psychological symptoms were assessed pre and post intervention, and mixed design repeated measures ANOVAs were used to assess change. Severity of presenting problems was considered as a moderator. Results showed clinically significant improvements in both aspects of parent emotional functioning, with changes accounted for by for those with more severe problems at the outset. Improvements for parents were associated with improved child behaviour and more positive parent representations of the child and of parenting capacity. Findings suggest the intensive COS intervention is effective in reducing parenting stress and psychological symptoms in parents of children from aged 1–7 years. Questions remain about the mechanisms of change and the direction of effects.

Introduction

Parenting is a transactional process, whereby the parent and child each contribute to, and are each affected by, the relationship between them (Ainsworth et al., 1978; Patterson & Fisher, 2002; Sameroff, 2004). Consequently, difficulties in parent child relationships are associated with higher levels of parenting stress (Crnic, Gaze, & Hoffman, 2005; Deater-Deckard, 2004) and/or parent mental health problems (Goodman & Brand, 2009; Seifer & Dickstein, 2000; Zahn-Waxler, Duggal, & Gruber, 2002), and all three have been associated with poorer outcomes for children.

Parenting stress (Abidin, 1992, 1995) is a negative mental response arising from a mismatch between the perceived demands of parenting and the resources available to meet them. Higher levels of parenting stress have been associated with poorer outcomes for the child and parent (Crnic & Low, 2002; Deater-Deckard, 2004), including more negative, inconsistent and/or less involved parenting (Calkins, Hungerford, & Dedmon, 2004; Crnic et al., 2005), feelings of lower parental self-efficacy (Deater-Deckard, 2004; George & Solomon, 2011), and maladaptive cognitions regarding the child or self in the caregiving relationship (Bugental & Johnson, 2000; Dubois-Comtois, Moss, Cyr, & Pascuzzo, 2013). Offspring of highly stressed parents may be vulnerable to insecure attachment in the context of other risks (Crnic & Low, 2002; Deater-Deckard, 2004; Dubois-Comtois et al., 2013) and have higher levels of behavioural and emotional problems (Barry, Dunlap, Cotton, Lochman, & Wells, 2009), which in turn may exacerbate parenting stress (Dubois-Comtois et al., 2013; Mackler, Shanahan, Calkins, Keane, & O'Brien, 2015).

While the construct of parenting stress is specific to negative affect related to the parenting role, parent mental health difficulties arising from a variety of concurrent and earlier life vulnerabilities can also impact negatively on parenting and the developing child (Dix & Meunier, 2009; Zahn-Waxler et al., 2002). Parent mental health difficulties include clinically diagnosable disorders (termed "mental illness" or "psychopathology"), or less severe "mental health problems", referring to an elevated level of mental health symptoms

that may not necessarily meet criteria for a diagnosis but still interfere with daily functioning (Huntsman, 2008). Becoming a parent can increase vulnerability to mental illness (Goodman & Brand, 2009; Slade, Cohen, Sadler, & Miller, 2009), particularly for those individuals who have experienced a difficult caretaking history and/or experience of loss or trauma in childhood (Dozier, Stovall-McClough, & Albus, 2008; Lara & Klein, 1999; Lyons-Ruth & Jacobvitz, 2008).

Children of parents with severe mental health disturbance are more likely to develop emotional and behavioural problems themselves (Breaux, Harvey, & Lugo-Candelas, 2014; Bureau, Easterbrooks, & Lyons-Ruth, 2009; Dubois-Comtois, et al., 2013; Hoffman, Crnic, & Baker, 2006) including lower self-esteem, assuming parentified caregiving roles (Kerig, 2005) and showing increased symptomatology in general (e.g., McLaughlin et al., 2014; Zahn-Waxler et al., 2002). There are several pathways through which parent psychopathology may impact on the child including genetic vulnerability, in utero environment effects, postnatal caretaking effects (e.g., through unresponsive, neglectful or harsh parenting) and the stressful ecological context of family life (Goodman & Brand, 2009; Goodman & Gotlib, 1999; Johnson, Cohen, Kasen, & Brook, 2006).

Because of the transactional influences of child functioning on parent functioning and vice versa, replacing a negative cycle in parent–child relationships with a more positive one is likely to benefit both parents and children, potentially resulting in symptom reduction for both (Gross, Shaw, Burwell, & Nagin, 2009; Mackler et al., 2015; Renk, 2011). There is some evidence that reductions in child behavioural and emotional problems are associated with lower parenting stress and mental health symptoms (Barlow et al., 2014; Lieberman, van Horn, & Ippen, 2005; McGilloway et al., 2014), so early intervention when problems and perceptions may be more malleable may contribute to a more positive developmental trajectory for the family (Sameroff & Fiese, 2000).

While there is a considerable body of research examining the efficacy of interventions targeting parent mental health problems, evidence suggests interventions that target only

parent psychological symptoms may not necessarily result in improved parent–child relationships and child behaviour (Forman et al., 2007; Murray, Cooper, & Hipwell, 2003) and that interventions need to also directly address the parent–child relationship. Fewer studies have considered whether interventions that aim to improve the parent–child relationship have positive effects on parenting stress and mental health (Shaw, Connell, Dishion, Wilson, & Gardner, 2009) though there is evidence that Parent–Child Interaction Therapy reduces parenting stress related to the child (e.g., Thomas et al., 2011). The primary objective of the current study was to examine whether the relationship-focused Circle of Security Intervention (COS) (Powell, Cooper, Hoffman, & Marvin, 2014) contributed to reduced parenting stress and parent mental health symptomatology in a clinical sample of families of children (aged 1 through 7 years) referred with child behavioural and emotional difficulties.

As clinical symptoms of a range of disorders are associated with lower mentalising capacity (Bouchard et al., 2008; Fonagy, Bateman, & Bateman, 2011; Fonagy, Gergely, & Target, 2008), and parenting stress is associated with negative parent cognitions about the child and self as parent (Bugental & Johnston, 2000; Jones & Prinz, 2005; McMahon & Meins, 2012), it seems plausible that attachment-based interventions that target parent mental representations, including by engaging and building reflective capacity, may indirectly reduce parental stress and/or parental mental health problems. However, empirical evidence is equivocal regarding the efficacy of attachment-based interventions in reducing parenting stress and parent mental health symptomatology in families referred with child and/or parent difficulties.

Some studies of attachment-based interventions have reported reductions in parenting stress (Cohen et al., 1999), depressive symptoms (Cohen et al., 1999; Weihrauch, Schafer, & Franz, 2014), general levels of psychological distress (Lieberman, Ippen, & van Horn, 2006; Weihrauch et al., 2014) and avoidance trauma symptoms (Lieberman et al., 2006; Lieberman et al., 2005) in parents. A study of the effectiveness of parent-infant psychotherapy found that,

despite improvements in toddler attachment security (Toth, Rogosch, Cicchetti, & Manly, 2006) and reflective functioning (Toth, Rogosch, & Cicchetti, 2008), there was no improvement in parent depression levels in an otherwise low-risk sample with a history of major depressive disorder (Toth et al., 2006, 2008).

Mental health outcomes (but not mental health problems per se) have also been examined in response to attachment-based interventions for samples of mothers with substance abuse problems (Suchman et al., 2010) and young (14–25-year-old) first-time mothers (Sadler et al., 2013). Suchman and colleagues reported modest improvements in some aspects of caregiving representations and behaviour, and in parent reflective functioning, but only modest improvements in depression and global indices of distress. Sadler and colleagues reported a range of positive outcomes for the intervention group children (e.g., more secure and fewer disorganised attachments at 12 months) and their mothers (e.g., less disrupted caregiving interactions at 4 months, delayed subsequent child bearing) suggesting parent–child relationships were on a better trajectory; however, there were no improvements in maternal mental health using measures of both global symptoms and depression. These limited impacts on mental health symptoms were attributed at least in part to the fact that baseline symptoms were only rated at a moderate level (Suchman et al., 2010) or within the normal range (Sadler et al., 2013), and/or that complex mental health difficulties in high-risk groups may not be adequately captured by parent-rated symptom checklists alone (Sadler et al., 2013).

The Current Study

Circle of Security 20-week attachment-based intervention is a group-delivered but individualised intervention that aims to improve child attachment outcomes by improving caregiver relational capacities (Powell et al., 2014), including through the supported presentation of selected video clips enabling parents to observe their child and themselves in the relationship. Specifically, the Circle of Security intervention aims to change caregiving behaviour and shift caregiving representations in a more positive direction, by helping parents

to understand child needs in the caregiving relationship, and the role of the caregiver and difficulties they are likely to encounter in meeting these needs. This goal is common to some other parent–child relationship focused interventions, e.g., child–parent psychotherapy (Lieberman et al., 2005) and infant–parent psychotherapy (Fraiberg et al., 1975). But, in addition to the focus on behaviour and representations, Circle of Security also explicitly aims to activate, and increase, the caregiver's capacity for reflective functioning.

Previous research with the current sample has shown improvements after the Circle of Security intervention in behavioural indices of parent–child attachment (medium and large effect sizes on security and disorganisation respectively), more positive caregiving representations (large effect size), and improved reflective functioning (medium effect size)(Huber, McMahon & Sweller, 2015b). A subsequent study with the same sample found improved child behavioural and emotional adjustment after the Circle of Security intervention, including parent-reported increases in child social and emotional protective factors, parent-reported reductions in child behavioural concerns and internalising symptoms, and parent- and teacher-reported decreases in child externalising symptoms (all with medium effect sizes) (Huber, McMahon, & Sweller, 2015a). The current study aimed to extend these findings by examining whether participating in the Circle of Security 20-week intervention was also associated with reduced parenting stress and psychological symptomatology. Secondly, given equivocal findings for attachment-based interventions to date, we examined whether any changes in parenting stress or psychopathology were moderated by severity level of these problems at baseline, as our previous research with this sample indicated that more impaired families showed greater benefit in relation to attachment and child behaviour outcomes (Huber et al., 2015a, 2015b). We hypothesised that, compared to baseline levels, after the Circle of Security 20-week intervention: (a) parenting stress would decrease, (b) parent symptomatology would decrease, and (c) parents with more impaired baseline functioning (borderline/clinical range parenting stress or symptomatology) would show greater improvement. Finally, given that the intervention does not directly target parenting

stress or symptomatology, we also explored whether any improvements in these indices of parent wellbeing were associated with improvements in parent representations, reflective functioning, or child behaviour.

Method

Participants

Eighty-three parent–child dyads who completed the Circle of Security intensive 20-week intervention at a metropolitan community-based infant and early childhood mental health service in Australia were included in the study. These dyads were among 95 parent–child dyads offered the intervention after being referred to the service with concerns about child behavioural and emotional problems and/or the parent–child relationship. Ninety of the 95 indicated their capacity and willingness to commit to a 20-week group program, and 83/90 (92% of those who began) completed the intervention. Without research consent, no data were available on those who did not commence (n = 5/95, 5% of potential recruits). The 83 parents who completed the intervention were not different on demographic or psychosocial risk indicators from the seven non-completers, but uneven group sizes meant *t* tests were not appropriate. Child age was not different between completers and non-completers using a non-parametric test (*p* = .86, Mann-Whitney U test). See also Figure 7.1.

Excluded from study *n* = 12
- Did not commence = 5
- Attended 1 session = 2
- Dropped out part way = 5

Assessed for COS *n* = 95

Completed COS and included in the study:
***n* = 83**

"Older children groups"
Dyads—child over 4.5 years
***n* = 27 (33%)**

"Younger children groups"
Dyads—child 11 mths – 4 years
***n* = 56 (67%)**

COSIs available for coding
***n* = 22/27 (81%)**
- Post COSI incomplete = 4
- No post assessment = 1

SCL-90_R checklists available for scoring
Pre n = 78 (94%)
Post n = 58 (70%)
Both pre and post n = 55 (66%)

PSI checklists available for scoring
Pre n = 74 (89%)
Post n = 64 (77%)
Both pre and post n = 58 (70%)

CBCL checklists available for scoring
Pre n = 75 (90%)
Post n = 62 (75%)
Both pre and post n = 57 (69%)

COSIs available for coding
***n* = 51/56 (93%)**
- No consent = 2
- Post COSI incomplete = 1
- Recording failure pre COSI = 2

Note: Percentages are of the total sample n = 83 unless otherwise specified

Figure 7.1 *Flow diagram showing study participation*

At pre-intervention assessment, children's ages ranged from 13 to 88 months (mean = 47.8 months, SD = 17.48 months); the majority (n = 52, 63%) were 48 months or less. Forty-eight children were boys (58%) and 35 were girls (42%). Most 'parents'[6] were biological parents (n = 73, 88%), five were foster/adoptive parents (6%), and five were kinship carers (6%). Most parents were female (n = 75, 90%) and had post-secondary school education (n = 50, 60%), and 32 (39%) were single parents. Twenty families (24%) identified as coming from culturally and linguistically diverse backgrounds (CALD) and three families (4%) identified as Indigenous Australians (Aboriginal or Torres Strait Islander).

Clinic records of the 83 families in the study (based on client and/or health professional report at intake) indicated family experience of the following psychosocial risks during the child's life: parent mental health problems in 74 families (89%), parental divorce or separation in 35 (42%), family violence in 27 (33%) and substance abuse by a family member in 21 (25%). Substantiated abuse or neglect was indicated for 16 (19%) of the children.

Procedures

The study used a pre-post sequential cohort design to examine change after the Circle of Security intervention (COS) and was carried out in collaboration with the clinical service. When families completed the COS, the clinical service sought consent to archive their clinical data to include in any future research project to evaluate the effectiveness of the intervention. All families who completed the intervention (n = 83) agreed for some or all of their data to be retained for this purpose, and more limited pre-intervention consent was available for the seven families who did not complete (see Figure 7.1). Subsequently permission was obtained from the clinical service to use the archived data from consenting families, followed by approval from relevant institutional ethics committees. Therefore the study only had access to archived clinical data from the past Circle of Security participants. As clinical priorities and

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[6] All caregivers in a parenting role with the child are referred to as 'parents'.

program resource constraints meant control or comparison groups were not recruited at the time, this also meant a control or comparison condition could not be included in the study.

Pre and post assessment. Within 6 weeks before intervention commencement, COS parent–child participants attended the clinic to be videotaped participating in a separation-reunion procedure (children aged $\leq$ 4 years) or an attachment-activating semi-structured interaction assessment (children > 4 years). Videotaped interviews with parents were conducted immediately after the interaction assessment. Parents also completed checklists about current parenting stress and psychological symptoms and provided demographic information. All measures were repeated within 2 weeks of treatment completion for most families; where family circumstances intervened, a small number of families finished the post-assessments within 6 weeks.

COS intervention protocol. The Circle of Security is a relationship-focused intervention that aims to enhance parent–child attachment security by improving caregiver relational capacities. The assessment and treatment protocol is described in detail in the facilitator's manual (Cooper, Hoffman, Marvin, & Powell, 2000), and by Powell and colleagues (2014). Therapists use the videotaped interaction and interview assessments to identify for each dyad a "linchpin struggle" (Powell et al., 2014, p. 83) or core area of difficulty in the relationship, in which the parent struggles to adequately support the child's exploration and/or emotional regulation needs, and/or with the adult role in the relationship.

The COS 20-week treatment was provided by two trained therapists who co-facilitated weekly groups lasting 90 minutes with four to six parents. Children did not attend sessions, and families were able to use on-site childcare if required. The program comprised: (a) three psycho-education sessions of theory and research about attachment-caregiving relationships and psychological defenses, (b) for each parent, three individualised psychotherapeutic / tape review sessions (using video clips taken from the initial and a later interaction assessment in week 15) addressing their linchpin struggle and capacity with this, and (c) a final session reflecting on the experience and celebrating changes in the relationship.

Parents were assigned to groups based on child age. Parents of older children (> 4.5 years, n = 27) attended "older COS groups", and parents of younger children (n = 56) attended "younger COS groups" (see Figure 7.1). A total of 18 groups completed the intervention over a 6-year period. Over this time a total of seven group facilitators worked in pairs to run the groups. Completion was defined as follows: parent had (a) attended the three theory sessions, (b) attended all three of their individual tape reviews, and (c) missed no more than four sessions in total—i.e. completed 16/20 or 80% of sessions.

Facilitators ensured treatment fidelity by: (a) using the manualised COS protocol (Cooper et al., 2000), and (b) participating together in weekly supervision with one of the COS program originators (Glen Cooper) or a trained clinician accredited as a COS supervisor (first author). Supervision included support with treatment planning and tape review preparation, and reflective consultation (including viewing session videotapes) about the treatment sessions.

Measures

Dependent Variables

Parenting stress. The Parenting Stress Index 3rd Edition (PSI, long form: Abidin, 1995) is a widely used and validated self-report measure of three major sources of stress in the parenting role with a particular child: (a) child characteristics and the parent's appraisal of them (child domain), (b) parental characteristics and family context variables that can compromise parenting (parent domain), and (c) stressful circumstances beyond the parent's control (life stress). A total stress score is derived from the sum of child and parent domain scores. Life stress is separately indexed from 19 questions at the end of the questionnaire. Child domain subscales include distractibility/hyperactivity, adaptability, demandingness, mood, acceptability, and (child) reinforces parent. Parent domain subscales include competence, isolation, attachment, health, role restriction, depression, and spouse. Items are rated on a five-point Likert Scale (*Strongly Agree*, *Agree*, *Not sure*, *Disagree*, and *Strongly*

Disagree). A few items are rated *Yes*/*No* according to whether they are present or absent.

Reliability coefficients were excellent for the child domain, parent domain, and total stress

scale (.91, .93 and .95 respectively), indicating a high degree of internal consistency. Test-

retest reliability has also been reported to be high, ranging from .63 for the child domain to

.91 for the parent domain, and .96 for the total stress score (Abidin, 1995), making it suitable

as a pre-post measure of intervention effectiveness. Total stress score was used for hypothesis

testing. The manual provides centile cut-offs indicating high stress ($\geq$85th centile).

Parental mental health symptomatology. Parents also completed the 90-item

Symptom Checklist—90 Revised (SCL-90-R: Derogatis, 1994). Each item is rated on a five-

point Likert Scale (*Not at all*, *A little bit*, *Moderately*, *Quite a bit*, *and Extremely*). Nine

dimension scores are derived for somatisation, obsessive-compulsive, interpersonal

sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism.

Three summary indices—global severity, positive symptom distress, and positive symptom

total—are also derived. Adequate psychometric properties (internal consistency, test-retest

reliability, and validity) have been demonstrated (Derogatis, 1994). The Global Severity

Index (GSI) is considered the single best indicator of current distress, as it combines

information about both number of symptoms and intensity of distress. In the current study,

reliability coefficients for SCL subscales were mostly good, ranging from .68 to .91, and

excellent for the GSI (Cronbach's alpha = .97) which was used as the index of parental

symptomatology. T scores were derived using norms for non-patient adult males or females

as appropriate, with scores of 60 or more indicating borderline or clinical range symptoms.

Potential Moderators

Parents' caregiving representations and reflective functioning. The Circle of

Security Interview (COSI), fully described in Powell et al. (2014), is a narrative interview

conducted immediately after the parent–child interaction assessment. This study used an

earlier version of the COSI (Cooper, Hoffman, Marvin, & Powell, 1999) comprising six

questions about the parent's perspective on the interaction assessment, 13 questions about

their relationship with the child (adapted from the Parent Development Interview—Revised, PDI-R: Slade, Aber, Bresgi, Berger, & Kaplan, 2004), and nine questions about their experiences with their own caregiver while growing up (adapted from the Adult Attachment Interview, AAI: George, Kaplan, & Main, 1984). Interviews were videotaped, de-identified, and transcribed. In total, 146 interview transcripts for n = 73 dyads (all ages) were coded by two independent teams of coders for parental reflective functioning (PRF) and parents' representations of their child and themselves in the caregiving role. All coders were blind to the intervention, to the pre and post status of the interviewees, and to the results from the alternative approach to coding, but were aware of child age in months and gender. Parent reflective functioning (PRF: Slade, 2005) scores were obtained by using the PDI-R adaptation of the Reflective Functioning Scale (Fonagy, Target, Steele, & Steele, 1998; Slade, Bernbach, Grienenberger, Levy, & Locker, 2005). Three certified coders from the Anna Freud Centre, London, scored interview transcripts and triple-coded two reliability sets (for n = 25, 17%). Inter-rater reliability was high using consistency model, single rater (set 1: 12 interviews: ICC = .83; and set 2: 13 interviews: ICC = .88). PRF scores (ranging from –1 to +9) were assigned to 16 'demand questions' (designed to elicit reflective functioning) in the COSI and also to the overall interview. The overall score is used as the measure of PRF.

Parents' caregiving representations were coded using a coding scale developed by the first author (see Huber et al., 2015b for more details). This scale indexes parents' thoughts and feelings about their child and self in the parent–child relationship. Scores on eight subscales are obtained: (a) two affect dimensions (Hostility, Joy); and (b) six dimensions capturing perceptions of self as a caregiver to the child, with scale names reflecting the Circle of Security descriptors of parenting styles (Bigger/Stronger, Kind, Mean, Weak, Gone, Role Reversed). A trained coder assigned a continuous score for each dimension from the whole interview transcript, ranging from 1 (no indicators) to 5 (definite and/or frequent indicators). A second coder (first author) independently coded a subset (n = 30, 20%), and intra-class correlations were high (.72 to .92). A composite score (mean of eight dimensions, negative

dimensions reverse coded) is derived for "positive representations". Higher scores signify more positive representations, with a score of 3 indicating at least some positive perceptions.

Child behaviour. This was measured using compatible versions of the Child Behavior Checklist (Achenbach & Rescorla, 2000, 2006): CBCL 1.5–5 years (100 items) and CBCL 6–18 years (113 items). Problem behaviours are rated by parents on a three-point scale: 0 = *not true*, 1 = *somewhat or sometimes true*, and 2 = *very true or often true*, with regard to the child's behaviour "now or within the past 2 months". An earlier study with the same sample (Huber et al., 2015a) found change in parent-reported child internalising and externalising symptoms of almost identical magnitude ($Fs(1,55) = 9.05$ and 8.95 respectively; $ps = .004$; effect sizes $\eta_p^2 = .14$). Therefore, to minimise multiple tests and reduce the risk of Type 1 error, Total Problem scores were derived for both CBCL versions (incorporating a range of internalising, externalising and other problem symptoms), and these were converted to T scores to assess change (as this enabled comparison across age groups and genders).

Other potential moderators. The following demographic, psychosocial and environmental variables were considered as potential moderators of post-intervention change in parenting stress and parent symptomatology: child age, child gender, parent education, single-parent status, histories of parent mental health problems, divorce/separation, family violence, family substance abuse, and child abuse/neglect, as well as concurrent life stress (using baseline life stress scale score on the PSI). Severity of parenting stress and severity of symptomatology prior to the intervention were also considered as potential moderators using a dichotomous high/low severity variable for parenting stress (Total Stress $\geq$ 258, 85th percentile) and parent psychological symptoms (GSI T score $\geq$ 60, 85th percentile).

Data Analysis

Bivariate correlations and independent *t* tests were conducted to explore relationships among the dependent variables, main outcome variables and potential moderator variables. All continuous variables were normally distributed. Ns vary in the analyses as not all parents returned pre- and/or post-PSI and SCL 90-R checklists. Of the potential moderators, PRF and

positive representations scores were available for 73 dyads, and pre and post child behaviour ratings were available for 57 dyads (see Figure 7.1). Apart from marginally higher baseline life stress in parents who did not return the post-PSI checklist ($p = .052$), there were no other pre-intervention differences in parenting stress, parent psychological symptoms, child behaviour, and demographics between families who returned both PSI and SCL 90-R checklists and those who did not.

Hypotheses were tested using mixed design repeated measures analyses of variance (RM-ANOVAs) for *total parenting stress* (raw scores, PSI) and *parent psychological symptoms* (GSI T-scores, SCL-90R). Based on results of preliminary analyses, specified moderators for each outcome variable were examined. Where interaction effects (proposed moderator × time) were not significant, these variables were removed to avoid reducing N, and the analysis repeated and results reported were based on these final analyses. Significant interactions (probability values $p \leq .05$) were followed up with pairwise comparisons, using the dichotomous moderator variables. Bonferroni's corrections were applied for these comparisons, to control the family-wise error rate at $\alpha = .05$.

As some questionnaire data were missing (see Figure 7.1), a mixed model analysis (i.e., multi-level model with repeats nested within participants) using maximum likelihood estimation was conducted for both dependent variables. Results from the mixed model were essentially the same as for the ANOVAs (i.e., similar F and p values); therefore only results from the RM-ANOVAs are reported.

Results

Preliminary Analyses

Table 7.1 presents baseline correlations, means and standard deviations for all study variables; significant correlations are highlighted.

Table 7.1   *Means, standard deviations and correlations among dependent variables and co-variables at baseline*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Mean	SD
1. Child Age in mths n = 83	1																		47.8	17.59
2. Parent Education⁷ n = 83	-.002	1																	2.89	1.15
3. Single Parent n = 83	.19	-.14	1																	
4. Parent History MH Problems n = 83	-.02	-.04	.04	1																
5. Parent Divorced/Separated n = 83	.16	-.07	.88**	-.02	1															
6. Family Violence History n = 83	.03	-.33**	.45**	-.09	.40**	1														
7. Family Substance Abuse History n = 83	-.07	-.26*	.51*	-.06	.46**	.54**	1													
8. Substantiated Child Abuse/Neglect n = 83	-.07	-.07	.30**	-.32**	.33**	.52**	.49**	1												
9. **RF** n = 73	-.23	**.42****	-.21	-.08	-.23	-.27*	-.19	.02	1										4.01	1.48
10. **Overall Reps** n = 73	.23	.04	.30**	-.17	.19	.06	.01	.15	.13	1									3.08	0.69
11. Child Behaviour Problems n = 75	.20	-.14	.05	-.03	.03	.26*	.14	-.04	-.12	-.24	1								64.09	9.96
12. Parenting Stress–Child n = 74	.12	-.13	-.17	.06	-.14	.08	-.07	-.12	-.03	–.43**	.75**	1							130.53	23.23
13. Parenting Stress–Parent n = 74	.04	-.04	-.28*	.30**	-.22	-.01	-.15	-.10	-.18	–.56**	.35**	.47**	1						156.05	29.59
14. **Parenting Stress Total** n = 74	.09	-.08	-.28*	.22	-.21	.03	-.17	-.12	-.14	–.58**	.62**	.82**	.89*	1					286.58	45.39
15. Life Stress n = 74	.01	-.02	.31**	.22	.28*	.07	.08	-.10	-.01	-.03	.18	-.01	.16	.10	1				11.51	9.72
16. **Psychological Symptoms** (SCL-90R GSI) n = 78	-.03	-.05	-.05	.34**	-.05	-.04	-.11	-.16	-.24*	-.25*	.29*	.30*	.62**	.56**	.37*	1			60.57	10.06
17. Borderline/clinical range Parent Psychological Symptoms n = 78	.15	-.07	.10	.28*	.05	-.02	-.09	-.15	-.17	-.13	.32**	.29*	.47**	.45**	.32*	.83**	1			
18. Borderline/clinical range Child Behaviour Problems n =	.13	.02	-.09	-.04	-.03	.10	-.01	-.10	.03	-.28*	.80**	.62**	.39**	.54**	.22	.31**	.26*	1		

ᵃSpearman's Rho for non-parametric variables (2, 3, 4, 5, 6, 7, 8, 17, 18). All scored 1 = Yes, 0 = No, except education.
Parent education (highest) level: 1 = Year 10 high school or less; 2 = Up to end year 12 high school; 3 = Post-secondary qualification, e.g. trade certificate;
4 = Undergraduate degree or diploma; 5 = Postgraduate degree or diploma
* correlation is significant at the 0.05 level (2-tailed)
** correlation is significant at the 0.01 level (2-tailed)

There were no significant correlations among the dependent variables (parenting stress, symptomatology) and child age and parent education; however, more educated parents showed higher PRF. Single-parent status was associated with lower parenting stress (parent domain and total) but greater life stress. There were no associations between psychosocial risk variables and dependent variables with one exception: those with a history of parent mental health problems were more likely to report higher current symptoms, borderline/clinical range symptoms, and higher parenting stress (parent domain only). Parent divorce or separation was associated with increased life stress, but not parenting stress. Expected correlations between child and parent domain subscales within the parenting stress index were observed. Parenting stress (child, parent, total) was lower for parents with more positive representations of the caregiving relationship and higher for those reporting more child behaviour problems. Parent symptomatology was negatively correlated with reflective functioning and parent representations, and positively correlated with parenting stress, life stress, and child behaviour problems. Independent t-tests showed no differences by child gender in dependent variables (parenting stress—child and parent domains—and total stress, or parent symptomatology) ($ps > .11$), or in life stress ($p = .12$).

As there were no differences by child age in mean PSI scores, the same cut-off scores (mean scores ≥ 258) were used across child age groups to indicate severe parenting stress. Prior to intervention 52 of 74 parents (70%) scored above this cut-off on the total stress score and 50 of 78 parents (64%) had T scores in the borderline/clinical range for symptomatology (≥ 60). A chi square test revealed 74% of parents with severe stress levels also had borderline/clinical symptomatology.

Intervention Effects: Change in Parent Emotional Functioning

Change in parenting stress. In the first analysis, the RM-ANOVA testing for change in parenting stress included baseline parenting stress group (high/low) as a moderator. Based on preliminary analyses, single-parent status was included as a covariate, as was life stress, to

delineate changes in parenting stress from life stress in general. Results indicated a main effect for time, $F(1,54) = 6.94$, $p = .011$, $\eta_p^2 = .11$, with a medium effect size. A significant interaction effect was found for time × baseline severity, $F(1,54) = 6.30$, $p = .015$, $\eta_p^2 = .14$, with a medium effect size. Tests of simple effects (pairwise comparisons) indicated that parents with stress levels in the clinical range prior to the intervention (n = 40) showed a significant decrease in parenting stress (T1 $M = 308.97$, $SE = 4.28$; T2 $M = 277.49$, $SE = 5.30$; $p = .000$) whereas the decrease for parents with stress in the normal range (n = 18) was not significant (T1 $M = 234.07$, $SE = 6.51$; T2 $M = 228.46$, $SE = 8.07$; $p = .437$) (See Figure 7.2). A McNemar test of scores on available pre- and post-PSI checklists (n = 58) showed 40 parents (69%) were classified in the clinical range of parenting stress prior to intervention, and 30 parents (52%) after—a significant difference, $p = .002$. Post hoc paired t tests were conducted with the high-stress group (n = 40) to see if all domains and subscales of parenting stress changed. Table 7.2 shows that, for this group, parenting stress decreased significantly on all subscales, with effect sizes ranging from small to large (Cohen, 1988), while life stress did not change. Changes in parent and child domains and total stress were highly significant (ps < .001), with medium to large (parent domain) and large (child domain and total) effect sizes. Levels of defensive responding remained on average not significant, indicating that the measure was likely to be a valid reflection of parenting stress.
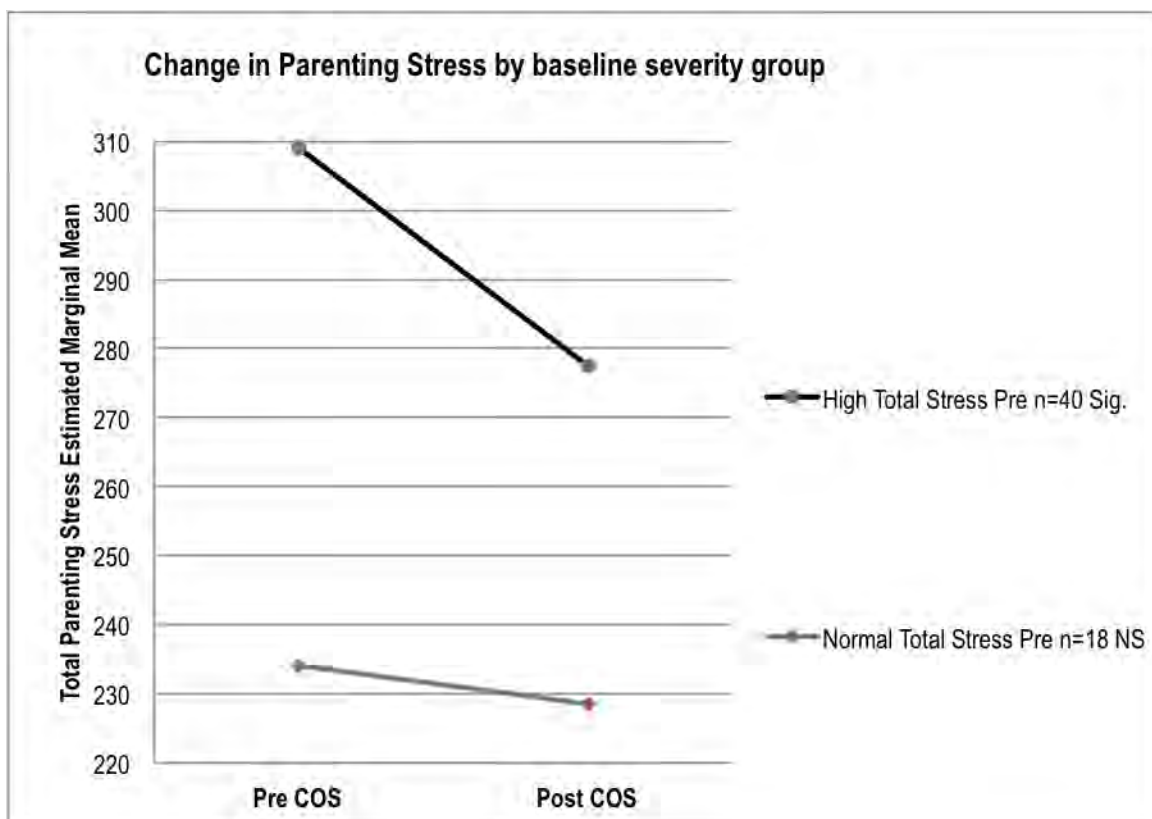
Figure 7.2 *Change in total parenting stress after COS by baseline parenting stress severity group*

Table 7.2 Change after COS in parenting stress (PSI) mean* scores (baseline high Total Stress group) and parent psychological symptoms (SCL 90-R) mean* T scores (baseline borderline/clinical range group)

	Cut-off score at 85th percentile	T1	T2	t (df)	Sig. (2-tailed)@ 95% CI	Effect size: Cohen's d
PSI Subscales* n=40						
Child Domain:	**116**	**139.38 (20.35)**	**124.40 (21.38)**	**5.12 (39)**	**.000**	**.81**
Distractibility/hyperactivity	29	30.23 (6.65)	27.43 (6.84)	3.75 (39)	.001	.59
Adaptability	30	36.38 (6.62)	32.33 (6.35)	4.56 (39)	.000	.72
Reinforces Parent	12	12.80 (3.46)	11.43 (3.00)	2.37 (39)	.023	.38
Demandingness	22	27.83 (5.16)	24.43 (5.60)	3.97 (39)	.000	.63
Mood	12	15.50 (3.23)	13.90 (3.76)	3.06 (39)	.004	.48
Acceptability	16	16.75 (3.56)	14.90 (4.01)	3.61 (39)	.001	.57
Parent Domain:	**148**	**170.03 (18.62)**	**155.00 (24.21)**	**4.43 (39)**	**.000**	**.70**
Competence	35	40.50 (6.33)	36.53 (7.45)	4.07 (39)	.000	.64
Isolation	17	17.58 (3.96)	15.70 (4.88)	2.81 (39)	.008	.45
Attachment	16	15.48 (3.16)	14.13 (3.28)	3.09 (39)	.004	.49
Health	16	16.93 (3.22)	15.78 (3.19)	2.42 (39)	.020	.38
Role Restriction	24	24.90 (4.49)	22.85 (5.50)	2.26 (39)	.029	.38
Depression	26	30.65 (5.53)	27.50 (5.68)	3.62 (39)	.001	.57
Spouse	22	24.00 (4.54)	22.53 (5.30)	2.02 (39)	.050	.32
Total Stress	**258**	**309.40 (28.65)**	**279.40 (38.58)**	**5.66 (39)**	**.000**	**.90**
Life Stress	14	11.40 (9.88)	10.73 (8.59)	0.50 (39)	.620	.08
Defensive Responding	<=24	50.95 (6.75)	45.90 (9.45)	3.60 (39)	.001	.57
SCL 90 R Subscales* n=33						
Somatisation	60	60.58 (7.43)	55.73 (10.00)	3.33 (32)	.002	.58
Obsessive Compulsive	60	64.55 (6.98)	59.91 (10.61)	2.70 (32)	.012	.47
Interpersonal Sensitivity	60	64.18 (9.01)	58.88 (9.89)	2.89 (32)	.007	.50
Depression	60	65.58 (6.89)	59.39 (11.11)	3.33 (32)	.002	.58
Anxiety	60	59.91 (9.09)	53.70 (10.54)	4.70 (32)	.000	.82
Hostility	60	64.27 (8.83)	57.09 (10.52)	4.14 (32)	.000	.72
Phobic Anxiety	60	53.21 (9.20)	50.15 (9.62)	2.06 (32)	.048	.36
Paranoid Ideation	60	60.30 (9.11)	54.42 (8.34)	3.69 (32)	.001	.64
Psychoticism	60	61.61 (8.64)	55.55 (10.28)	3.80 (32)	.001	.66
Global Severity Index (GSI)	**60**	**65.52 (4.47)**	**57.91 (10.22)**	**4.78 (32)**	**.000**	**.83**

*Means are unadjusted. Cohen's d effect sizes: 0.2 to 0.3 ="small", around 0.5 ="medium" and 0.8 to infinity = "large" (Cohen, 1988)

Changes in parental psychological symptoms. An RM-ANOVA was conducted examining change in parent psychological symptoms including two potential moderators, baseline severity group (SCL GSI score >= T score 60) and baseline life stress. There was a significant main effect for time, $F(1,53) = 12.08$, $p = .001$, $\eta_p^2 = .19$, with a medium effect size (Bakeman, 2005), indicating that, after the intervention, parents on average showed reduced levels of psychological symptoms. A significant interaction effect was also found for time × baseline symptom severity group, $F(1,53) = 11.25$, $p = .001$, $\eta_p^2 = .18$. Pairwise comparisons showed that parents with borderline/clinical range symptoms at baseline (n = 33) showed a significant reduction in mean GSI T scores (T1 $M = 65.52$ $SE = 1.09$, T2 $M = 57.91$, $SE = 1.70$; $p = .000$), while parents with normal range symptoms (n = 22) did not change (T1 $M = 50.82$ $SE = 1.34$, T2 $M = 50.68$, $SE = 2.08$; $p = .937$) (see Figure 7.3). A McNemar analysis showed fewer parents scoring in the clinical range after the intervention: of 55 parents for whom pre and post measures were available, 33 (60%) scored in the clinical range prior to, and 20 (36%) after, the intervention ($p = .003$). Post hoc paired t tests conducted for the more severe group indicated that scores on all subscales decreased significantly and all subscale scores moved from the borderline clinical to the normal range, with effect sizes ranging from medium to large (Cohen, 1988), with the exception of Phobic Anxiety, where scores remained in the normal range and the effect size of the change was small (see Table 7.2).
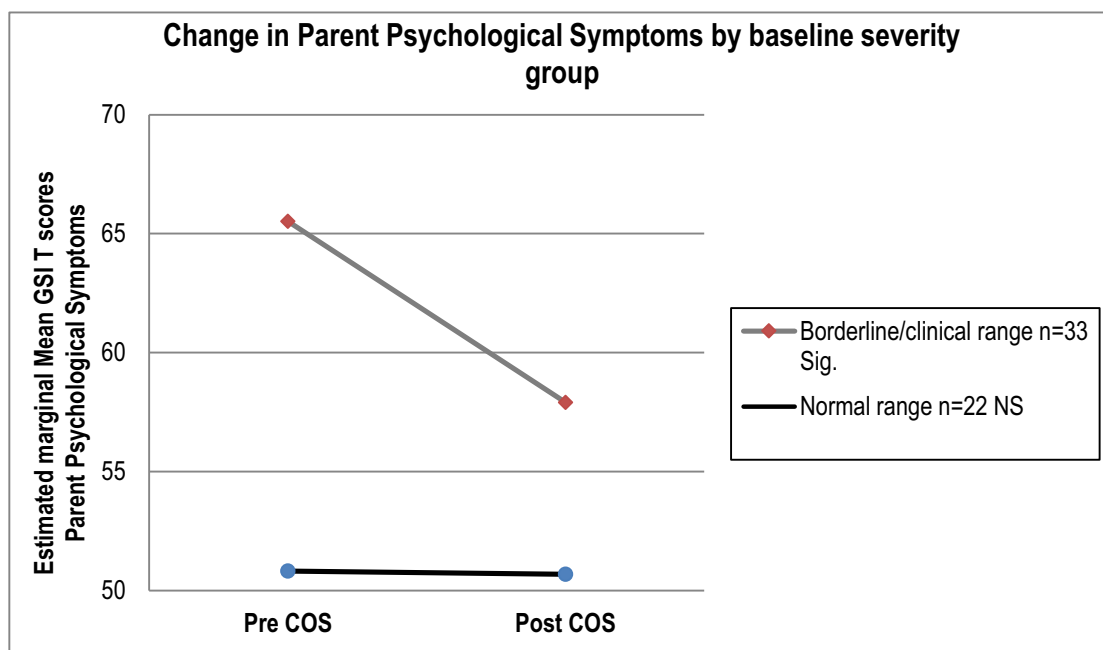
Figure 7.3 *Change in parent psychological symptoms after COS by baseline psychological symptom severity group*

Exploratory Analyses

Because measures of parent representations and reflective functioning, and measures of parenting stress and symptomatology were obtained at the same time, the study design did not allow us to test if changes found in the parent relational capacities targeted by the intervention and/or previously reported change in child behaviour (Huber et al., 2015b) predicted changes in parenting stress and psychopathology. However, correlational analyses explored whether changes in these targeted variables and child behaviour were related to changes in parent emotional functioning not directly targeted by the intervention. Five change variables were computed by subtracting Time 1 scores from Time 2 scores for each measure. Results indicated that reduction in parenting stress was associated with improvement in parent representations (*r (52)* = −.49, *p* = .000) and reductions in child behaviour problems (*r (51)* = .59, *p* = .000). Similarly reductions in psychological symptoms were associated with reductions in parenting stress (*r (51)* = .34, *p*=.014) and marginally associated with reductions in child behaviour problems (*r (49)* = .27, *p*=.060). Change in parent reflective functioning was not related to change in any of the other variables.

Discussion

The current study sought to investigate if parents of children referred with child behavioural and emotional difficulties showed improvements in emotional functioning after the 20-week Circle of Security intervention. Results showed that after intervention parents showed significant reductions in both parenting stress and parent symptomatology, with effect sizes ranging from medium to large. There was a large overlap between the two wellbeing measures. Those with most impairment at presentation accounted for the improvements seen. Moreover these changes were clinically significant, with significantly fewer parents scoring in the clinical range for parenting stress and symptomatology after intervention. Reductions in parenting stress were associated with improvements in parent representations, reductions in psychological symptoms, and reductions in child behaviour problems. Reductions in

psychological symptoms were also marginally associated with reductions in child behaviour

problems. None of these changes was associated with improvements in parental reflective

functioning.

Changes in Parenting Stress

These findings indicate that an attachment-based intervention targeting the parent–

child relationship is effective in reducing parenting stress in those with high levels of stress to

begin with. Parenting stress per se is not targeted by Circle of Security, and life stress did not

change, so it is plausible that decreases in parenting stress may have resulted at least in part

from the improved perceptions about the child and self as parent, which are directly targeted.

Negative appraisals and attributions associated with the child can contribute to parents feeling

stressed (Abidin, 1995; Bugental & Johnston, 2000; Deater-Deckard, 2004). The COS

intervention encourages parents to reframe children's "demands", or other behaviours that

require a parent response, as indicators of "needs". The intention is to shift parent perceptions

that the child impacts on them in a negative way (e.g., viewing the child as manipulative,

attention seeking, demanding, making their life difficult) by assisting them to view child

behaviour as signalling legitimate developmental needs (for autonomy, protection, comfort).

Thinking differently about the child and their needs may result in parents feeling less fear of,

and less hostility towards, the child, and experiencing more pleasure in the relationship—

changes previously reported with this sample (Huber et al., 2015b). Although parents'

attributions were not specifically measured in the current study, findings that stress scores

reduced across all child domain subscales support the proposition that parents have come to

view their child in a more positive way.

Parenting stress is also associated with feelings of low self-efficacy and competence in

the parenting role (George & Solomon, 2011; Jones & Prinz, 2005; Webster-Stratton &

Herman, 2008;) and a mismatch between the perceived demands of the situation and the

parent's perceived resources (Abidin, 1995; Deater-Deckard, 2004). The intervention also

directly targets parents' perceptions that they are capable of parenting the child. Selected

video clips are viewed to highlight parent strengths through examples of the parent responding effectively to the child's legitimate needs. When a parent develops a better understanding of what the child needs from them in the caregiving relationship and also becomes more aware of their own resources to respond adequately, the resulting shifts in perception could alleviate stress in the parenting role. The substantial reductions in parenting stress on the competence subscale suggest that parents felt significantly more capable of parenting their child after the intervention, while reductions on the depression subscale suggest that parents may have felt more able to self-activate, take responsibility and act with the necessary assertiveness and authority to effectively parent their child (Abidin, 1995).

Reduced child behaviour problems (Huber et al., 2015a), may also have contributed to reduced parenting stress, as our exploratory findings indicated associations between these changes. There are robust links between child behavioural and emotional functioning and parent emotional functioning because of the transactional nature of the parent–child relationship (e.g., Mackler et al., 2015; Patterson & Fisher, 2002; Renk, 2011). However without a cross-lagged longitudinal study, it is not possible to conclusively identify the direction of effect for changes in parent and child functioning.

Changes in Parent Psychological Symptoms

The finding that parent psychological symptoms reduced after an attachment-based intervention is in line with the findings of Cohen et al. (1999), Lieberman and colleagues (2006), and Weihrauch et al. (2014) but in contrast to those of Sadler et al. (2013) and Toth et al. (2006, 2008), who found no change. Results in the current study suggest that parents who are supported to think and feel more positively about the child and feel more capable in their role as parents not only experience more pleasure in the parent–child relationship but also experience a more general increase in psychological wellbeing.

Clinically, treating parent mental health symptoms often takes precedence over addressing difficulties in the parent–child relationship, sometimes because adults presenting with mental health symptoms may not always be routinely asked about their parenting status

(Reupert, Maybery, & Kowalenko, 2012) and also because parents rarely present with parent–child relationship problems before children are symptomatic (Zahn-Waxler et al., 2002). While it is acknowledged that parents needed to be functioning at a level that enabled them to attend the Circle of Security group over a 6-month period, and no parent was suffering from acute psychosis, the majority (89%) reported prior histories of mental health problems, and a majority of respondents (50/78, 64% of those for whom measures were available) reported symptoms in the clinical range at the beginning of treatment. Clinic records indicated that a few parents reported receiving concurrent treatment for depression; however, this was not the norm, so the overall improvement in psychopathology could not be fully explained by other mental health treatments.

Findings suggest not only that prior treatment of parent mental health symptoms may not be a prerequisite to working on the parent–child relationship but also that the process and outcomes of undertaking this work may itself have positive effects on parent mental health. However, the severity and clinical significance of these mental health problems is not known, due to reliance on parent report. Whether parents would have derived additional benefit from prior or concurrent treatment of any mental illness also remains a question for future research. As with changes in parenting stress, changes in parental symptomatology were also marginally related to changes in child behaviour problems, consistent with a transactional view of parent and child functioning (Bagner, Pettit, Lewinsohn, Selley, & Jaccard, 2013; Dubois-Comtois et al., 2013), and supporting Stern's proposal (1995), echoed by Sameroff (2004), that treatment of difficulties in parent–child relationships approached through one "port of entry" can precipitate change in other parts of the system.

The Circle of Security protocol explicitly targets caregiver emotion regulation capacities, and parents are invited to become aware of, and actively change, maladaptive/negative patterns of thinking, feeling and responding in the parent–child relationship (Powell et al., 2014). Parents are also asked to notice defensive styles of responding, and to identify and employ their own under-used capacities to respond

effectively, in spite of temporary distress or difficulty. This process of observing and then choosing to change unhelpful patterns of thinking, feeling and responding is common to many psychotherapeutic approaches, including cognitive-behavioural- and mentalisation-based approaches to treating mental illness (e.g., Allen, Fonagy, & Bateman, 2008; Hawton, Salkovskis, Kirk, & Clark, 1995). Because participants often generalise this process to other relationships it may improve their self-efficacy, self-activation and mood more generally, contributing to improved overall mental health.

Research also suggests that feeling ineffective and stressed as a parent is associated with elevated levels of mental illness in parents (Deater-Deckard, 2004; George & Solomon, 2011), so reducing stress specific to the parenting role may have contributed to the alleviation of more general distress. Greater self-efficacy and satisfaction as a parent, seen in lower post-intervention levels of parenting stress, has been found to be modestly associated with better parent psychological functioning including reduced depression, anxiety and other symptoms (for a review see Jones & Prinz, 2005).

Finally, aspects of Circle of Security group participation and the relationship with the therapist may have contributed to reductions in symptomatology. In line with Bowlby's therapeutic principles, the role of therapists and group in providing both a secure base and a safe haven (Bowlby, 1988) may have increased parents' feelings of social support, connection and acceptance, known to be protective with respect to depressive symptoms (e.g., Coyne & Downey, 1991). Our results also suggest that those with severe levels of distress (the majority of our sample) had more room to improve, and this may explain why we found clinically meaningful changes, in contrast to other studies where few participants started with clinical range symptoms (e.g., Suchman et al., 2010; Sadler et al., 2013).

Role of Parent Reflective Functioning

Given the associations reported by other researchers between mental illness and compromised mentalising capacity (Bouchard et al., 2008; Fonagy et al., 2011) and our finding that prior to intervention higher symptomatology was associated with lower reflective

functioning, improvements in reflective functioning might have been expected to relate to changes in wellbeing. Null findings in this study are consistent with previous reports that increasing parents' reflective functioning is not necessarily associated with improvements in their mental health (Toth et al., 2008). One possible explanation is that the reflective functioning captured in the Circle of Security Interview (COSI) measure is specific to the parent–child relationship and does not capture more complex mentalisation deficits that have been found to predict axis 1 disorders (Bouchard et al., 2008). Exploratory analyses in the current study did suggest, however, that improving parent representations may play a key role in promoting healthier parent emotional functioning. Because of study design limitations, it was not possible to examine whether engaging and/or increasing reflective functioning enabled "representational flexibility" (George & Solomon, 2008, pp. 840–841) to improve caregiver perceptions and contribute to healthier parental emotional functioning.

Study Strengths and Limitations

The current study adds to a small but growing evidence base for the effectiveness of the Circle of Security intensive (20-week) intervention in particular, and attachment based interventions in general, to address difficulties in parent–child relationships. While previous studies have reported benefits after the Circle of Security 20-week intervention for children, with increases in attachment security and reductions in disorganisation and behavioural and emotional problems (Hoffman et al., 2006; Huber et al., 2015a, 2015b), this study is the first to identify benefits to parent emotional functioning not only specific to their role as parents but also in relation to their general mental health. The inclusion of two different measures of parent functioning allowed us to track changes specific to the parent role as well as those in more general psychological wellbeing. The study also makes a valuable contribution to translational research by evaluating the effectiveness of the clinical application of this intervention with moderate- to high-risk families with young children in a broad age range from 1 through 7 years.

Several limitations need to be acknowledged. Because we used archived clinical data and the study commenced after the data had all been collected, it was not possible to include a control or comparison group. Without a control or comparison group it is not possible to be certain that the positive intervention effects result from the intervention rather than from the passage of time, an empathic relationship developed with a therapist, or other contextual influences. As no previously published studies of the Circle of Security Intervention have included a control or comparison group, this therefore remains an important priority for future research in order to be sure that changes seen can be attributed to the intervention. The use of archived clinical data also meant we did not have complete data on every dyad, as clinical priorities meant missing checklists were not always chased up with parents, limiting the sample size for some analyses. We also did not include a clinical assessment of parents' mental health, but relied on parents' own ratings, which may not always have been accurate, depending on parents' defensiveness and/or desire to minimise or exaggerate their symptoms. These limitations, and the characteristics of our moderate- to high-risk clinical sample, limit the generalisability of findings to different populations.

Our study design also precluded the possibility of identifying mechanisms of change or the direction of effects between related outcomes. Parenting behaviour was not observed. A future cross-lagged longitudinal study, including validated observations of parent behaviour is recommended to enable these questions to be examined.

Conclusions

Findings in the current study suggest that Circle of Security 20-week intensive intervention is effective in reducing parenting stress and psychological symptoms in parents of children up the age of 7 years referred for child behaviour difficulties and that these improvements are accounted for by those parents who are most distressed prior to intervention. Improvements in parenting stress and symptomatology were associated with improvements in child behaviour and more positive parent representations of the child and of

their parenting capacity. Questions remain about the mechanisms of change and the direction

of effects.

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Chapter 8   General Discussion

Overview of Study and Findings

Study Design and Context

Despite a strong grounding in attachment theory and enthusiastic uptake by child and family health professionals in a range of settings, there is very limited evidence for the efficacy and effectiveness of the Circle of Security (COS) intervention. The current study makes a significant contribution, reporting improvements in indices of attachment, child behaviour and parent representations, mentalising and psychological wellbeing in response to the intensive 20-week COS intervention in a referred sample of families with young children.

The context in which the study was undertaken also defined its scope. While the study may partly have addressed efficacy questions (i.e., whether the intervention changes what it aims to change), driving questions were also about whether the intervention worked in the real world (effectiveness). Also, unlike the previous study with a cohort of socio-economically disadvantaged parents of preschoolers participating in the Head Start program in the United States (Hoffman et al., 2006), the current study evaluated the use of the intervention with a referred cohort of families. Most referrals related to child behaviour problems; however, intake data indicated many parents had mental health problems and a range of other family risks. Therefore it was important not only to consider if the intervention achieved its primary objective of improving the attachment relationship (prevention), but also to examine the clinical impacts of the intervention on parent and child symptoms (i.e., its capacity to serve as an early intervention when difficulties are already present). While the intervention does not primarily aim to treat parent or child symptoms (and other treatments may still be needed for some parents and/or children), theorised mechanisms of change suggested that some symptom improvements may occur alongside the relational changes.

The study context also made it possible to evaluate the applicability of the intervention across a wider age range than in the earlier study (1 through 7 years). Two other factors that both defined and limited study scope related to the constraints of the clinical context. A control condition was not set up as the service took the view that the time- and resource-

intensive collection of assessments could not be justified for clients who were not being offered treatment. Finally, as archived data only included assessments taken at baseline and immediately after intervention, analyses were limited to change over this time period.

Major Findings

In summary, study findings suggest that the intervention is effective for children in increasing behavioural indices of secure attachment and reducing indices of disorganisation, with effects most marked in those who were insecure and/or disorganised at baseline. Findings also suggest that parents improved their relational capacities, after intervention showing more optimal internal working models (more positive caregiving representations) and increased reflective functioning, in line with intervention aims. Clinically significant reductions in children's behavioural and emotional problems and parents' psychological symptoms and parenting stress were also found. Overall, the intervention had a larger effect on families who commenced with higher levels of child and/or parent difficulty. Though attachment findings only apply to families of children aged 1–4 years, in relation to most other outcomes the intervention was found to be effective for dyads with children across the age range (1 through 7 years), extending the previous research findings related to 1–4-year-old children (Hoffman et al., 2006). Finally the intervention was equally effective regardless of child gender or parent education level, with the exception that parental reflective functioning increased more after intervention for less educated parents.

Together with previous research (Hoffman et al., 2006), the current findings suggest that the Circle of Security 20-week intensive intervention is effective in reducing risk factors for poor developmental outcomes (child attachment insecurity and disorganisation; non-optimal parent representations) as well as current symptoms of disturbance in young children (behavioural and emotional problems). They also suggest that, while not directly targeted by the intervention, parents' emotional wellbeing can be improved using this approach. Parenting stress and mental health problems also constitute risks for poor child outcomes because of their negative impacts on parent–child relationships and parenting behaviour (Deater-

Deckard, 2004; Zahn-Waxler et al., 2002). The current findings therefore suggest that using the 20-week Circle of Security intervention to target improvements in the parent–child relationship may serve as both prevention and early intervention to improve developmental outcomes for children when risk and/or disturbance are present for children and/or parents.

Novel Contributions

   Extending research on Circle of Security and attachment-based interventions. To date, not only has there been no evidence relating to the use of Circle of Security in particular but also there has been limited evidence for the use of attachment-based interventions in general in the treatment of established child behavioural and emotional symptoms (e.g., Lieberman et al., 2005, 2006; Moss et al., 2011). While these research groups both found reduced behavioural and emotional problems (based on parent report) in 3–5-year-olds after different attachment-based interventions, the current research contributes new evidence that attachment-based interventions may be effective (albeit indirectly) across a broader age range. In the current study, childcare workers and teachers corroborated parent reports of reduced child externalising symptoms, but more research, including observational measures of child behaviour, is needed.

   Measuring intervention effects on parent wellbeing is also a novel contribution. There has also been very little published research examining changes in parental wellbeing in response to attachment-based interventions, and findings have been mixed, with one sample showing improvement (Lieberman et al., 2005, 2006) and others showing no significant or clinically meaningful change (Barlow et al., 2015; Letourneau et al., 2015; Sadler et al., 2013; Suchman et al., 2010; Toth et al., 2008). As transactional theories of parent–child relationships (e.g., Sameroff, 2004; Stern-Bruschweiler & Stern, 1989), might lead us to expect, exploratory analyses in the current study indicated that improvements in parents' caregiving representations were associated with reductions in their parenting stress, and also with reductions in perceived child behaviour problems. Decreases in parents' psychological

symptoms were also associated with reductions in their parenting stress and with perceived improvements in child behavior.

While there may be some overlap of constructs across the parent representation and wellbeing measures used in the current study that may partly account for these associations, the measure of parent representations (discussed in more detail below) is less likely than self-report measures to be influenced by socially desirable responding. Representations were coded from an open-ended narrative interview, which is opaque to parents in terms of which responses may be more desirable and how the interview may later be interpreted for clinical or research purposes. However, the research design did not enable conclusions to be drawn about underlying mechanisms of change, and whether, or to what extent, changes in one outcome caused or resulted from changes in another.

New measure of caregiving representations. Another novel contribution of the current research was the development of an approach to measurement of caregiving representations based on parent responses to the Circle of Security Interview. This measure indexes parents' thoughts and feelings about the child, their relationship with the child, and themselves as a caregiver. While attachment theory has emphasised the importance of parent representations as a key component of the parent–child attachment relationship (e.g., Bowlby, 1988/2005; Main, Kaplan, & Cassidy, 1985; van IJzendoorn, 1995; Verhage et al., 2015), much of the empirical evidence indicating robust associations with child attachment security has been based on parents' attachment representations regarding the relationship with their own childhood caregivers. Several attachment theorists and researchers, noting the importance of mental representations of the current caregiving relationship and of the child, have developed a range of coding approaches for use with different parent interviews (e.g., Bretherton et al., 1989; George & Solomon, 2011; Zeanah et al., 1994). While there is evidence that caregiving representations are related to a range relational outcomes (e.g., Vreeswijk et al., 2012), to date there has been no approach to coding caregiving representations for use with the Circle of Security Interview.

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One of the main aims of the Circle of Security intervention is to alleviate relationship dysfunction by increasing the relational capacities of parents. The intervention explicitly addresses the parent's role in relationship to the child, challenges problematic internal working models of caregiving and presents a model for how caregivers might best meet child emotional needs. Parents are encouraged to see their provision of protection, support for exploration and emotional support as a response to the child's legitimate developmental needs. A large focus of the intervention is on shifting parent perceptions of the child and how dependent the child is on them, appreciating the difference between child needs and their own needs, and confronting parents with the necessity of their taking responsibility for the relationship. During the intervention, parents are shown video evidence that they are capable of providing their child with required support and helped to understand their areas of difficulty. The intervention works to engage parental empathy with the goal of gradually reducing negative (and increasing positive) representations of the child, of their relationship with the child and of their capacity as a caregiver.

Therefore, drawing on and combining some aspects of other approaches, the measure developed for use with the Circle of Security Interview in the current study included indices of a parent's affective and cognitive perceptions of the child, of their relationship with the child, and of themselves as caregivers to the child. Unlike other approaches, however, the representations coding system developed here was specifically focused on the *content* of the representations (i.e., *what* perception does the parent have of child, self and relationship?— e.g., my child is annoying; I am unable to control my child; my child and I are friends). *Process* aspects of the interviews (i.e., *how* does the parent process perceptions—e.g., do they link mental states of self and child with behaviour?) were separately assessed when reflective functioning was coded.

The measure was also designed to yield scores on different dimensions of caregiving representations directly targeted by the intervention. Both positive and negative aspects of caregiver perceptions of their relationship with the child were coded and the measure proved

to be sensitive to changes, with moderate to large effect sizes, across all dimensions assessed. The significant changes in the proportion of parents who were frightened of and/or frightening to their children, also suggest that this aspect of the coding approach was sensitive to meaningful and important changes in parent representations.

The measure of caregiving representations also has potential clinical utility. As it is scored directly from transcripts of the Circle of Security Interview (COSI) that all parents undertake at the beginning of the intervention, it could be used by clinicians to identify which aspects of caregiving representations are problematic, and to what extent, and therefore assist in the clinical formulation of the dyadic difficulties, as well as provide a useful index of change after intervention, if the interview is repeated. For research purposes, the measure requires the transcription of the interview, which may not always be clinically feasible because of the time or costs involved, but coding from interview notes or the videotaped recording may be an alternative possibility in the real world of clinical practice.

Building evidence from practice: clinical and research work in tandem. Another novel contribution of this research was the way in which it was integrated within a clinical program. While there are some leading examples of university-led research and clinical integration, notably with the Tulane Infant Team (Larrieu & Zeanah, 2004), it is challenging for a research project to be service driven, as it was in this case. However, the clinical practice–research connection brought mutual benefits. It made it possible to achieve the dual goals of rigorously assessing participant outcomes (serving clinical and service evaluation needs) and building evidence for an under-researched intervention approach. The high engagement and research participation rate may have been due in large part to the trust participants had in the clinical service and clinicians and an altruistic desire to help other families (Huber, 2008).

While the process of collecting clinical data for both clinical and research purposes was at times fraught with challenges when clinical and research priorities were in conflict— e.g., when the need for client care meant some data were not obtained from some clients—this

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research study suggests that clinicians and researchers working in tandem can be effective partners in building evidence-based practice and practice-based evidence. The work of both is potentially strengthened by such alliances, through the exchange of skills, understandings and perspectives on client assessment and treatment. This has the potential to lead to better decision making at clinical program and organisational level, better funding decisions to support effective interventions with families, more clinically relevant research, and more effective translation of research into effective practice (Larrieu & Zeanah, 2004; Sadler, Newlin, Johnson-Spruill, & Jenkins, 2012; Toth, Manly, & Nilsen, 2008; Wells, 1999; Ziv, 2005).

Unexpected and Equivocal Findings

Categorical and dimensional measures of attachment. The Strange Situation paradigm is fundamental to the 20-week COS intervention, as selected excerpts of the videotaped interaction are used to assist parents to recognise and/or address their capacities and struggles supporting child comfort seeking and/or exploration. This videotaped assessment was also used in the current study to measure changes in attachment (for those aged between 1 and 4 years) using both attachment classifications and dimensional scores for security and disorganisation, based on attachment salient behaviours at reunion. While we found no significant changes in the proportion of those classified secure or disorganised (unlike Hoffman and colleagues, 2006), we did find significant changes after the intervention when dimensional indices of attachment security and disorganisation were considered, in line with the direction of the earlier findings. Overall, children's levels of security increased, and levels of disorganisation decreased (in those showing any indices of disorganisation prior to intervention). These findings indicate that insecure or disorganised children in the study changed the way they behaved towards their caregivers when their attachment systems were activated (for example expressing negative emotions directly to a parent instead of hiding them, or approaching and seeking comfort from the parent when distressed instead of showing apprehension and confusion).

Findings highlight the value of using measures capable of detecting more fine-grained changes in attachment relationships and provide validation for these dimensional scales, recently developed by Moss et al. (2015). While basic scales for security and avoidance were included in the Marvin & Cassidy system, their enhancement and extension to cover the four attachment dimensions, plus controlling punitive and controlling caregiving, provide a useful adjunct to the widely used categorical approaches to attachment classification (Ainsworth et al., 1978; Cassidy et al., 1992). Findings also suggest dimensional measures may be sensitive to more subtle changes in response to intervention, especially if assessments are done soon after the intervention when relationship changes may still be evolving. A follow-up re-assessment at 3 or 6 months using both categorical and dimensional measures may have added to our knowledge of the process of change in attachment after intervention (Ziv, 2005).

High rates of attachment security at baseline. One possible reason for the null findings regarding change in attachment classification after the intervention may have been the high rate of children classified secure at program entry (56%) in the current study compared with Hoffman and colleagues (2006), where only 20% were classified secure prior to intervention. This high rate of security was unexpected because insecure attachments are theorised to be more prevalent in families with higher demographic and psychosocial risks (both moderate to high in this referred sample), and in children with clinically elevated levels of child behavioural or emotional symptoms or problems in the parent–child relationship. While being secure does not necessarily preclude a child from having behavioural difficulties, theory and research suggest that infant, preschool and/or early school age attachment security are not generally associated with high levels of child behavioural and emotional problems (Moss, Cyr, & Dubois-Comtois, 2004; Sroufe et al., 2005). While there is ample evidence for an association between early insecure and/or disorganised attachment and later behavior problems (when insecurity/disorganisation has been stable and especially when behaviour measures are based on observation) (e.g., Fearon et al., 2010), relations between secure

attachment and child behaviour problems are not well understood and there is a surprisingly limited evidence base.

It is also possible that some children were misclassified secure, because of some anomalies in the way the Strange Situation Procedures were conducted or recorded in the clinical setting. While the benefits of the clinical/research nexus have been discussed, tensions between clinical and research agendas have also been acknowledged and there may have been some limitations in the way clinicians implemented various assessments. Strange Situation Procedures were conducted by clinical staff and, although all were trained in running the protocol by Circle of Security supervisors, clinical considerations may have been more salient in situations when children were distressed. Indeed, coders commented (Ellen Moss, personal communication, June 8, 2015) that they thought the strangers were at times "too kind", offering too much emotional support to the children when distressed, possibly calming some children so effectively that their attachment systems were no longer activated when their parents returned. As attachment is coded largely from reunion behaviour on the assumption that the child's attachment system is most intensely activated immediately before reunion, some children who were insecure may have appeared secure because they were no longer distressed at reunion and possibly therefore able to reconnect with their parents in ways expected of a secure child. Most of the children whose tapes were coded in this research were aged between 2 and 4 years. The coders also suggested that the presence of a stranger is quite reassuring to children in this age group and that a modified procedure without strangers may be preferable for children older than 2 years. Indeed, this protocol (with no stranger) was used by Moss and colleagues in validating the preschool attachment coding system, as this was more likely to ensure the child's attachment system was activated till the parent returned (Moss, Bureau, Cyr, Mongeau, & St Laurent, 2004).

Recording problems may also have contributed to difficulties in seeing or understanding child and parent behaviour in some cases. While camera operators were instructed to keep the camera focused on the child, and to get both parent and child in the

frame if possible, occasional recording difficulties such poor or no sound, poor-quality images or bad camera angles may have made some tapes difficult to code because critical behaviours were not fully seen, or sounds and words misunderstood.

Attachment coders were from a well-regarded and experienced team at the University of Quebec at Montreal, and they achieved a high level of inter-rater reliability, so coding error alone is unlikely to be implicated. However, cultural differences between Australia and North America (and the fact that the coders typically worked with francophone Canadian samples) may have resulted in some anomalous classifications. Whatever the reasons, the high proportion of children classified secure at baseline presented a "ceiling effect" and limited the potential for increased numbers of children to be classified secure after intervention. As noted above, significant changes were found in dimensional measures of attachment behaviours.

Equivocal findings regarding parent reflective functioning. Findings in relation to parent reflective functioning were also somewhat puzzling. Despite results showing an overall increase after the intervention, many of the analyses exploring links between reflective functioning and other constructs yielded null findings. The importance of reflective functioning (or mentalising) in parents is viewed as fundamental in modern attachment theory and many attachment-based approaches consequently aim to enhance this capacity (Fonagy & Target, 2005; Slade, 2005, 2007; Steele & Steele, 2008). Therefore, in the interests of taking the field forward, all possible explanations will be considered for the range of findings seen, and future directions suggested to advance understanding of this construct and its applications.

At one level, findings supported study hypotheses that parents would increase their reflective functioning after the intervention, and that parents with less than definite reflective functioning would increase the most. These findings suggest that, in line with intervention aims, Circle of Security builds reflective functioning in parents who are limited in their capacity to think about mental states in their children and themselves. The current finding of increased reflective functioning in parents (measured on the COSI) is consistent with those of

Toth and colleagues (2008) (measured on the Adult Attachment Interview, AAI) using a different attachment-based, mentalisation-focused intervention with mothers of toddlers. While the current study showed that parents with lower levels of RF improved the most, there were only nine parents with the most severe deficits in mentalising at baseline in the current sample (RF ≤ 2), so findings regarding RF improvement in parents with severe RF deficits should be treated with caution.

The following section considers unexpected findings that raise a range of questions about the construct of reflective functioning, the theory behind it, how it is measured, and what it relates to.

Reflective functioning and child attachment security. Theory and extant research into parental reflective functioning suggests that a relationship between reflective functioning in parents and child attachment would be expected, though this relationship has previously been identified in largely low-risk samples (Fonagy et al., 1991; Slade, Grienenberger, et al., 2005; Steele & Steele, 2008). In our sample no association was found, either before or after the intervention. Indeed, there was no difference between insecure and secure dyads with respect to parental reflective functioning. Both of these findings are similar to those reported by Toth and colleagues (2008) in their study of an attachment-based intervention with depressed mothers and their toddlers. These researchers also found no association between maternal reflective functioning and child attachment security, either before or after that intervention. Like the Toth study, our results showed that parental reflective functioning and attachment security and disorganisation improved independently of each other, and that improvements in child attachment were therefore not attributable to increases in parental reflective functioning.

Associations between parent reflective functioning and attachment security have not always been examined or reported in other studies and, where provided, raise questions about whether these may be influenced by sample demographic and psychosocial risk profile. Stacks and colleagues (2014) studied mothers who had experienced maltreatment in childhood but were otherwise predominantly well educated and at low demographic risk

(compared to the current sample). They did find some differences in reflective functioning related to attachment classifications: mothers of secure children had higher reflective functioning than mothers of both avoidant and disorganised children, but there was no difference between mothers of secure and ambivalent children. In other studies of intervention programs focused on building mentalising capacity in parents from very high-risk samples—including substance-abusing mothers in residential programs (e.g., Suchman et al., 2010; Pajulo et al., 2012) and young mothers receiving a home visiting intervention (e.g., Sadler et al., 2013)—the relationships between parental reflective functioning and attachment security were either not examined or not reported. When the interventions studied specifically aim to promote parent reflective functioning because of its theorised impacts on child attachment security, challenging questions are raised about the theory when its most central claims are either not tested or not reported by proponents.

Reflective functioning and caregiving representations. Another somewhat unexpected finding was that parent reflective functioning (RF) scores were not related to their overall positive representations scores. This appears to contrast with the findings of Suchman, Decoste, Rosenberger, & McMahon (2012) in a high-risk sample that post-treatment RF scores (measured on the Parent Development Interview, PDI) were significantly associated with their caregiving representations scores ($r = .41$, $p < .05$) measured from the Working Model of the Child Interview. Parents' reflective functioning scores in the current study also did not differentiate between parents who made statements about being frightened of or frightening to their children and those who did not make such statements. At one level these null findings are consistent with the idea that reflective functioning is distinct from the representations construct (mental models) and refers to an overarching metacognitive process rather than just affective or cognitive content. However, it is puzzling that there were associations with positive but not negative representational dimensions.

This finding of no association with negative representational dimensions contrasts with what other authors have suggested about the possible involvement of low parental

reflective functioning in parents' negative representations (Slade, 2005; Suchman et al., 2010), raising questions about how improving mentalising actually influences parents' caregiving representations. Interestingly, though Suchman and colleagues (2012) reported improved parent reflective functioning in their study, there was no post-treatment change in overall caregiving representations. Together these findings suggest that much needs to be clarified about the relationship between parents' reflective functioning and caregiving representations, particularly because of the implications for setting intervention goals and identifying mechanisms of change in parent–child relationships.

Reflective functioning and demographic variables. Although not the primary focus of this study, we also found associations between reflective functioning scores and various demographic variables: less educated parents, parents of older children, and parents of boys showed lower reflective functioning.

Education. Though the original study from the London Parent-Child Project (Fonagy et al., 1991), reported no association between the forerunner of RF, "reflective self-function", and verbal intelligence, they did report a positive relationship between parents' RF and their level of education, which other researchers have repeatedly replicated across all risk groups (Bouchard et al., 2008; Fonagy, Target, et al., 1998; Ordway et al., 2014; Rosenblum et al., 2008; Steele & Steele, 2008; Stover & Kiselica, 2014; Vrieze, 2011). These findings strongly suggest that the higher order thinking involved in this metacognitive process and/or its articulation is likely to be more developed when parents have had higher levels of education.

Although Rosenblum and colleagues (2008) also identified that "parent reflectivity made independent contributions to several domains of parent verbal and interactive behavior, beyond the contribution made by parent education" (p. 374) and suggested that RF involves "an emotional and social psychological process" rather than just a purely intellectual one, it does appear that the construct of reflective functioning may be confounded with education, at least to some extent. Steele and Steele (2008) have suggested that the association might mean that "RF skills empower one to believe in one's potential for achieving (academically)"

(p. 142), i.e., that higher RF predisposes a person to engage and succeed in education. But a more plausible explanation for the association is that education engages people in a process of becoming aware of, reflecting on and understanding a range of perspectives, a central part of reflective functioning. Ordway and colleagues (2014) suggested that further research could examine the effect of continuing education on developing parental RF. Sadler and colleagues (2013) also suggested that, because scoring reflective functioning is so dependent on language, this may also account for lower scores in less educated parents (rather than reflecting poorer mentalisation per se) and that a different type of measure (e.g., embodied mentalisation) may be better suited to capturing mentalisation capacity in parents with lower education and language capacity. Taken together these findings indicate the need to develop better ways to assess mentalising processes in parents regardless of educational experience.

Child age. Associations between parent reflective functioning and child age have also been equivocal. Slade (2005) suggested that as a child gets older he or she becomes more understandable to the parent, and therefore proposed that reflective functioning would increase with child age. While there is some evidence to support this (Sadler et al., 2013; Suchman et al., 2010), other studies have not reported on associations with child age (Fonagy et al., 1991). In contrast to theory and previous findings, the current study found that parents of older children had *lower* reflective functioning prior to intervention than parents of younger children. Further research is needed to explain these somewhat counter-intuitive findings, including examining if the families of older children with behavioural problems differed in other ways from the families of younger children with such difficulties (apart from differences in education levels, which were not found).

Child gender: Similarly, the finding that parents of boys had lower reflective functioning may be related to other factors not examined in this study. For example, Jessee (2012) found that relationships between reflective functioning and child gender depended on parental gender, parent dyadic behavior and co-parenting quality.

Reflective functioning and child behaviour. One of the reasons interventionists have been encouraged to focus on improving parental reflective capacity is that it is considered crucial to support the development of child self-regulation (Fonagy et al., 2002; Fonagy & Target, 2002; Sharp & Fonagy, 2008; Steele & Steele, 2008). Therefore it might be expected that higher parental RF would be associated with fewer child behavioural and emotional problems, but null findings in this study did not support this conclusion, and other researchers have also reported equivocal findings in this regard (Steele & Steele, 2008). Parent- or teacher-reported behavioural problems were not significantly related to RF, and change in RF was not related to perceived changes in child behavioural or emotional problems.

One explanation for the lack of significant association between parental RF and child behaviour ratings is that caregiving representations (content) may be a more central influence than reflective functioning (process) in how parents see their child's behavior, as current exploratory findings suggest. The activation and/or building of reflective functioning may play a role in enabling the parent to revise their caregiving representations to become more positive, but we were unable to test this in our study because RF, representations, and child behavior were all measured at the same time.

Another possible explanation for the finding of no significant association between changes in parental RF and child behaviour ratings is that any such changes take time to unfold (as the child adapts over time to different experiences with a changed parent) and we had no follow-up assessment to capture this process. An increase in parental mentalising capacity may foster the development of improved child self-regulation over time, via better co-regulation of the child's fear (and stress response), affective arousal, and attention, and the development of an "interpersonal interpretive mechanism" in the attachment relationship (Fonagy & Target, 2002; Tronick, 2007). Evidence suggests that these regulation (or dysregulation) processes occur at the neurobiological level, and that caregiving experiences over time contribute to the development of regulation capacities (Fonagy & Target, 2002; Newman, Harris, & Allen, 2011; Schore, 2012). However, this explanation is purely

speculative, and studies with a later follow-up are required to confirm this process. It is also possible that associations between parent mentalising and child behavior may be mediated by changes in parent behavior and/or moderated by child age and early experiences with the caregiver, which were not able to be tested in this study. Future research that includes measures of parent caregiving quality is needed.

Limitations with respect to measurement of child behaviour in the current study can also be considered. Child self-regulation capacity may not be well captured by parent and teacher reports, and more direct observational measures of child self-regulation—e.g., by challenging the child with frustration tasks that require effortful control (for examples see Kochanska & Kim, 2012; Sroufe et al., 2005)—may have been informative.

The null findings with respect to relations between reflective functioning and all other study measures (with few exceptions) may have been in part due to low statistical power. A larger sample and/or higher response rates on parent measures would have allowed analysis of possible associations limited to subgroups (e.g., younger children, those with more severe problems). The work of Hazen and colleagues examining multiple pathways from infant attachment to social and emotional problems in childhood suggests a more sophisticated analysis may be required, including distinguishing between internalising and externalising behaviours in the child, and taking into account child organisation or disorganisation in infancy, child gender, and type of parent behaviour (e.g., intrusive or frightening versus emotionally withdrawn or helpless) (Hazen, Jacobvitz, Higgins, Allen, & Jin, 2011).

Reflective functioning and adult mental health. A final puzzle regarding parental reflective functioning raised by this study is that, contrary to what mentalisation theory suggests (Allen et al., 2008; Fonagy et al., 2011; Nolte, Guiney, Fonagy, Mayes, & Luyten, 2011; Slade, 2005), parents' emotional functioning was not consistently related to their level of reflective functioning. While parents with higher self-reported psychological distress symptoms prior to intervention had lower reflective functioning, in line with theory, symptoms were not related to RF after the intervention, and change in RF was not related to

self-reported change in parent symptoms. A recent review that examined the relationship between reflective functioning and adult psychopathology had quite mixed findings depending on psychopathology type, suggesting that RF may not be related to all mental health problems in the same way (Katznelson, 2014). It is also important to note that, while research has linked mentalisation deficits with complex trauma and personality disorders, especially borderline personality disorder (Fonagy et al., 2011), the current research did not measure complex trauma or personality disorders in parents. As we only examined associations between RF and parent self-reported symptoms globally, it may be that this masked possible positive and/or negative associations of different symptom clusters with RF level in our parent group or that, in populations with comorbidities, RF is not predictably associated with self-reported mental health symptom severity. Once again, a larger sample would be required to allow these more fine-grained subgroup analyses. RF was also not directly related to parenting stress or to change in parenting stress after the intervention, suggesting other mechanisms may have been more directly involved in the changes seen— e.g., changes in caregiving representations. Without a baseline clinical diagnosis and a clinical assessment of changed parental psychopathology some caution is needed in interpreting the current findings (relying on parent self-reported symptoms) of a limited association between parental psychopathology and RF.

While these measures serve as indicators of parents' overall subjective emotional functioning, they may not assess parental capacity to regulate their emotional state in emotionally charged interactions, so studies including observations or independent ratings of parent behaviour may add to our understanding of the relationship between parent mentalising processes and emotional wellbeing, including capacity to manage internal and external stressors.

Mentalising as an intervention target. Reflective functioning is a direct target of the Circle of Security intensive intervention; however, findings of the current study do not support the proposition that the increase in parental RF directly accounted for changes seen, at

least immediately post intervention, in the current series of studies. The relationship between parent mentalising, internal working models of caregiving relationships, and behaviour needs to be examined further, with larger sample sizes and with more sophisticated analyses than were possible in this study, in order to better understand if building or activating reflective capacity in parents is a necessary or sufficient intervention focus to improve developmental outcomes for children. Several researchers have suggested that a mentalising process (e.g., reflective functioning, mind-mindedness) is a component of, or forerunner to, parental sensitivity, and have raised questions about the extent to which it may influence subsequent parent behaviour with the child (Fonagy, Fearon, et al., 1998; Laranjo, Bernier, & Meins, 2008; Meins, 2013; Moran et al., 2006; Toth et al., 2008).

Measurement of reflective functioning and mentalising in parents. The current study adds to equivocal findings about change in reflective functioning in parents after attachment-based interventions where this has been targeted and measured. One important difference among studies has been the approach to measurement, with coding for reflective functioning being based on a range of different interviews, using either the RF scale developed by Fonagy and colleagues or an adaptation of this (Katznelson, 2014). Curiously, the same sample of parents involved in the Toth and colleagues study (2008), where reflective functioning improvements when RF was assessed using the AAI were reported, was found to show no change in reflective functioning when this was coded using a different interview (Parent Attachment Interview, PAI) (Vrieze, 2011). This suggests that findings regarding change in parent reflective functioning after intervention, including those in the current study, may be influenced by measurement approach. Slade (2005) noted that "for RF to be reliably scored, the interview must in some way or other demand reflection" (Slade 2005, p. 21), and many questions on the COSI were intentionally included (from the PDI and AAI) and adapted for this purpose (Powell et al., 2014). Experienced coders suggested that parents appeared to get higher ratings on the COSI than were common in other samples where RF had been coded from the PDI, perhaps because the COSI contained more demand questions (16 compared to

13 on the PDI) and more direct probes for parent mentalising (Michelle Sleed, personal communication, August 10, 2013; and see Appendix C for demand questions used on the COSI interview). This may have made it easier to distinguish between parents with higher and lower reflective capacity but also given parents more opportunities to show their reflective capacity than if another interview had been used to measure change. Current findings therefore add to questions about how best to capture and measure reflective functioning in parents, and whether different approaches are in fact measuring the same thing.

Further research is also needed to examine if there are alternative approaches to measuring mentalising in parents from a range of risk backgrounds, including measuring the activation of existing capacity in parents, as well as measuring changes in this capacity. It may also be the case that the reflective capacity captured by the RF scale from an "offline" interview is not as pivotal as the "online" activation of mentalising processes in the relationship with the child during real-time interaction, and that an "online" measure such as mind-mindedness (Meins, 2013) based on parent use of mental state language when interacting with the child might better capture the parent's propensity to communicate to the child their understanding of their mental states and motivations.

Strengths and Limitations

      Study strengths linked to intervention strengths. Study strengths include the use of gold-standard observational measures to assess attachment, the coding of both categorical indices and dimensional scores of child behaviour toward the parent when the attachment system was activated, and coding of RF and representations from interview transcripts rather than self-report. The study was the first to examine whether the intensive version of the Circle of Security intervention impacts on child behaviour and parent emotional functioning in a referred sample. Well-recognised validated measures were used, and a measure of child protective factors was also included, enabling perceived changes in positive capacities, not only problems, to be captured.

The very high research engagement and low attrition rates attest to the appeal of the intervention, but were also strengths of the study. Although the sample size was modest, most families who completed the intervention were able, and agreed, to participate in the research study, making the sample highly representative of all those who completed. For such an intensive intervention, requiring up to 25 weeks of involvement with a clinical program, and the use of video-based assessment and treatment in a group process, the engagement, attendance and completion rates were extremely high. Most parents offered the 20-week Circle of Security intervention agreed to embark on this process (90/95), and most of these—83/90 parents—attended at least 80% of sessions and completed the program. As the assessment and intervention process is a challenging one, it was perhaps surprising that few dropped out or failed to attend adequately. This was especially the case given that the participating families also had moderate to high levels of demographic and psychosocial risk factors and other researchers have reported low engagement and/or high drop-out rates from such families when other parenting interventions have been used (Koerting et al., 2013; Reyno & McGrath, 2006; Thomas & Zimmer-Gembeck, 2012).

There are several possible explanations. One is that the process of engagement requires facilitators to identify any ambivalence parents have and then try to dissuade them from joining the program if they are ambivalent. This process may exclude parents unlikely to engage at the outset, and help those parents who do "sign up" to clarify that they want things to change and that they are willing to go through a difficult process to achieve change. Clinic intake records also suggest that another possible reason for high rates of engagement and attendance may have been that many families had already tried other approaches to address difficulties with their children and that the Circle of Security intervention was their last option. A third possible explanation is that, because the program is based on an attachment relational framework requiring both facilitators and group to serve as a safe haven and secure base for participants, parents may have felt both challenged and supported in the process of making changes in their relationships with their children. Finally, the use of video may have

been initially perceived as potentially threatening, exposing, and frightening for some parents but may have become motivating because the material used was personally relevant, allowing parents to see, feel, and understand both positive and negative aspects of their relationship with the child that they may have been unaware of in the past (Steele et al., 2014). Video also gave access to the real experiences of other parents, from which parents could learn, feel empathy for, and build understanding of others' struggles as well as their own.

Whatever the reasons, the engagement of medium- to high-risk families appears to be one of the real strengths of this intervention and adds to the evidence for its effectiveness. While it is difficult to disaggregate the strengths of the intervention from the strengths of the research in this clinical setting, the study was highly representative of the sample of moderate- to high-risk families referred for intervention with child behavioural and emotional problems, making the results more generalisable to this population.

Study limitations. There are several important limitations that constrain interpretation of findings and identify future research imperatives. The most significant limitation is the lack of a control group, so that it was not possible to be certain that the changes seen in children and/or parents were due entirely to the effects of the intervention. While randomised controlled trials are desirable in establishing the efficacy of an intervention (internal validity), they are not always possible in real-world settings and, as McCall (2004) has argued, they may not necessarily evaluate what we most need to know about the real-world use of an intervention (external validity). One consideration is the difference between an efficacy study (testing the intervention against its aims) and an effectiveness study (testing whether intervention works in the real world). The current study has served both purposes to some extent. However, demonstrating effectiveness usually implies efficacy has already been established in a trial in which outcomes for the intervention group are compared with those of another group who do not receive the intervention. As a result, both efficacy and effectiveness findings remain qualified until they are confirmed in studies using appropriate control or comparison conditions (treatment as usual; other attachment based interventions e.g.,

Attachment and Biobehavioural Catch up-or Infant/Child–Parent Psychotherapy; other parenting interventions of comparable duration based on different theories of change, e.g., Parent–Child Interaction Therapy (Zisser & Eyberg, 2010); and the shorter version of the Circle of Security intervention (COS-P) (Cooper et al., 1999). A study design which includes a delayed onset control group may be possible in a real-world setting and also offer stronger tests of efficacy and effectiveness than were possible in the current studies.

Another major limitation of the study is that there were no measures of observed parent and child behaviour. This meant it was not possible to know if parents changed the way they responded to their children and, in particular, if they were more available, attuned, and responded more sensitively to children's attachment and exploration needs after the intervention, in line with attachment theory and the intervention goals. Without a measure of parent behaviour, it was also not possible to identify what led to change in both targeted (child attachment, parent RF and representations) and indirect outcomes (parenting stress and psychological symptoms, and child behavioural and emotional symptoms). Without an observational measure of child behaviour (apart from the attachment assessment) our understanding of what changed for children after the intervention is still limited, and it remains possible that it was mainly parent perceptions of child behaviour that changed. Some corroboration from teachers with regard to externalising problems suggests this was not the case; however, future research could also include multiple informants (e.g., the child's other parent, teachers). There was, however, a limited number of teacher reports on child behavioural and emotional functioning available, so further corroboration of these findings would be important.

All of the findings in the study are necessarily dependent on the measures used. It is possible that different findings would result from the use of other measures of child behavioural and emotional functioning and parent functioning. However, the measures chosen are widely used by other researchers, including those empirically testing attachment-based interventions (e.g. Lieberman et al., 2005, 2006; Moss et al., 2011), and the current research

was dependent on archived data already collected by the clinical program. In addition, the assessment of caregiving representations was deliberately content rather than process focused. It would be useful to compare the approach to assessing caregiving representations newly developed for this study with other well-researched approaches to identify how they may differently quantify change after interventions which address caregiving representations.

The study design with just two measurement points also meant it was not possible to test mechanisms of change. It was not possible, for example, to determine if changes in child attachment or parent reflective functioning *explained* improvements in child behaviour. Correlational analyses suggest this was not the case, but follow-up measures would have enabled cross-lagging of some measures so that prediction from a measure at one time point to a different measure at a later point would have been possible. This would also have enabled testing of whether the improvements observed at the end of treatment were sustained, decreased, or even increased over time.

The absence of a measure of therapist relational capacities and/or relational processes as the intervention proceeded also precludes consideration of the role of one of Bowlby's proposed mechanisms of psychotherapeutic change, the therapeutic relationship (e.g., Berlin et al., 2008; Woodhouse et al., 2015). Further, the therapeutic advantage of the group dynamics, irrespective of the "content" of the treatment approach, may be important and needs to be considered, perhaps through studies that compare group with individualised approaches.

As noted earlier, the study sample size was quite small; however, the effect sizes were moderate to large. While moderation was also tested on small cell sizes and therefore at risk of being underpowered, the medium to large effect sizes suggest the effects of dichotomous group differences found were still statistically and clinically meangful. It is also possible that some more subtle changes were not identified due to low statistical power, but most hypothesised changes were confirmed. More sophisticated analyses of subgroups were also not possible. While the wide age range meant the study was the first to examine positive

outcomes in children beyond preschool, there were relatively few older children and they were not assessed for attachment using the Strange Situation; and other approaches—such as Modified Strange Situation Procedure (Cassidy et al., 1992) or use of attachment activating story stems (e.g., Bretherton, Oppenheim, Emde, & the MacArthur Narrative Working Group, 2003)—that could have been used were not, meaning there is no attachment data for the older children. Another limitation of the current study is that each child age was not equally represented in the sample. In particular, the majority of the sample were between 2 and 6 years. Also, some checklist data were not equally available for all ages. Therefore, while average findings are robust, caution should be exercised in assuming these findings are equally strong for each age group.

Possible coding bias also needs to be acknowledged. Although every attempt was made to ensure that coders of child attachment and parent reflective functioning and representations were blind regarding whether they were coding a pre or a post measure, in some instances parent comments would have meant the coders knew the assessment was post-treatment.

Generalisability of findings is also limited by the heterogeneous characteristics of the sample studied, comprising families from a range of backgrounds and numbers of risk factors. Some parents were well educated but reported histories of mental health problems and sometimes family violence. Others had limited education, may have been single parents, reported mental health problems, but did not report exposure to family violence. Some children had been exposed to family violence, some had experienced substantiated abuse or neglect, and some had experienced family separation or divorce. Most had a parent who reported a history of mental health problems. Apart from the shared basis for referral (child behavioural or emotional problems and/or parent–child relationship difficulties), the most common psychosocial risk was a reported history of mental health problems in 89% of parents in the sample. Therefore the results of this study may best be used to inform clinical service providers about the potential effectiveness of the 20-week Circle of Security

intervention with families concerned about child behavioural and emotional problems and/or

the parent–child relationship with a moderate to high psychosocial risk profile (affecting

parents and/or children) from a range of demographic backgrounds, and, in particular, where

parents also report their own histories of mental health problems.

Clinical implications. Findings of the current research have several clinical

implications. Firstly, this research suggests that clinically meaningful changes can result for

young children and their parents from an intervention that targets the parent–child

relationship. This fits with transactional theories but also validates the use of this attachment-

based intervention to alleviate clinical symptoms.

Process of change: Therapist capacities, skills and support. In line with Bowlby's

stipulations, the Circle of Security intervention, like other mentalisation-focused attachment-

based interventions, requires clinicians to pay attention to the process and not just the delivery

of content in working with parents (Bowlby, 1988/2005; Grienenberger, 2007; Woodhouse et

al., 2015). Therapists aim to provide a therapeutic experience for parents by fostering the

development of a predictable supportive relationship and, with other group members, serving

as both a secure base and a safe haven, in order to support change towards more security in

the parent–child relationship through a parallel process. This has been captured in the phrase

"Do unto others as you would have others do unto others" adapted from the biblical teaching

of St Matthew (7:12) by Pawl & St John (1998, p. 7).

Because of this emphasis on the central relational role therapists play in the process of

change, the relational capacities and skills of the therapists are likely to make a major

contribution to Circle of Security treatment effectiveness. In the case of the only previously

published study of the 20-week intervention (Hoffman et al., 2006), the intervention was

delivered by the developers, Hoffman, Powell, and Cooper, all of whom were experienced

and highly skilled therapists. In the current study these therapists provided supervision to the

Australian therapists delivering the intervention. A review of psychotherapy research suggests

that a significant proportion of intervention effects are accounted for by the therapeutic

relationship (Norcross & Lambert, 2011). While the current study did not measure relationship processes between clients and therapists, Woodhouse and colleagues (2015) found that in a home-based, brief, individually delivered version of the Circle of Security intervention a positive relationship with an understanding, empathic therapist was crucial, in line with Bowlby's theory.

Successfully enabling this to occur also requires high standards of training, therapeutic skills, and support for therapists (including mentoring and reflective supervision, team and organisational support). In the current study, therapists were all experienced psychologists or social workers with established therapeutic skills, and they received a range of training (Circle of Security specific and more general infant mental health and attachment related training). The clinical team culture was structured around provision of the intervention, with colleagues providing understanding, mentoring and reflective supervision to support its delivery. The intervention was embedded in a "relationship-based" therapeutic environment, also requiring a level of organisational support to be successfully implemented and sustained (Blome, Bennett, & Page, 2010).

As the therapeutic relationship was not measured in the current study, questions remain about whether different outcomes would result if the intervention were delivered by less skilled therapists or those with less support. While recent research suggests that therapists' relational capacities may be independent contributors to client outcomes, regardless of training in delivering therapy (Anderson, Crowley, Himawan, Holmberg, & Uhlin, 2015), issues of training, therapist skill level and support have been repeatedly raised by originators of other prevention and early intervention approaches with parents of young children, who caution that inferior outcomes can result if those delivering the intervention are not optimally skilled or supported (Moss et al., 2011; Olds, Sadler, & Kitzman, 2007).

Group process and mode of intervention delivery. The Circle of Security 20-week intervention may also work partly because, although it is individualised, it is delivered in a group. The group psychotherapeutic process is theorised to add power to an intervention

(Yalom, 2005) partly because it decreases isolation and enables interactions between participants as well as between therapists and participants. There is some evidence that groups may work better for some parents; for example, Danino & Schechtman (2012) found that parenting stress in parents with child-related concerns (learning difficulties) only reduced for those receiving group rather than individual support. Informal feedback from parents in the current sample suggested that parents believed they would not have benefited as much from an individually delivered version of the Circle of Security intervention, as they learned from and felt supported by the shared video and experiences of other parents (Huber, 2008). These statements are consistent with findings from a meta-analysis of 40 studies of psychotherapeutic groups conducted by Burlingame and colleagues (2011), who reported that group cohesion or a positive bond predicted client improvement with moderate effect sizes. Without a measure of group processes, however, we were not able to test this contribution to the parent, child and relationship outcomes. This is an important area for future enquiry, especially as it may be more cost-effective to provide the intervention in group form.

On the other hand, in some cases the more in-depth individualised attention of an intervention delivered in either the home or the clinic may be beneficial for some parents. In addition, group provision is not feasible for many services, or suited to all family circumstances. Powell and colleagues (2014) suggest that the intensive Circle of Security intervention can be adapted for different forms of delivery (e.g., individual, couples, family, home based). While a brief, individually delivered four-session home-based version has been tested, improvements were only found for some parents and children (Cassidy et al., 2011). Protocols are required for individual, couple, and/or family adaptations of the Circle of Security intensive intervention, with empirical testing of their efficacy and their effectiveness in centre- or home-based delivery modes. Without this evidence it remains unclear if these adaptations are appropriate, effective, and cost-effective, and for whom, compared with the group-delivered version.

Clinician's stance and use of video. Unlike other clinical approaches, where the role of the therapist may be to take an expert stance, Circle of Security shares aspects of other mentalisation-focused approaches whereby the therapists take an inquiring and reflective stance and work with participants to discover their own capacities, rather than giving advice or telling them what to do. Participants are engaged in a process of relationship change, and the underpinning theory is clearly articulated to them. This process is supported through the guided use of videotapes of parent–child interactions, which facilitates the development of a therapeutic alliance and supports behavioural observation and reappraisal of previous perceptions in parents (Steele et al., 2014). Findings of the current study offer some support for the proposition by Steele and colleagues (2014) that the use of videotape can bring clinical power to attachment-based interventions with parents and may accelerate desired processes of change. As these researchers suggest, seeing and hearing oneself and one's child on video can be powerfully motivating and assist in developing a better understanding of relationships by affording access to behaviours, emotions and thoughts, some of which may have previously been outside their awareness. Video also opens up opportunities for detailed analysis of the sequence of interactions, helping parents understand the dynamics and transactional nature of their relationship with their child. Parent empathy can be strongly activated, strong feelings can arise related to past and present attachment relationships, and representations and defensive processes can be stimulated, accessed, and reflected on, making them more amenable to change (Steele et al., 2014).

Whether the intervention would be equally effective without the supported use of individualised video is a question for future research, in relation to both Circle of Security and other video-based interventions (Fukkink, 2008; Steele et al., 2014) As there is now a widely disseminated shorter eight-session version of Circle of Security which provides theory and some opportunity for reflection but does not involve the use of individualised video, answering this question is important.

Expectations of parents. Finally, the engagement and retention of parents in a very challenging clinical process over a 6-month period suggests that clinicians should not underestimate the willingness of parents to undertake difficult psychotherapeutic work if their reason for doing it is compelling enough. Parents in the current study were motivated to undertake the intervention because they wanted their relationships with their children to change, to reduce both child symptoms and their own parenting challenges. The intervention protocol includes a very thorough initial screening process designed to activate and test willingness to commit to the intervention, which perhaps explains in part the very low attrition rates. Through the intervention process, overall changes seen in caregiving representations suggest that parents came to realise that these goals were not only possible but also necessary if their child's development was to proceed on a better track. This suggests that giving parents a strong competency message ("You can and you need to do this") may be a powerful way of engaging them in the process of change.

Theoretical Implications

Attachment security and its measurement. The current research has several theoretical implications. Findings that attachment security was unexpectedly high in the clinical sample, assuming no measurement errors, raises questions about how protective attachment security is on its own. While attachment theorists propose that attachment security in infancy is a protective factor and a predictor of self reliance, emotional regulation, and social competence with peers as children get older, and a large body of research supports this, they also acknowledge that it is not a guarantee of healthy functioning (Sroufe et al., 2005), and that other variables (e.g., child temperament, family support, adverse life events) are also important (Sroufe et al., 2005). Several studies find no significant associations between attachment and child behaviour and psychopathology measures (see review by Deklyen & Greenberg, 2008), and the "file drawer" phenomenon suggests that the extent of null findings may be unknown. Sroufe (2005) reported that, in the presence of other risks or perturbations, security in infancy alone may not be enough to mitigate against dysfunction or maladaptation,

noting that in the Minnesota risk sample many of those who as infants had secure attachments nonetheless showed behaviour problems in childhood and some children with insecure attachments showed no behaviour problems in childhood. Other authors have suggested that capacity for self-regulation (developed through experiences in attachment relationships) may be a critical mechanism predicting later functioning (Fonagy & Target, 2002; Kochanksa & Kim 2012).

Another possible interpretation of our findings is that attachment security in preschool children may be less associated with developmental outcomes than is infant security. However Moss, Bureau et al. (2004) found strong validation for the preschool system against other relationship and behavioural indicators, finding that secure children were less likely to have the levels of difficulties of some or all groups of insecurely attached children. As previously discussed, in addition to the unexpectedly high number of securely attached "referred" children, our categorical attachment findings may reflect either coding and procedural problems (e.g., the stranger contribution).

The current findings confirm the value of using dimensional as well as categorical indicators of attachment quality (e.g., Cummings, 2003; Fraley & Roisman, 2014; Fraley & Spieker, 2003a, 2003b; Hesse, 2008; Waters & Beauchaine, 2003), particularly in intervention studies. The results also confirm that security and disorganisation can be successfully measured as continua, giving a more detailed picture of the relative security and disorganisation of each dyad (Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2005) and of dyads as a group.

Theory and operationalisation of mentalising. Study findings also raise questions about how to define and operationalise mentalising as a construct, and about its role in the development of, and change in, parent–child relationships (Ghossain, 2014). Bowlby's original theory of internal working models suggests that some kind of perspective-taking process is required to enable an individual to be aware of their mental representations of relationships in order for change in maladaptive models to be possible (Bowlby, 1969/1997).

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Whether the process of mentalising or perspective taking is best captured by reflective functioning or one of a range of other concepts such as mind-mindedness, insightfulness, representational flexibility, parent reflectivity, and sensitivity (Allen et al., 2008; George & Solomon, 2008; Ghossain, 2014; Koren-Karie et al., 2002; Meins, 2013) remains unclear. A number of difficulties with current conceptualisations and measurements of *reflective functioning* (RF) (referring to mentalising processes in attachment relationships in general, including parent–child relationships) and *parental reflective functioning* (PRF) (referring to mentalising processes of parents specific to their caregiving relationship with their child), have been identified and are discussed at length earlier in this chapter (Meins, 2013; Rosenblum et al., 2008; Sadler et al., 2013; Toth et al., 2008; Vrieze, 2011). These issues warrant further investigation. In particular, empirical evidence is needed to clarify the role of parents' mentalising processes in fostering child attachment security, promoting adaptive and changing maladaptive parent representations, fostering parental sensitivity, and supporting emotional regulation in parents and children. Whether adequate parent reflective functioning plays a protective role for children in contexts of risk is unclear from the current research and other equivocal findings in this regard (Fonagy et al., 1994; Pajulo et al., 2012; Perry, Newman, Hunter, & Dunlop, 2015). While some advocate that enhancing parental mentalising is a crucial component of interventions that seek to improve parent–child relationships (Slade, 2005, 2007; Steele & Steele, 2008), the current study and others (e.g., Toth et al., 2008) have not yet shown *how* improving or activating mentalising in parents influences these and related changes for children and their parents, and if mechanisms of change support extant theories of parent mentalising.

Bowlby's theory of therapeutic change. Changing parent–child relationships using the intensive Circle of Security intervention provides some support for Bowlby's original theory of therapeutic change, though the actual processes of change were not measured in the current study. As discussed earlier, the Circle of Security intensive intervention emphasises the *process* using the therapeutic relationship to foster repeated corrective relational

experiences for the parent within a supportive group, which can then be passed on through the parent to the child through a parallel process. Achieving improvements in parents' relational capacities is the target of the Circle of Security intervention. Parent-level changes occurred, but changes in children were also found, suggesting such a process may have indeed occurred. Future research examining parent behaviour and language with the child could confirm this empirically.

Internal working models of caregiving. Our study finding that change in parent representations is related to improved outcomes for both parents and children supports one of attachment theory's main propositions and is in line with decades of research highlighting the critical place of parent internal working models in underpinning the quality of the parent–child caregiving relationship and subsequent wellbeing of both members of the dyad (Stern-Brushweiler & Stern, 1989). Our findings also support later contributions by other researchers to theory about working models of the caregiving system (Bretherton et al., 1989; George & Solomon, 1989, 2008; Slade et al., 1999; Zeanah et al., 1994) and suggest that these representations can add to our understanding of current difficulties in parent–child relationships, beyond that given by only considering parents' state of mind regarding their attachment relationship with their childhood caregivers. Current findings also provide support for the dimensional measurement of parents' internal working models of caregiving (Slade et al., 1999), as we were able to identify individual differences between parents, as well as index changes, across a number of different aspects of caregiving as well as globally, with the predominantly dimensional caregiving representations tool we developed.

Parenting, child behaviour and parent mental health. The current study also adds support in broad terms for transactional theories of parent–child relationships, indicating that change in one aspect of the relationship can influence change in another. Findings also suggest that an attachment-based intervention may provide another option (beyond those based on social learning and cognitive behavioural theories) for addressing child behavioural and emotional problems, with additional benefits for parent functioning and the parent–child

relationship. While this study shows that symptom relief for both children and parents resulted from addressing current difficulties in their relationship, the Circle of Security 20-week intervention may also have a preventative impact by setting in train a range of other positive outcomes for children and their families. The longer term benefits of this intervention have yet to be explored for both parents and children.

Future Research

The studies conducted as part of this PhD project have raised a range of important questions that warrant further research. While many of these questions have been addressed in more detail above, they are briefly summarised here.

Circle of Security: Different forms of the intervention. More research is needed to establish the effectiveness of the Circle of Security intensive intervention over time, beyond just the immediate post-intervention period. There is also an urgent need to compare outcomes from the intensive group-based version with those from a number of widely disseminated variants, including an eight-session Circle of Security parenting program developed by three of the originators of the 20-week version (Cooper et al., 2009). As this shorter version has been readily adopted, specifies no minimum facilitator qualifications, requires less training, resources and supervision, and does not include the use of individualised assessment and video-based treatment, there are important questions about whether similar benefits will be found for participants as were found for those completing the intensive 20-week group version. Others have also adapted the intensive version for individual use, so questions also arise about whether the absence of the group process and support reduces the benefits gained by families compared to the intensive group version. Not all families are able to commit, or are suited, to group interventions, and individually delivered versions may also be more feasible in some clinical contexts.

Cost–benefit analyses. This research should also include analyses of costs and benefits of the different Circle of Security intervention approaches, both immediate and over time. Without this evidence, it remains unclear whether interventions chosen for use with

families bring benefit and are worth the investment, or cause harm, waste money, or delay more effective treatments for families in need. (Olds et al., 2007; Wells, 1999; Sadler et al., 2012; Toth, Manly et al., 2008). This should include consideration of the relative costs and benefits of group versus individual modes of delivery, taking into account differences between families, treatment providers, and referral reasons.

Mechanisms of change. Research is also needed to test the theorised model of change of the Circle of Security 20-week intervention: that improving the parent's relational capacities will improve child security. Our exploratory analyses suggested that changing caregiving representations was related to other changes for parents and children, but the role of increased reflective functioning was unclear. Also, without measuring parent behaviour we were unable to identify if the cognitive and affective changes found in parents translated into behaviour, and if this accounted for other changes seen in children. A future study design which is cross-lagged, with different measurements at different time points, would enable further examination of these questions.

Questions about the construct of mentalising. The current study also confirms questions raised by others about the theoretical construct of mentalising and its operationalisation as reflective functioning. Research is needed to refine the construct of mentalising in parents and improve its measurement, and to identify how different mentalising processes relate to each other, to the quality of caregiving, and to child and parent emotional regulation, and whether mentalising is a crucial target of attachment-based interventions.

Training and support of clinicians. There are also questions about the training, supervision and support of clinicians who provide attachment-based interventions with families. While we did not examine its impact, it is possible that some of the intervention outcomes may have been related to the amount of clinical training and support received by the facilitators, and it is likely, as with other attachment-based interventions (Moss et al., 2011), that the intervention protocol does not stand alone. Training and supporting clinicians so

intensively, while costly, may also make an independent contribution to outcomes, and it would be worth identifying what this might be. As Olds and colleagues (2007) reported, the qualification and training and support of providers has been found to be a critical component in achieving long-term benefits in some prevention and early intervention programs.

Comparison with other treatment approaches for child behavioural and emotional problems. Attachment-based interventions such as Circle of Security have not been widely used to treat child behavioural and emotional problems. The current study suggests that comparing outcomes from Circle of Security with other more widely used approaches based on social learning and cognitive behavioural theories, and other empirically tested attachment-based interventions, would be of value. Changing the parent–child relationship, rather than just reducing child behavioural problems, may offer a more lasting solution to behavioural problems, so it is worth testing the relative benefits of this with other approaches of comparable length—e.g., Parent–Child Interaction Therapy (Zisser & Eyberg, 2010) and with other longer and shorter attachment-based interventions (e.g., Child–Parent Psychotherapy; Attachment and Biobehavioural Catch-up; the eight-session intervention reported on by Moss et al., 2011).

Conclusions

Much has been learned from the current research that was not previously known about the Circle of Security intervention. The research supports its effectiveness in a treatment context with families referred with behavioural and emotional problems in their young children (up to age 8). The research shows for the first time that targeted parent relational capacities (caregiving representations and reflective functioning) improve overall after the intervention, and confirms earlier findings (Hoffman et al., 2006) that child attachment security and disorganisation improve for insecure and disorganised children. For the first time, clinical gains after the intervention have been demonstrated both for children and their parents, reflected respectively in reduced symptoms of child behavioural and emotional

disturbance and reduced parenting stress and psychological problems. Importantly, the greatest improvements in all outcomes were found in dyads with the least optimal pre-intervention functioning, suggesting that the intervention works for those who most need it and in areas most needing change.

While the research findings support many aspects of classical attachment theory and confirm that attachment security can change, they also confirm that, as a protective factor, attachment quality interacts with other individual and contextual influences on development and on its own does not necessarily predict outcomes (Sroufe, 2005, 2013). While attachment security may be the holy grail of attachment-based intervention, this research suggests that it should not be an end in itself but rather one indicator that changes in the caregiving environment may be in train or have occurred. It is also important to identify if other meaningful changes have taken place (e.g., improved social and emotional functioning, reduced behaviour problems), confirming a positive shift in the child's developmental pathway.

Dimensional measures of relational functioning including child attachment security and parent relational capacities can assist in tracking change after intervention, but definition of constructs and measurement issues can also confound understanding of change processes and warrant further investigation. The importance of parent caregiving representations as an influence on both child and parent outcomes has been confirmed. The construct and theorised role of parent mentalising (operationalised as parent reflective functioning in many studies), requires more clarification in relation to not only the intergenerational transmission of attachment but also child social and emotional development. While some effective programs, including the Circle of Security intervention, have incorporated a focus on building reflective capacity in parents, only some have reported meaningful increases in capacities post intervention, and other positive changes for parents or children have not been clearly associated with its improvement.

The current research also has clinical implications suggesting that the role of the therapist and relational processes are important for effective intervention not just within intervention sessions but also in the engagement and retention of families who need it. Questions are raised as to what extent these processes influence outcomes independently of other intervention components and also what contributions are made by the supported use of video and by therapist training, skills, and support.

Finally the research adds fuel to the debate about what works for whom, suggesting that intensive but time-limited, individualised but group-delivered attachment-based approaches like the Circle of Security intervention can be effective in a treatment context with clinically referred moderate- to high-risk families. More research is warranted to test how outcomes would compare with no intervention, with briefer or differently delivered variants of the program, and with other interventions.

Chapter 9　References

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Appendices

Appendix A removed from Open Access version as they may contain sensitive/confidential content

Appendix B   Circle of Security Interview: Coding for Parental Representations

Hostility in descriptions of child

Scales 1–5	Presence of words or phrases that indicate hostility / lack of respect / criticism of child	Examples
1 no evidence of construct	**No hostility** / No hostile, critical or deprecating references to child / Talks about child and child behaviour in respectful terms	
2	Assign a 2 if more than a 1 but not quite strong enough for a 3	
3 Moderate level of construct OR some questions about appropriateness of parent statement re this construct	**Moderate/subtle hostility** / **a few ridiculing or mildly critical references or disrespectful statements about child—** / e.g., Occasionally makes fun of child, one reference to child as silly, naughty (in non-affectionate way), / Occasional joking about child, balanced by non-critical references	1. *I said "G, you just sound like a whingeing little brat"* 2. *Yeah that's one of her things, she'll fold her arms and go off and have a "Little Miss" attack and she likes doing that little sort of madam, sort of stuff*
4		
5 High level of construct	**Several hostile, critical or denigrating statements** or descriptors of child / e.g., Mocking, demeaning child; describes child with contempt or compares child with despised or hated person	1. *"He really can be quite obnoxious"* 2. *Sometimes I wish I never had this child, she can be such an embarrassment*

Joy/pleasure in descriptions of relationship with child

Presence of words/phrases that indicate joy, enthusiasm, interest/curiosity, pride, warmth, love, delight, etc. towards child or about being with the child. To receive a high rating these comments should seem authentic, genuinely warm and balanced (may be accompanied by a believable example)—scripted statements e.g., "he's just gorgeous", "she's fabulous" get a lower rating

Scales 1–5		Examples
1 No evidence of construct	**No joy/pleasure** No statements which show joy or pleasure in the relationship	
2	Assign a 2 if more than a 1 but not quite strong enough for a 3	
3 Moderate level of construct OR some questions about appropriateness of parent statements re this construct	**Moderate joy/pleasure:** A few statements which show **some** joy/pleasure in relationship with child and/or global positive statements (may feel scripted; e.g., "gorgeous") which are unsupported by believable examples and/or statements which show some joy/pleasure but with some reservations/conditions and /or which show joy but may be not always appropriate	1. **General positive statements e.g.,** *"I love being part of him living his life and living it in a happy way and I'm proud of him that way"* ***Or*** 2. **Some joy/pleasure with reservations:** 3. *"Um, just being there. You know, **sometimes**, you know, as frustrating as it is, you know, again, you have the moments, you know, the—you know, I'm getting used to, you know, the—the closeness ..... that sort of stuff To see him happy, because he's always been a sad child* ***Or*** 4. Joy but may be not always appropriate (e.g., parent need for closeness): 5. *Um, well, I get to—I get to tuck him in at night. I get to give—you know, I get the first cuddle in the morning*
4		
5 High level of construct	**Authentic joy/pleasure in relationship with child** **Several clear believable statements of joy, delight, pride in child and relationship with child**	1. *Watching all the things that he can do, you know, ... I love watching him becoming independent, you know.... I love it when he comes into my bed in the morning. Um, I love sitting with him and reading him a story, um, building Lego with him [happy]. Yeah.* 2. *I suppose she's coming to an age now where she asks fantastic questions and you know, so to be able to answer those and, you know, … , I am helping her learn and grow.* 3. *I think it's the interactions we have. At—at the moment, she's, um, trying to develop her sense of humour, and telling jokes, and trying to do funny things, so almost every day she says, "I'm doing this to make you laugh," and— and that just, um, makes me feel happy [pleased]. Yeah, I enjoy that.*

Caregiving representations:

Hands: How parent sees themselves in their caregiving role as parent to this child

"Always be bigger, stronger, wiser, and kind; Whenever possible follow the child's needs; Whenever necessary take charge".

"Bigger, stronger" in description of self in relationship with the child

Scales 1–5	Statements that clearly suggest parent feels in charge, able to take control and manage the child	Examples
	This includes statements about having more control than the child in the relationship, taking charge when necessary and being able to manage the child's behaviour, having more capacity than the child, clearly taking the adult role	
1 No evidence of construct	No statements which show parent sees self as bigger and stronger than child	
2	Assign a 2 if more than a 1 but not quite strong enough for a 3	
3 Moderate level of evidence of construct OR some questions about appropriateness of parent statement re this construct	A few statements which suggest parent feels in charge, able to take control and manage the child and/or with some reservations/conditions and/or in charge but may be not always appropriate, e.g., may be authoritarian "in charge" rather than "authoritative"	1. *I, sort of, think, you know, I'm the adult [laugh]. I should have that in control-ness. Um, and sometimes I—actually it feels good to be angry, it's like my way of venting about the situation, you know.* 2. *Mo. of 3-yr-old: Well, in the end she just—she came good, like I just kept repeating over and over, "I understand that you're cranky, but it's not okay to do this … So I don't know exactly what happened, but I just kept repeating the things I'd learnt and, um, [pause] and it was also my way of not losing control.* 3. *I'm the parent and this is what's happening today so too bad (laugh).*
4	Assign a 4 if more than a 3 but not quite strong enough for a 5	
5 High level of evidence of construct	Several statements that clearly suggest parent feels in charge, able to take control and manage the child whenever needed	1. *Fa. of 3-yr-old: Um, so even when he's frightened, he'll be reassured, like calmed—in the pool, he hates swimming on his back—floating on his back, um, and I just said to him once that, um—I said, "I'm your dad. I'm not going to let you sink."* 2. *It takes a lot of effort to deal with that, but I still feel in control and that I'm her mother and I can help her through it.* 3. *I ended up just biting the bullet and taking charge and, um, I was quite firm with her that she wasn't getting out of the trolley.*

"Kind" in descriptions of self in relationship with the child

Scales 1–5	Parent reports behaving in a kind way towards child or showing concern for the child Parent reports offering help, support, comfort, assistance, time, understanding in pleasant way	Examples
1 No evidence of construct	No statements which show kindness or concern for child	
2	Assign a 2 if more than a 1 but not quite strong enough for a 3	
3 Moderate level of construct OR some questions about appropriateness of parent statement re this construct	A few statements which show some kindness or concern for child and/or with some reservations/conditions and/or which show kindness/concern but may be not always appropriate	1. *I've found a hug, just getting him in for a hug and some close contact brings him down a lot faster, to be able to reason with him* 2. *L approached us in a quiet voice asking for some help to get dressed, so then I went into her room and helped her getting dressed. (Mo. acts kindly after being punitive)* 3. *I can't meet her needs because I've got to go to work, so—so it's a matter of trying to give her a bit of the time and attention but then set a boundary*
4	Assign a 4 if more than a 3 but not quite strong enough for a 5	
5 High level of construct	A number of statements showing unconditional kindness/concern towards child	1. *I could see that it was really causing such a lot of grief and I wanted to be there to comfort and soothe her* 2. *Last night he had a nightmare and he come out to the lounge room, and I just cuddled him, and reassured him, and he fell straight back asleep on me*

"Mean" in descriptions of self in relationship with the child:
parent describes relating to the child using power over the child in a punitive, cruel, harsh or intimidating way
(Mean = bigger and stronger without kind)

Scales 1–5	Parent reports behaving in ways which hurt, threaten, or intimidate child **Parent reports disciplining child using harsh or punitive methods** (e.g., ignoring, smacking, yelling, threatening punishments, removing child's possessions as punishment (as opposed to for safety or caring purpose), depriving of food, comfort, human contact, clean clothes/nappies, activities child enjoys (which are appropriate for child to engage in), isolating or denigrating child) **Parent reports setting limits for child which are not reasonable and appropriate to developmental stage of child** e.g., makes child wait for periods of time which are developmentally inappropriate to enforce parent's power (e.g., he has to stay on the naughty chair until I am ready)	Examples

	Parent reports harsh behaviour management approaches are delivered with anger	
1 No evidence of construct	**Not mean** **No statements** which show meanness **and/or several statements which show parent relates to child without being mean:** e.g., not punitive towards child; does not use power over child in negative way; does not physically, verbally or psychologically abuse child	
2	Assign a 2 if more than a 1 but not quite strong enough for a 3	
3 Moderate level of construct OR some questions about appropriateness of parent statement re this construct	**Sometimes mean** **A few statements** which show **some instances of relating to child with meanness** **and/or** parent reports not being mean when describing an action which is mean (see above). These mid-range score statements may be qualified by the parent indicating they tried not to lose control.	1. *Um, but yeah, I—I still get angry, and I still yell at her and smack her occasionally, and sort of when she's defying and refusing to do the things I ask her to do.* 2. *Mo. of 4-yr-old: sometimes I just lose it [laugh] and which—I just—you know, I know it doesn't achieve anything and all she does is model her behaviour on mine, so, you know, but in the moment you're just so angry, but, yeah.*
4	Assign a 4 if more than a 3 but not quite strong enough for a 5	
5 High level of construct	**Mostly mean** **Several statements** reporting mean behaviour towards child, especially when disciplining, managing behaviour	1. *Mo. of 4-yr-old "she wet her pants twice in the morning and then on the third occasion she came out and said, "Well, I've wet my pants," and was, kind of, almost bragging about it and so I made her take them off and hang them out. I didn't wash them, I made her hang them out over the railing outside in the sun to dry [laugh] and didn't let her have another pair, so."* 2. *Mo. of 3-yr-old: she just started up again, screaming and being ridiculous. Um, [pause] so I think yesterday I ended up smacking her across her leg because I was just so frustrated.*

Weak: Parent describes self as incapable, powerless, helpless and lacking in confidence in her/his ability to parent this child, especially when parent needs to take charge)
(Weak = kind without bigger and stronger)

Scales 1–5		Examples
	Statements which clearly suggest parent feels unable to take charge when needed, incapable and lacking the confidence to manage this child; reporting helplessness as caregiver	
	Parent reports low self-efficacy or capability as parent, no/low authority or no/low confidence in parenting this child; reports being powerless with child	
	Reports collapsing, caving in when child needs parent to be firm, persistent and to take charge Reports giving up or giving in when going gets tough	
	States: I can't, I don't know how to manage him/her **Describes child as more powerful, capable, strong, clever than her/him**	
1 No evidence of construct	**Never weak** **No statements of weakness,** helplessness, lack of authority and powerlessness as parent to this child **and no statements of fear of the child**	
2	Assign a 2 if more than a 1 but not quite strong enough for a 3	
3 Moderate level of construct OR some questions about appropriateness of parent statement re this construct	**Sometimes weak:** **A few statements which show weakness,** helplessness, lack of authority and powerlessness as parent to this child **and/or** with **some** reservations/conditions **and/or** statements about taking charge may be not always appropriate e.g., I get him into the bath by bribing him with lollies—indicating parental control predicated by "caving in" to child desires	1. *I was a bit nervous. Um, I did manage to push that down, though, and find my leadership again with her … Um, then I think I—I stepped up again and we finally got the job done.*
4	Assign a 4 if more than a 3 but not quite strong enough for a 5	
5 High level of construct	**Mostly weak** **Several statements of weakness,** helplessness, lack of authority and powerlessness as parent to this child **No statements** which show sense of authority, confidence, efficacy, capability as parent to this child	1. *"She just—just seems to get irrationally angry and uncooperative and it's not something that I feel like I have any control over …—I don't know how to stop it* 2. *Mo. of 5-yr-old: Like I want to help him, but I know I can't because he won't let me in there, so I just sit with him and back off. Um, I can't think of the word, it's on the tip of my tongue. [Pause] I can't get it out. Um, powerless, is that the word?* 3. *Mo. of 4-yr-old: Cause I should be able—how can a 3-year-old wind me up so easily. It's like, to me that's [pause] me being weak.*

Gone: Parent reports being physically and psychologically unavailable and/or unresponsive when needed by this child

Scales 1–5	Statements which clearly suggest parent abdicates, abandons, is unavailable/absent, preoccupied, uninterested or indisposed and therefore physically and psychologically unavailable to parent the child. **Parent reports rejecting or avoiding parental role,** being unresponsive to child needs or opting out of parenting role when child needs support; (e.g., I can't, won't,) **Parent reports she/he does not keep child in mind,** either by being indisposed e.g., mentally ill, worried for own safety or focused on engaging in own pursuits e.g. substance abuse, too busy working, other priorities	Examples
1 No evidence of construct	**No statements** which show parent is gone	
2	Assign a 2 if more than a 1 but not quite strong enough for a 3	
3 Moderate level of construct OR some questions about appropriateness of parent statement re this construct	**A few statements** which show **some instances of being gone and/or** statements that show parent is available and responsive, but inconsistently, and/or with **some** reservations/conditions; parent makes statement about wanting to be "out of there" even if they don't enact it **and/or** which show parental availability/responsiveness but may be not always appropriate e.g., only when it suits parent	1. *Yeah, Sunday, like I said, I would have rather just do what I would have normally done, and just walked away with the hope that she'd see me and go "Ooh, mum's leaving, I'll stop it". Um, just to avoid those feelings and whatever else. But instead I stayed, but there was a battle, thinking "If this doesn't work, then I'm high tailing it out of here because she's embarrassing me" [laughs].* 2. *Um, <u>sometimes I cry, sometimes I withdraw, sometimes I just sit on the floor and look blankly</u> [laugh] out into space.*
4	Assign a 4 if more than a 3 but not quite strong enough for a 5	
5 High level of construct	**A number of statements** showing parent abdicates, abandons child, or is often unavailable and/or unresponsive to the child when needed	1. *Mo. of 4-yr-old: I probably for possibly even as long as 18 months was fairly unresponsive to both my kids because I just [pause]—I just wasn't available. I—[pause] I was unwell, um, [pause] and also the medication has this awful effect of detaching you from your world and I was—I was in a shell.* 2. *I do emotionally shutdown, um, I detach and I guess it's a self defence thing or a, um, [pause] don't know what to do so let's shut it down.*

Appendix B

Role reversal: Statements which show lack of appropriate hierarchy in the caregiving relationship

Scales 1–5	Statements which clearly suggest parent sees self and child as little together, as friends, or child as looking after parent, providing pleasure for the parent, making the parent's life better; managing or controlling parent	Examples
	Parent statements indicate he/she sees child as partner, lover, may include sexualised references Parent statements indicate he/she sees child as caregiver for parent Parent describes child in adult terms—e.g. he's the man of the house Parent statements show he/she seeks child's approval, acceptance, love of him/her as a person	**Note: this is similar to weak, gone, but more explicit statements about child being responsible / in charge would go here**
1 No evidence of construct	No statements which show role reversal	
2	Assign a 2 if more than a 1 but not quite strong enough for a 3	1. **Lack of hierarchy** *It can go from, you know, being perfectly calm to fighting about whatever it is very, very quickly …. she comes across as fearless, um, because [pause] she just gives as good as she gets, which I find an absolute shock in a 4-year-old. So, it's like arguing with an adult sometimes.* 2. **Let's be friends** *Mo. of 5-yr-old: we can still be really good, like, helping each other. She asks me for help and I go and she'll—she asks me if she can help me and, so, yeah.*
3 Moderate level of construct OR some questions about appropriateness of parent statement re this construct	A few statements which show **role reversal / inappropriate reciprocity and/or** role reversal with **some** awareness that it is undesirable	
4	Assign a 4 if more than a 3 but not quite strong enough for a 5	
5 High level of construct	**Several statements showing role reversal and no statements which show awareness that this is undesirable**	1. *Mo. of 3-yr-old: Does he ever try to soothe you when you are upset or distressed? Yeah it's beautiful. It's beautiful. He comes and gives me a kiss and yeah he's absolutely beautiful at doing that. Oh, I love it. I just lap it up. Yeah, it's wonderful. … He's helping mum and he's important, you know, he's significant.* 2. *Mo. of 5-yr-old: He came into my room and woke me up, because my alarm had been going off every nine minutes and I kept snoozing. Um, and he just came in and gave me a beautiful cuddle and a beautiful kiss and he said, "It's okay, mummy. You can have some more sleep and I'll get up." [laugh].* 3. *Mo. of 4-yr-old: He says "it's okay mummy, it'll be alright." He, sort of, I guess steps up and be…s the man.*

Concerning statements about caregiving or about the child (weighted indicators of concern)

Frightened/frightening:

Assign a yes (Score 1) or no (Score 0) code regarding the presence of statements on each of the following indicators:	**Examples**
Statements in which the parent **acknowledges and shows he/she is aware of** being frightening to, or frightened of, the child	**A: Frightened:**
	1. *Mo. of 3-yr-old: I'm frightened of him, of his anger, you know, frightened of his…*
Frightened:	2. *Mo. of 4-yr-old* **Are there ever times when she's irritated or angry with you that it's frightening for you?** *Yes.* **Can you tell me something about that?** *Um, well it's just the length some of them can go for. Um, yeah that's pretty scary … cause she's clearly in the fight and flight mode and will do anything and is capable of anything, she has great strength when she is in that.*
Parent may state she/he is frightened of child because child is seen as able to harm, control, punish, reject or disapprove of parent	
	3. *Mo. of 5-yr-old:* **Are there ever times when he is irritated or angry with you that it's frightening for you?** *[Pause]* **Um, in the past like he went through this stage where when he'd get cranky it would be just because I'd said no to something and he'd get so angry that I'd see him, he'd lock his bottom jaw, the talons would come out and he would just go for me.*
Frightening:	
Parent reports behaving in ways which she/he knows frighten the child	**B: Frightening:**
	1. **Mo. of 4-yr-old: I think sometimes she is afraid when I get angry, um, she doesn't like me yelling. Does L ever get scared of you?** *Mm [pause], I would say rarely, as in a couple of times a year where I—I can see that she's scared because I feel angry.*
	2. *And so how can you tell that she is scared of you?* **Um, she backs away, she's sobbing uncontrollably**
	3. *Mo. of 5-yr-old: oh definitely gets scared I would say … How can you tell that he might be scared of you?*
	4. *Well he might like have a little cry or he'll tell me, he'll go "Mummy you scared me".* **What does he do at those times that he might be scared of you?** *[Pause] He'll just cry.*
	5. *Mo. of 4-yr-old: Does A ever get scared of you? Mm (nods).* **How can you tell?** *Um, she'll cower away. She's—yeah, or run away.*
	6. *Fa. of 3-yr-old: "I think sometimes I can be, ah, alarming when I do lose my temper" … I react very strongly … Um, I don't hit him, or shake him or anything like that, but I grab him and tell him very forcefully, and I can see the fear in his eyes. So how can you tell that he is scared? Um [pause], by his reaction. Um, his response is a—he has a—he has a freeze response to that.*

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And then what does he do at those times? Um [pause], then he cries and wants comfort.

Appendix C   Questions from Circle of Security Interview Most Likely to Elicit Reflective Functioning

(Demand questions) (see note)
2. What was it like for you to participate in the experience you just completed with [child's name]?

3. You were asked to leave [name of child] in the room two times. What do you think that was like for him/her each time? (It is acceptable for parent to give a general description of both separations or be specific for each.) What was it like for you each time?

4. Most parents have never had a chance to see their child from behind a one-way mirror:
(a) While you stood there watching [name of child] was there anything that stood out for you?
(b) What do you think he/she needed during the time that you were watching him/her?

5. You came back in the room two times:
(a) What do you think that was like for [name of child] each time? (It is acceptable for parent to give a general description of both reunions or be specific for each.)
(b) What was the reunion like for you each time? (Same rules apply as above.)
(c) In either of the reunions did [name of child] show you that she/he needed comfort from you?

6. When you asked [name of child] to pick up the toys, could you describe what happened?
(a) What do you think that was like for her/him?
(b) What was it like for you?

8. What gives you the most joy in being [name of child]'s parent?
(a) Would you give a recent example?
 (If necessary probe for a specific recent example)
(b) What do you imagine he/she was thinking about you at the time?
(c) As you remember this example what do you think about yourself?

9. What gives you the most pain or difficulty in being [name of child]'s parent?
(a) Would you give a recent example?
(If necessary probe for a specific recent example)
(b) What do you imagine he/she was thinking about you at the time?
(c) As you remember this example what do you think about yourself?

10. What is your greatest fear as [name of child]'s parent?

11. Does [name of child] ever get silent or pull away from you? [If yes:]
(a) What do you think he/she is feeling at those times?
(b) Why do you think he/she does that?
(c) How do you feel when he/she acts that way?

12. Does he/she ever get clingy, pouty, or act younger than his/her age? [If yes:]
(a) What do you think he/she is feeling at those times?
(b) Why do you think he/she does that?
(c) How do you feel when he/she acts that way?

13. Do you think [name of child] knows when you are upset or distressed? [If yes:]
(a) How does he/she know that you are upset or distressed?
(b) Does he/she very try to soothe you? [If yes:]
(c) How does he/she do that?
(d) How does his/her soothing make you feel?
(e) When he/she soothes you, what do you imagine he/she is feeling?

14. All parents have moments of irritation or anger with their young children.
(a) What's that like for you?
(b) If you had to guess, what is he/she thinking about you at these times?
(c) What are you thinking about yourself?
(d) Does he/she ever get scared of you? [If yes:]
(d) Can you tell me something about that?
(e) What do you do at those times?

15. Does [name of child] ever get angry or frustrated with you?
(a) What's that like for you?
(b) If you had to guess what is he/she thinking about you when he/she's angry and irritated?
(c) What are you thinking about yourself?

23. Is there something that you learned from the way that you were parented that you would like to pass on to [name of child]?
24. Is there something in the way you were raised that you don't want to repeat with [name of child]?

Note: acknowledgements to Liz Challis, who piloted the use of these questions for PRF coding in 2009 and shared her work with me (Challis, 2009).

Appendix D   Efficacy of the 20-Week Circle Of Security Intervention: Changes in Caregiver Reflective Functioning, Representations, and Child Attachment in an Australian Clinical Sample

Appendix D of this thesis has been removed as it contains published material. Please refer to the following citation for details of the article contained in these pages.

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Appendix E   Improved Child Behavioural and Emotional Functioning After Circle of Security 20-Week Intervention

Improved child behavioural and emotional functioning after Circle of Security 20-week intervention

Anna Huber, Catherine McMahon & Naomi Sweller

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Improved child behavioural and emotional functioning after Circle of Security 20-week intervention

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ABSTRACT

This study examined the efficacy of the attachment-based Circle of Security 20-week intervention in improving child behavioural and emotional functioning. Participants were 83 parents of children (1–7 years) referred to a clinical service with concerns about their young children's behaviour. Parents (and teachers, when available) completed questionnaires assessing child protective factors, behavioural concerns, internalizing and externalizing problems, prior to and immediately after the intervention. The following were considered as potential moderators: child gender and age, parent representations, reflective functioning, child attachment indices and severity of presenting problems, prior to treatment. Results showed significant improvement for parent ratings of child protective factors, behavioural concerns, internalizing and externalizing symptoms, all $ps < .05$, and children with more severe problems showed most improvement. Teachers also reported improvements, but change was significant only for externalizing problems ($p = .030$). Findings suggest Circle of Security is effective in improving child behavioural and emotional functioning in clinically referred children aged 1–7 years.

Behavioural and emotional difficulties in young children are relatively common with estimated prevalence rates between 15 and 20% (Egger & Angold, 2006; Sawyer et al., 2000; Skovgaard et al., 2007). Severe and/or persistent early onset problems that co-occur with other child, family or environmental risks may be early markers of psychopathology (Briggs-Gowan, Carter, Bosson-Heenan, Guyer, & Horwitz, 2006; Egger & Angold, 2006; Fanti & Henrich, 2010; Greenberg, Speltz, DeKlyen, & Jones, 2001). Therefore early intervention is important to deal with presenting behaviour problems and also to prevent future family, educational and social difficulties thereby minimizing economic and social costs to society (Bayer et al., 2011; Heckman, Pinto, & Savelyev, 2013; Sawyer et al., 2000).

Existing evidence regarding the effectiveness of interventions for child behaviour problems predominantly concerns approaches that target parent behaviours and indicates they are effective in reducing internalizing or externalizing problems (see Barlow, Smailagic, Ferriter, Bennett, & Jones, 2010; Forehand, Jones, & Parent, 2013, for recent reviews). Limitations have been identified, however, particularly difficulties with

engagement and high attrition rates (Koerting et al., 2013), suggesting a need for approaches that can be individualized, holistically address a range of behavioural and emotional problem presentations in young children (Barlow et al., 2010; Greenberg et al., 2001; Webster-Stratton & Herman, 2008), and successfully engage and retain families, especially those from high risk backgrounds (Koerting et al., 2013).

Relationship-based approaches have the potential to address some of these limitations. Attachment theorists and researchers have argued that many child behavioural and emotional problems originate in the parent–child relationship, particularly in the parents' capacity to support the child's developing behavioural and emotional regulation capacities (Carlson, Sampson, & Sroufe, 2003; Lyons-Ruth, 1996; Madigan, Moran, Scheungel, Pederson, & Otten, 2007; Sroufe, Egeland, Carlson, & Collins, 2005). Evidence that insecure and particularly disorganized attachment is associated with increased rates of behavioural and emotional disturbance in children (e.g., Fearon, Bakermans-Kranenburg, van Ijzendoorn, Lapsley, & Roisman, 2010; Groh, Roisman, van IJzendoorn, Bakermans-Kranenburg, & Fearon, 2012; Sroufe et al., 2005), suggests that interventions designed to promote attachment security and reduce disorganization may have indirect positive effects on child behaviour and enable sustained change through improved family functioning. However there is currently very limited empirical support for this approach (Berlin, Zeanah, & Lieberman, 2008). The current study sought to address this issue by reporting on the effectiveness of the attachment-based Circle of Security 20-week intervention (Powell, Cooper, Hoffman, & Marvin, 2014) in reducing child behavioural and emotional symptoms.

A few studies have reported prevention of, or reduction in, externalizing symptoms in young children in response to attachment based interventions in infancy (e.g., Lieberman, Van Horn, & Ippen, 2005; Ordway et al., 2014). While treatment approach, duration and effectiveness varied, both targeted high adversity samples and sought to enhance the parent–child relationship by addressing both behavioural (parent sensitivity and behavioural responsiveness to the child's needs) and representational (parent perceptions of themselves and the child and/or parent mentalizing capacity) aspects of the caregiving relationship. Two further studies (Klein Velderman et al., 2006; Van Zeijl et al., 2006) examined the efficacy of an attachment and social learning theory based preventive intervention using video feedback with parents during their child's infancy and reported marginally better outcomes for externalizing behaviour in the treatment group compared to the control condition. In the study by van Zeijl and colleagues, intervention effects were apparent only for families with high discord and/or daily hassles.

Moss and colleagues (2011) noted the need for studies of attachment-based interventions in older children as most clinical referrals for problematic behaviour involve preschool and school age children. They conducted an attachment-based intervention with families of maltreated children aged 1–6 years and reported improvements in parent–child attachment indices. Child age moderated intervention effects with reductions in behaviour problems apparent only for the older children. Questions remain as to whether attachment based interventions are effective in reducing child behavioural and emotional problems in young children across a broad age-range.

The group-delivered 20-week Circle of Security intervention (Powell et al., 2014), incorporates both psycho-education and individualized psychotherapy with parents,

and aims to enhance child attachment security by targeting three identified parent level influences: behaviour, representations and reflective functioning (Berlin et al., 2008). The provision of a therapeutic safe haven and secure base for the caregiver is central to the approach. Though various versions of the Circle of Security intervention are being widely used with families for clinical and psycho-educational purposes, the approach has been little researched and no studies have examined whether child behaviour changes.

Two previous studies, both using pre-post designs with community-based samples, provide some evidence that the 20-week group based intervention improves child–parent attachment. Circle of Security originators (Hoffman, Marvin, Cooper, & Powell, 2006) reported increased numbers of children classified as securely attached and fewer classified disorganized, after the intervention with a sample of 65 toddler and preschooler–caregiver dyads.

An earlier study of the efficacy of the Circle of Security 20-week intervention with the current sample (Huber, McMahon, & Sweller, in press) found significant increases on a dimensional measure of attachment security and significant reductions in indices of disorganization (for those with any disorganization at baseline) with moderate and large effect sizes, respectively. Changes in categorical measures of attachment security (56% secure prior to intervention and 62% after) and disorganization (24% disorganized prior to intervention and 18% after) were not significant. Caregiver reflective functioning and caregiver representations of the self as caregiver and of the child also improved after intervention, providing evidence that the intervention is also effective in changing caregiver relational capacities.

Therefore the first aim of the current study was to extend these findings by examining whether post intervention improvements in child attachment and parent reflective functioning and representations were accompanied by improved child behavioural and emotional functioning in the same sample. We predicted that both parent and teacher rated child behavioural and emotional problems would decrease and child social/emotional strengths (protective factors) would increase after the intervention.

Our second objective was to examine any differential effects of the intervention by considering whether any behaviour change was moderated by child attachment (security level, disorganization level), parent characteristics (caregiving representations, reflective functioning) demographic variables (child gender, child age) and severity of behaviour problems at the time of presentation to the clinic.

Method

Participants

Study participants comprised 83 parent–child dyads referred to a clinical service for problems with their children's behaviour and or/emotional well-being. All families with children aged between 12 months and 8 years who were able to commit to the 20-week group program were offered the intervention. Exclusion criteria were as follows: families with acute current parent mental health problems, uncontrolled substance abuse, and/or the child or family was not currently safe (e.g., due to reported ongoing family violence or child maltreatment). Ninety-five families were eligible and offered the intervention; 90 (95%) commenced, and of these, 83 (92%) completed the intervention and
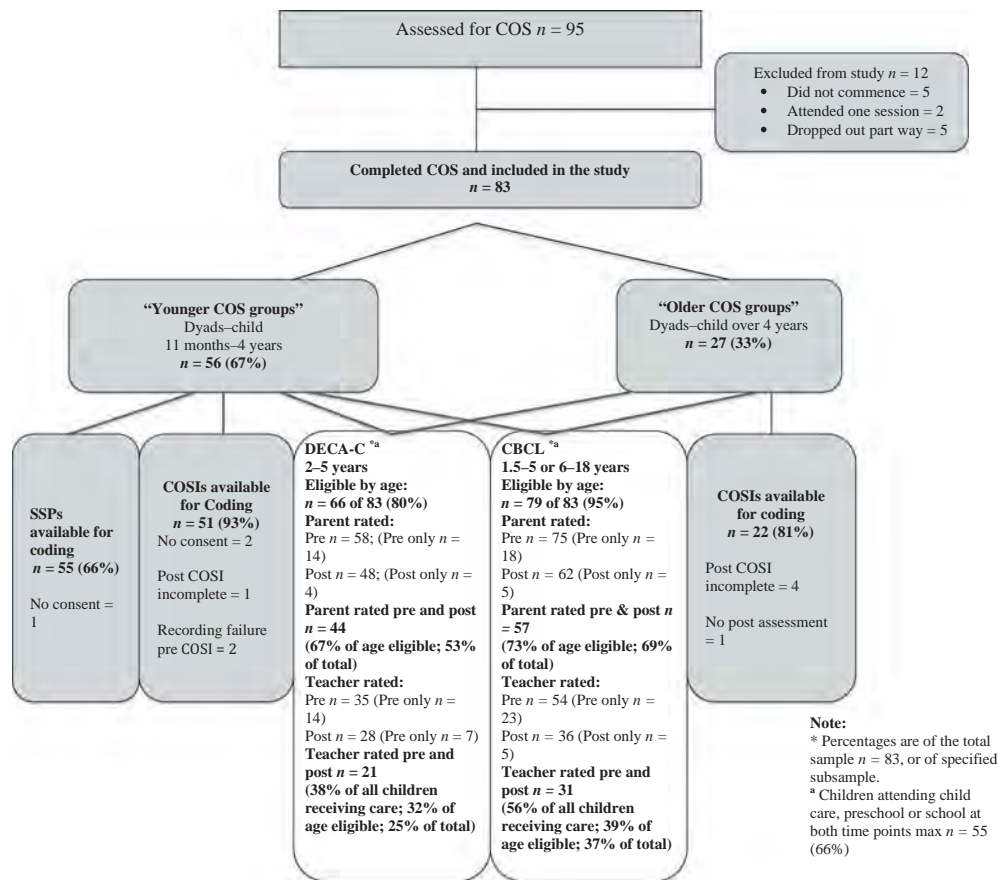
Figure 1. Flow diagram showing study participation.

provided consent for their data to be used for research purposes (see Figure 1). Clinic records indicated that five families did not commence because they were unable to commit to attending over a 6 month period, due to work or other commitments. Data are not available for the seven families who did not complete as consent to archive clinical data was retrospective and contingent on program completion. Available demographic data from clinic notes indicated these families did not differ from the 83 completers on demographic indicators and family risk factors at intake. Children were aged 13–88 months at pre-assessment ($M = 47.80$ months, $SD = 17.48$ months) with most ($n = 52$; 63%) 48 months or younger. Forty-eight were boys (58%) and 35 girls (42%). "Parents[1]" included 73 biological parents (88%), five foster/adoptive parents (6%) and five kinship carers (6%). Most parents had post secondary school education ($n = 50$, 60%), most were female ($n = 75$, 90%) and 32 (39%) were single parents. Twenty (24%) identified as coming from culturally or linguistically diverse backgrounds (CALD) and three families (4%) identified as indigenous Australians (Aboriginal or Torres Strait Islanders).

Clinic records revealed the following psychosocial risk factors during the child's life: parent reports of prior or current mental health problems ($n = 74$, 89%), parental divorce

or separation (*n* = 35, 42%), family violence (*n* = 27, 33%) and substance abuse by a family member (*n* = 21, 25%). Sixteen (19%) of the children had experienced substantiated abuse or neglect.

Procedures

The study was conducted in collaboration with the clinical service provider. On completion of the Circle of Security intervention (COS), parents were invited by the clinical organization to give consent for their clinical data to be archived for inclusion in any future research project to evaluate the effectiveness of the COS treatment approach. Study investigators subsequently obtained consent from the clinical service to use the data archived from the consenting families, and approval from relevant institutional ethics committees, for the current project. A pre–post sequential cohort design was used to examine change after the COS intervention using the pre and post intervention data from program completers, collected by the clinical program and archived for research purposes when families consented.

Pre and post assessment

Participating parent-dyads attended the clinic no more than 6 weeks before the start of the intervention and were videotaped participating in a separation–reunion procedure (Strange Situation Procedure) for dyads with children under 49 months or an attachment-activating semi-structured interaction assessment for dyads with children 49 months or older. Videotaped interviews with parents were then conducted using the semi-structured narrative Circle of Security Interview (COSI; Cooper, Hoffman, Marvin, & Powell, 1999). Parents completed two questionnaires about child behaviour, where applicable depending on child age. Some demographic and psychosocial risk information was obtained from these questionnaires as well as from intake information at the clinic. For children receiving any form of out of home childcare, or attending preschool or school, parents were also asked to request the child's teacher[1] complete the behaviour questionnaires. All measures were repeated after the intervention, for most families within 2 weeks of completion and for a small number, where family circumstances intervened, within 6 weeks. Pre–post intervention change in parent relational capacities (parent reflective functioning; PRF), caregiver representations and child attachment, are reported elsewhere (Huber et al., in press). Baseline scores for relational capacities (PRF, representations), and child attachment indices (security level, disorganization level) were considered as potential moderators along with severity of presenting behaviour difficulties.

COS intervention protocol

The Circle of Security assessment and treatment protocol, described in detail in the facilitator's manual (Cooper, Hoffman, Marvin, & Powell, 2000) and by Powell and colleagues (2014), focuses on improving caregiver relational capacities associated with child attachment security. For each dyad, therapists preview the videotaped footage and identify a core area of difficulty in the relationship or "linchpin struggle" (Powell et al., 2014, p. 83) in which the parent experiences challenge, either with the adult role in the

relationship, and/or with adequately supporting the child's exploration and/or emotional regulation needs.

Treatment was conducted over 20 weeks in groups of 4–6 parents who met weekly for 90-minute sessions with two COS trained therapists. Children did not participate in sessions and childcare was provided in an adjacent location for those who needed it. The program involved three psycho-education sessions about attachment theory and psychological defences, three individualized psychotherapeutic/tape review sessions per parent using selected video-clips taken from the initial or a later interaction assessment in week 15, and a final session celebrating changes in the relationship and reflecting on the experience.

Parents were assigned to COS treatment groups according to child age: those with children under 49 months (n = 56) joined "Younger Children" groups, and those with children 49 months or older (n = 27) joined "Older Children" groups (see Figure 1). A total of 18 groups completed the intervention over a 6-year period. Completion was defined as follows: parent had attended (1) the three theory sessions, (2) all three of their individual tape reviews and (3) missed no more than four sessions in total, i.e., attended 16 of 20 sessions (80%).

The manualized COS protocol (Cooper et al., 2000) was used to ensure treatment fidelity and both therapists participated in weekly supervision with one of the COS program originators (Glen Cooper), or a trained clinician accredited as a COS supervisor (first author). Supervision included both support with treatment planning and preparing tape reviews, and reflection on videotaped treatment sessions.

Measures

Child behavioural and emotional functioning

Two questionnaires were used to assess child behavioural and emotional adjustment. Both have both parent and teacher versions.

Devereux Early Childhood Assessment-Clinical (DECA-C) (LeBuffe & Naglieri, 2003): The DECA-C is a standardized, norm-referenced, behaviour rating scale of 62 items that assesses both social/emotional resilience (protective factors) and behavioural/emotional concerns in children 2–5 years. The DECA-C includes three "protective factors" scales (initiative, self control, attachment) and four "behavioural concerns" scales (attention problems, aggression, withdrawal/depression, emotional control problems). Raters endorse items as *never, rarely, occasionally, frequently* or *very frequently* according to how often over the past 4 weeks the child engaged in each behaviour. Composite scales, "Total Protective Factors" and "Total Behavioural Concerns", provide an overall index of the child's social/emotional resilience and behavioural/emotional problems, respectively.

Alpha coefficients for parents and teachers were excellent ranging from .91 (Protective Factors Pre) to .90 (Total Behavioural Concerns Pre) for parent ratings and from .94 (Protective Factors Pre) to .95 (Behavioural Concerns pre) for teacher ratings. T scores indicate ratings in the clinical or subclinical range as follows: low levels of social/emotional resilience (protective factors) (T scores ≤40) and/or high levels of emotional/behavioural concerns (T scores ≥60).

Child Behaviour Checklist and Carer/Teacher Report forms (Achenbach & Rescorla, 2000): Because of the age range in the sample, compatible versions of the widely

validated Child Behaviour Checklist were used: CBCL 1.5-5 and C/TRF for young children (100 items) or the CBCL 6-18 and TRF 6-18 for older children (113 items). Problem behaviours are rated by on a 3-point scale: 0 = *not true*, 1 = *somewhat or sometimes true* and 2 = *very true or often true*, according to the extent to which each item describes their child "now or within the past 2 months". For the CBCL 1.5-5, scores on four subscales (emotionally reactive, anxious/depressed, somatic complaints, withdrawn behaviour) are used to compute internalizing problems and two subscales (attention, aggressive behaviour) are combined for the externalizing problems score. For the CBCL 6-18, an internalizing score (anxious/depressed, withdrawn/depressed, somatic complaints) and an externalizing score (attention problems, aggressive behaviour, rule breaking behaviour) are computed. T scores (separately computed for boys and girls and for each age group) were used to assess change in problem scores, as they can then be combined for the two genders across the age range into single variables (parent internalizing, externalizing, teacher internalizing, externalizing).

Potential moderators

Parent–child attachment (indices of security and disorganization). Because the clinic only conducted Strange Situation Procedures for those children aged 4 years and under at baseline, parent–child attachment could only be coded for 55 dyads using pre and post intervention videotapes of the Strange Situation Procedure (Ainsworth, Blehar, Waters, & Wall, 1978). The Ainsworth Coding system (Ainsworth et al., 1978) was used for infants under 24 months (*n* = 8) and the Preschool Attachment Classification System (PACS; Cassidy & Marvin, 1992) for children between 24 and 48 months (*n* = 47). Videotapes were coded by two independent coders both blind to the intervention and to the pre/post status of each dyad (Ellen Moss, University of Quebec at Montreal, and her PhD student). Though categorical and continuous attachment coding was obtained, continuous scores (security and disorganization) prior to intervention were used to test moderation. These dimensional scales (Moss, Lecompte, & Bureau, 2015) allow scores ranging from 1–9 to be assigned (where 1 = no indices and 9 = very high level indices) and are in part based on established guidelines for classifying attachment behaviour (Cassidy & Marvin, 1992; Main & Cassidy, 1985; Main & Solomon, 1990). Higher security level scores are assigned when children show more direct proximity seeking and/or contact maintenance and face to face interaction (including through language for older children) when distressed, and fewer of these behaviours when calm and exploring. Scores for disorganization level reflect behavioural disorganization with the caregiver (e.g., signs of confusion, apprehension, inexplicable and/or contradictory behaviours especially when distressed), and inability to use the caregiver either as a secure base for exploration or a source of support for emotional regulation when distressed (Main & Solomon, 1990). Inter-rater correlations for the dimensional scores were high (.86 for scale B; .85 for scale D) indicating excellent agreement between the two coders.

Parents' caregiving representations and reflective functioning

The Circle of Security Interview (COSI; Cooper et al., 1999; Powell et al., 2014) is a narrative interview derived in part from the Parent Development Interview-Revised (PDI-R; Slade, Aber, Bresgi, Berger, & Kaplan, 2004) and the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1984–1996). The interview explores parent

perceptions of their relationship with the index child (immediate experience and every-day patterns), and of their own childhood experiences of being cared for. The earlier version was used in this research. Videotaped interviews were transcribed, de-identified and sent to two independent coding teams to be coded for (1) parental reflective functioning (PRF) and (2) parents' representations of their child and themselves in the caregiving role with the index child. All coders were blind to the intervention and to the pre and post status of the interviewees, but knew child gender and age in months. In all, 146 interview transcripts for $n = 73$ dyads (all ages) were available (see Figure 1).

Parent Reflective Functioning on the COSI was coded using the reflective functioning (RF) coding scale developed for the AAI (Fonagy, Target, Steele, & Steele, 1998; adapted for the PDI-R; Slade et al., 2004; Slade, Bernbach, Grienenberger, Levy, & Locker, 2005). Three trained coders from the Anna Freud Centre, London (certified reliable in coding RF on AAI and PDI-R) assigned PRF scores (ranging from −1 to +9) to 16 "demand questions" (designed to elicit reflective functioning) in the COSI and also to the overall interview. Two reliability sets (for $n = 25$, 17%) were triple coded with high inter-rater reliability (set 1–12 interviews: ICC = .83 and set 2–13 interviews: ICC = .88) using consistency model, single rater. Overall PRF scores at time 1 were examined as potential moderators.

A separate coding scale (Huber et al., in press) was used to measure parents' caregiving representations from transcripts of the same interview. Eight subscales are derived: two affect dimensions (Hostility, Joy) are coded from statements indicating feelings about the child and/or the relationship, and six dimensions are coded from statements that index perceptions of self as a caregiver to the child, using language aligned with the Circle of Security approach (Bigger/Stronger, Kind, Mean, Weak, Gone, Role Reversed). Based on reading the complete interview transcript, a trained coder assigned continuous scores (range 1–5) for each dimension as follows: (1) no statements or indicators, (3) a few indicators or partial indicators (e.g., if statements indicative of the dimension are present, but idealized, qualified, poorly supported or partly contradicted), (5) definite and/or frequent indicators (the construct is clearly and consistently apparent throughout the interview). Scores of 2 or 4 can be allocated as appropriate. Thirty transcripts (20%) were independently coded by a second coder (first author). Inter-rater correlations on all dimensions were high, ranging from .92 (Hostility) to .72 (Gone).

A composite score was derived for "positive representations" (mean of eight dimensions, negative dimensions reverse coded). High scores indicated more positive representations, with a score of three or more considered adequate, based on scale descriptors. The full rating scale is available from the first author.

Data analysis

All continuous variables were normally distributed except disorganization level (scale D), which was skewed as the majority of dyads showed no indices of disorganized behaviour (i.e., scale D scores of 1). Ns vary in the analyses as teacher ratings were not available for some children, not all parents and teachers returned post checklists, the DECA–C questionnaire could only be completed for children 2–5 years, and of the potential moderators, PRF and representations scores were available for 73 dyads, but attachment scores (security level (B) and disorganization levels (D)) were only available for the 55 children younger than 49 months. With the exception of child age, there were no pre-intervention differences on behaviour, attachment and demographic variables

comparing children whose parents completed both sets of behaviour questionnaires and those who did not. Teachers and caregivers of younger children were more likely to return both checklists (ps < .05) (see also Figure 1).

Hypotheses were tested using mixed design repeated measures analyses of variance (RM-ANOVAs) for "protective factors" and "behavioural concerns" (T Scores, DECA-C scales) and internalizing and externalizing problems (T-scores, CBCL scales). Separate analyses were conducted for parent and teacher ratings. Based on results of preliminary analyses, specified moderators for each outcome variable were examined. Where interaction effects (proposed moderator x time) were not significant, these variables were removed and the analysis repeated. Results reported are based on final analyses with only significant interactions included. Significant interactions (probability values $p ≤ .05$) were followed up with pairwise comparisons, using dichotomous (high-low) variables. Bonferroni's corrections were applied to account for multiple tests.

Because of missing questionnaire data, a mixed model analysis was also conducted with stacked data, however results were essentially unchanged so only RM-ANOVAs results are reported.

Results

Preliminary analyses

Bivariate correlations (Pearson's for parametric and Spearman's for non parametric variables) and independent samples t-tests were used to explore relationships among the outcome variables and any potential moderators. Table 1 presents baseline correlations, means and standard deviations for all study variables, significant correlations are highlighted.

Parent and teacher ratings of child behaviour were all positively correlated, significantly for DECA-C protective factors, CBCL externalizing and CBCL total problems, ps < .05, but not significantly for DECA-C behavioural concerns and CBCL internalizing problems. Expected correlations for subscales within the CBCL and DECA-C were observed.

Teacher ratings of behaviour problems using the CBCL were positively correlated with child age (more problems for older children); parent education was not correlated with reports of behaviour problems pre or post intervention. Attachment security level (scale B) was negatively correlated with teacher rated internalizing problems and disorganization level (scale D) was negatively correlated with parent rated protective factors prior to intervention. More positive parent representations of the relationship were correlated with parent ratings of higher protective factors and fewer externalizing problems. Parent reflective functioning showed no significant correlations with behaviour or protective factor ratings by parents.

At baseline, parents rated children on average in the borderline or clinical range for protective factors (mean T score ≤40), behavioural concerns, internalizing and externalizing problems (mean T scores ≥60). Mean teacher ratings of children's protective factors and all behaviour problem scales were in the normal range at baseline (see Tables 1 and 2). Prior to the intervention, 72% (n = 43 of 60) of children were rated in the

Table 1. Means, standard deviations and correlations among dependent variables and co-variables at baseline.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Mean	SD
1. Child age in months $n = 83$	1														47.8	17.59
2. Parent education^ $n = 83$	-.02	1													2.87	1.19
3. Scale B $n = 55$	.19	.14	1												4.70	1.54
4. Scale D $n = 55$^	-.20	-.15	-.63**	1											2.41	2.21
5. RF $n = 73$	-.23	.38**	.21	-.05	1										4.01	1.48
6. Overall reps $n = 73$	.23	.10	.14	-.20	.13	1									3.08	.69
7. P: Protective factors	.04	.03	.24	-.42**	.18	.45**	1								39.88	8.53
8. P: Behavioural concerns	.02	-.13	-.18	.20	-.13	-.27	-.54**	1							64.66	9.55
9. T: Protective factors	-.10	-.10	.32	-.24	.20	-.16	.42*	-.34	1						46.49	10.03
10. T: Behavioural concerns	.18	.11	-.09	.16	-.34	.07	-.23	.31	-.64**	1					48.94	12.71
11. P: Internalizing problems	.16	-.06	-.21	.08	.05	-.18	-.53**	.60**	.06	-.04	1				61.95	10.28
12. P: Externalizing problems	.20	-.14	-.19	.24	-.18	-.26*	-.46**	.70**	-.25	.25	.56**	1			63.17	11.69
13. T: Internalizing problems	.35**	-.06	-.36*	.28	-.05	.19	-.29	.24	-.69**	.64**	.201	.181	1		57.09	10.99
14. T: Externalizing problems	.32*	.03	-.22	.31	-.08	.19	-.36*	.36*	-.62**	.81**	.18	.44**	.67**	1	55.67	12.31

^ Spearman's Rho for non parametric variables;

Parent education: 1 = secondary school to year 10; 2 = year 12 completion; 3 = post secondary training; 4 = undergraduate degree; 5 = post graduate degree

P: Parent rated

T: Carer/Teacher rated

Table 2. Change in T1 and T2 means-protective factors and behaviour problem T scores (mixed design repeated measures ANOVAs).

Variable	T1 Means (SD)			T2 Means (SD)			(All): Combined genders main effect of time		
	Boys	Girls	All	Boys	Girls	All	F ratio (df)	Sig. (2 tailed)	Effect size: partial eta squared η_p^2
DECA-C variables:									
P: Protective factors n = 44 24 boys/20 girls	37.96 (8.70)	42.70 (7.96)	**40.34 (8.75)**	40.70 (7.77)	47.05 (10.01)	**43.71 (9.55)**	**4.75 (1,39)**	**.035**	**.109**
T: Protective factors n = 21 10 boys/11 girls	44.60 (12.47)	50.36 (8.15)	**47.62 (10.58)**	43.90 (10.09)	53.82 (6.45)	**49.10 (9.61)**	**0.30 (1,20)**	**.591**	**.015**
P: Behavioural concerns n = 44 24 boys/20 girls	65.00 (8.96)	64.15 (10.10)	**64.61 (9.39)**	60.38 (9.46)	54.45 (12.17)	**57.68 (11.06)**	**8.18 (1,42)**	**.007**	**.163**
T: Behavioural concerns n = 21 10 boys/11 girls	53.30 (14.14)	44.09 (9.15)	**48.48 (12.41)**	51.30 (13.10)	41.64 (12.89)	**46.24 (13.59)**	**0.96 (1,20)**	**.338**	**.046**
CBCL variables:									
P: Internalizing problems n = 57 34 boys/23 girls	62.21 (10.06)	61.44 (11.12)	**61.89 (10.41)**	56.47 (9.46)	55.39 (12.51)	**56.04 (10.70)**	**9.05(1,55)**	**.004**	**.141**
T: Internalizing problems n = 31 17 boys/14 girls	61.29 (11.00)	51.71 (11.00)	**56.97 (11.85)**	55.29 (13.72)	51.64 (11.85)	**53.65 (12.83)**	**2.54 (1,30)**	**.122**	**.078**
P: Externalizing problems n = 57 34 boys/23 girls	64.12 (11.83)	59.87 (13.12)	**62.40 (12.43)**	59.00 (11.81)	53.00 (9.08)	**56.58 (11.11)**	**8.95 (1,55)**	**.004**	**.140**
T: Externalizing problems n = 31 17 boys/14 girls	57.88 (13.01)	52.86 (10.11)	**55.61 (11.88)**	52.82 (13.26)	50.43 (9.07)	**51.74 (11.44)**	**5.22 (1,30)**	**.030**	**.148**

Note: Means for T1 All and T2 All, and statistics (all bold) are taken from mixed design repeated measures ANOVAs with significant moderators included.
T1 and T2 means for Boys and Girls are unadjusted means.
P: Parent rated; T: Carer/Teacher rated
For behavioural problems T scores ≥60 are borderline or clinical range; for protective factors T scores≤40 are in the concern range
Effect sizes-partial eta squared: .02 = "small", around .13 = "medium", and .26 = "large". Cohen (1988, pp. 413–414) defined an η2 of .02 as small, one of .13 as medium, and one of .26 as large (Bakeman, 2005).

borderline/clinical range by one or both raters for behavioural concerns, 66% (n = 51 of 77) for internalizing and 69% (n = 53 of 77) for externalizing problems.

    T-tests indicated significant (or marginal) gender differences as follows. Teachers rated boys higher than girls on behavioural concerns (p = .054), and internalizing problems (p = .007). Parents and teachers rated girls higher than boys on protective factors (p = .06; p = .01), respectively.

Intervention effects: change in child behavioural and emotional functioning

Detailed statistics from the mixed design repeated measures analyses of variance (RM-ANOVAs) are presented in Table 2. Statistics for significant interaction effects are noted in the text. Mean changes on all scales were in the expected directions for both teacher and parent ratings: children on average moved from the borderline/clinical range to the normal range on all parent ratings (protective factors, behavioural concerns, internalizing and externalizing problems) and remained in the normal range on all teacher ratings. After intervention, 42% (n = 20 of 48) of children were rated in the borderline/clinical range for behavioural concerns, 50% (n = 31 of 62) for internalizing problems and 37% (n = 23 of 62) for externalizing problems (based on parent/teacher or both ratings).

Protective factors (DECA-C)

Moderators tested were child gender, disorganization level (for both parents and teacher ratings) and overall positive representations for parent ratings. For parent ratings, the only significant interaction effect was time x parent representations, $F(1,39)$ = 4.95, p = .034, η_p^2 = .113. There was a significant main effect for time with a medium effect size indicating that parent rated protective factors were higher after the intervention, see Table 2. Using a dichotomous variable for parent representations prior to intervention (Adequate ≥3, not Adequate <3), Figure 2 shows that parents with more negative representations of the child and of their relationship with the child prior to intervention
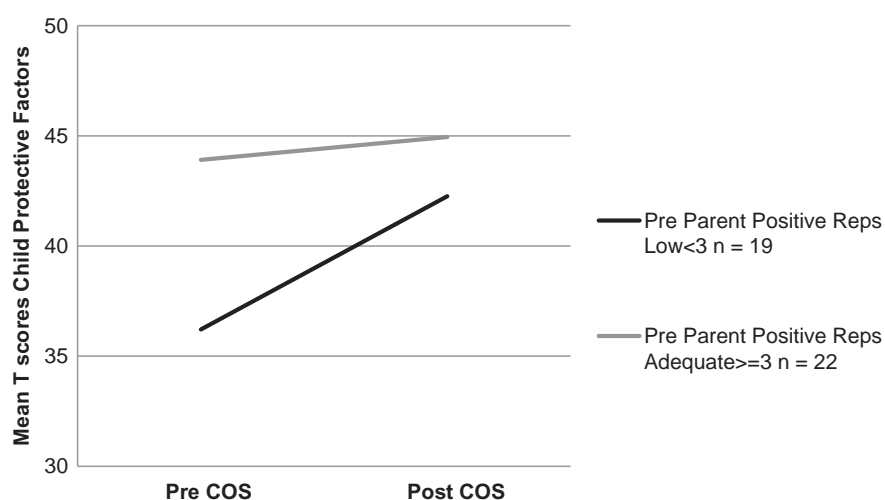
Figure 2. Change in parent rated child protective factors after COS by baseline group.

showed a greater increase in protective factors. The analysis for teacher ratings of change in child protective factors showed no significant effect for time and no significant interaction effects.

Behavioural concerns (DECA-C)

Following results of preliminary analyses, the following variables were examined as potential moderators: overall positive representations (for parent ratings), severity of baseline behavioural concerns (parents and teachers) and child gender (teacher ratings only). For parent ratings, there was a significant time x baseline behavioural concerns interaction effect, $F(1,42) = 5.48$, $p = .024$, $\eta_p^2 = .115$ and a significant main effect for time, indicating reductions in parent rated behavioural concerns with a medium effect size. Follow-up analyses were conducted using clinical cut-off scores on the DECA-C and showed that children rated with concerns in the borderline/clinical range (T scores ≥60) prior to the intervention showed most improvement (see Figure 3). There was no significant main effect for time for teacher ratings of behavioural concerns and no significant interaction effects.

Internalizing problems (CBCL/C/TRF)

Based on results of preliminary analyses, the RM-ANOVA examining change in parent rated internalizing problems included severity of internalizing problems at time 1 (borderline/clinical: T Scores ≥60 vs. T scores <60) as a potential moderator. Results showed that there was a significant time by baseline severity interaction effect, $F(1,55) = 12.78$, $p = .001$, $\eta_p^2 = .188$, and a significant main effect for time with a medium effect size. Follow-up analyses showed that the reduction in parent rated internalizing problems was accounted for by the 38 children with problems in the borderline/clinical range prior to the intervention (see Figure 4).

For teacher ratings of internalizing problems, moderators tested were child age and gender and security level prior to intervention. There was no significant main effect for time and no significant interaction effects.
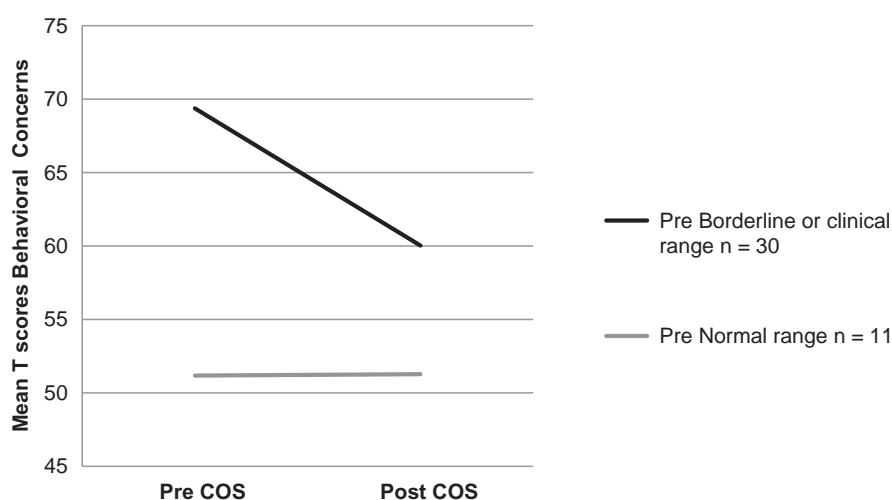
Figure 3. Change in parent rated behavioural concerns after COS by baseline severity group.
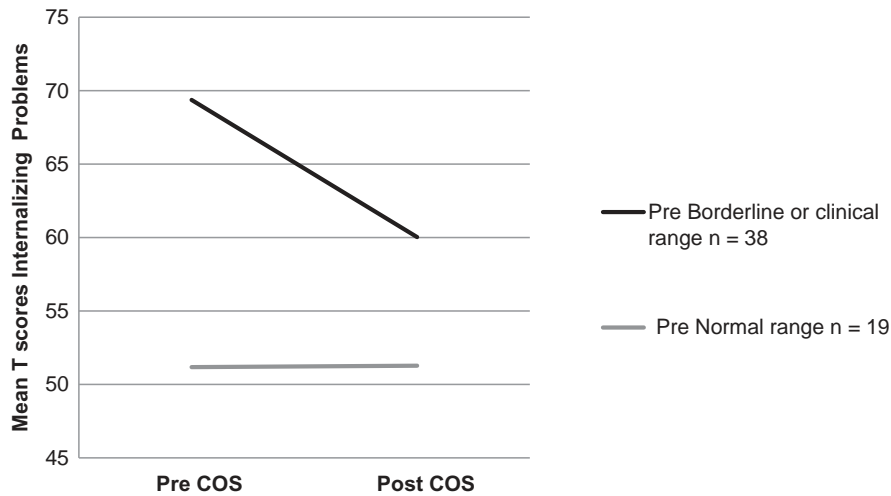
Figure 4. Change in parent rated internalizing problems after COS by baseline severity group.

Change in externalizing behaviour

Based on preliminary analyses the following moderators were tested: baseline scores for disorganization level, parents' overall positive representations and externalizing problem severity (borderline/clinical T Scores ≥60 vs. <60). There was a significant time x severity interaction effect, $F(1,55) = 9.15$, $p = .004$, $\eta_p^2 = .143$, and a significant main effect for time with a medium effect size. Children who were rated in the borderline or clinical range for externalizing problems (T scores ≥60) showed a decrease in parent rated behaviour problems after the intervention, whereas children with normal range externalizing problems showed no change (see Figure 5).

Moderators tested in analyses of change in teacher rated externalizing problems included child age, disorganization level and baseline problem severity. There was a significant main effect for time with a medium effect size, but no significant interaction effects.
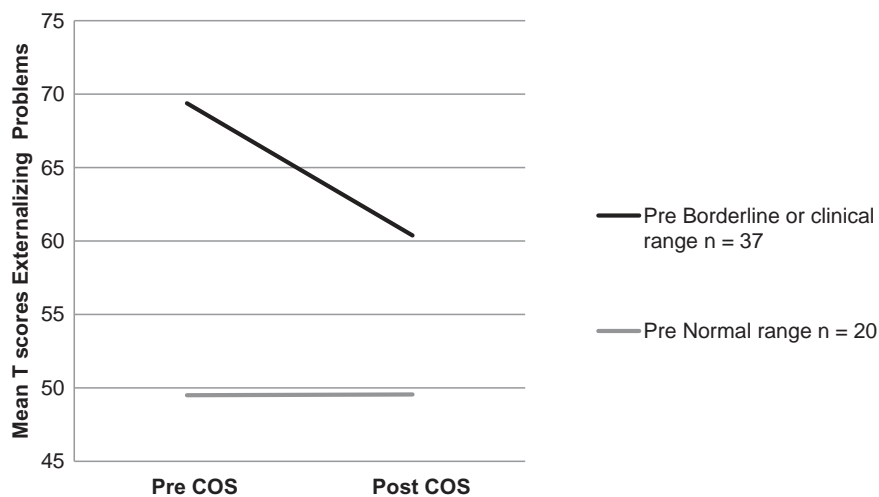
Figure 5. Change in parent rated externalizing problems after COS by baseline severity group.

Discussion

This study sought to examine whether child behaviour difficulties decreased and child protective factors increased after parents participated in a 20-week Circle of Security therapeutic intervention group. Our findings show significant improvement in child protective factors, and reductions in behavioural concerns, internalizing and externalizing problems as reported by primary caregivers. The reported changes in child behaviour problems were also clinically significant: mean levels of parent rated behavioural concerns, internalizing and externalizing problems moved from the borderline/clinical range prior to the intervention to the normal range afterwards. There was some corroboration of these findings with teachers (childcare, preschool, school) also reporting a significant reduction in externalizing problems, but no significant change in teacher rated internalizing problems or child protective factors.

Reported changes in behaviour applied irrespective of child age and gender, but children presenting with problems in the borderline/clinical range showed more improvement than those with less severe problems, consistent with recent research (Shelleby & Shaw, 2014). Interestingly, parents who had more negative caregiving representations prior to intervention showed a greater improvement in their view of their child's social and emotional protective factors afterwards. There were no differences in responsiveness to the intervention related to indices of child attachment security or disorganization prior to treatment.

The families in the current study were referred primarily because parents were experiencing difficulty with their child's behaviour. Accordingly, approximately two-thirds of the children were rated either by their parent, their teacher or both, as having clinically significant internalizing or externalizing problems. Overall teacher ratings were moderately correlated with parent ratings, however teachers reported fewer problems and the strongest agreement across informants was for child externalizing problems, consistent with prior research (De los Reyes & Kazdin, 2005; Fihrer, McMahon, & Taylor, 2009). It is plausible that children may behave differently for different caregivers and also that problems located in the parent–child relationship were more severe than those in the teacher–child relationship. It is also possible that parents had more negative perceptions than other observers of similar child behaviour (Lau, Valeri, McCarty, & Weisz, 2006; Ordway, 2011), however observations in both settings would be needed to confirm this. It is most likely the case that there were changes in both actual child behaviour and parent perceptions. In the absence of a control group, the corroboration by teachers of improvement in child externalizing behaviours is encouraging and suggests some meaningful behavioural change did occur.

The Circle of Security intervention explicitly targets parent interpretations of child behaviour encouraging them to reframe "demands" as "needs". Irrespective of changes in actual behaviour, the way the parent views the child's behaviour and their own parenting capacity is important (Bugental & Johnston, 2000). There is extensive evidence that parents of children with behavioural and emotional problems attach negative meanings to their child's behaviour, and that these negative perceptions are associated with more negative parenting behaviours and/or parent–child interactions (e.g., Benoit, Zeanah, Parker, Nicholson, & Coolbear, 1997; Dollberg, Feldman, & Keren, 2010; Healy, Murray, Cooper, Hughes, & Halligan, 2015; Shamir-Essakow, Ungerer, Rapee, & Safier,

2004). There is also evidence that when parent negative perceptions persist, they may contribute to the maintenance of child behaviour problems (Johnston, Hommersen, & Seipp, 2009) and also some evidence that positive changes to these parent perceptions are associated with improvements in the way parents relate to their children and reductions in child behaviour problems (Lieberman et al., 2005; Sanders et al., 2004).

The Circle of Security intervention also targets how parents view themselves in relation to the child. Research suggests that a greater sense of competence or efficacy as a parent is associated with better child behavioural and emotional functioning (George & Solomon, 2008; Webster-Stratton & Herman, 2008). In the current study, those parents with more negative representations of the child and of their relationship with the child prior to intervention rated their child as having fewer protective (positive) characteristics and more externalizing problems, and demonstrated a greater shift in their view of positive aspects of the child after the intervention. It seems likely, therefore, that parent reports of child behavioural change in the current study reflect, at least in part, the improvement in caregiver representations of themselves and of their child (previously reported in this sample), both explicitly targeted by the COS intervention (Huber et al., in press). As we did not measure parent behaviour in the current study, it was not possible to determine if changes in parent representations were accompanied by more responsive and emotionally available parenting behaviour. However, recent research suggests that improving caregiving representations through video based intervention with parents can also improve parents' behaviour with their children (Smith, Dishion, Moore, Shaw, & Wilson, 2013).

In contrast with behavioural interventions that typically focus on either externalizing or internalizing problems, the current study indicates that Circle of Security is effective in reducing both internalizing and externalizing problems, known to occur separately and/ or together across the early years (Fanti & Henrich, 2010; Forehand et al., 2013). The focus of the intervention is individualized for each dyad, with a "linch pin issue" in the parent–child relationship, and factors underpinning it, identified in assessment and treatment planning (Powell et al., 2014). Thus the treatment is based on case conceptualization and aetiology rather than lists of symptoms (Forehand et al., 2013).

The current study sought to address gaps in the research on the efficacy of attachment-based approaches in improving child behaviour. As noted earlier, while there is limited evidence that attachment based interventions are effective in reducing externalizing problems in children under 2 years (Lieberman et al., 2005) and in children from maltreating families aged 3–5 years (Moss et al., 2011), the current study showed improvements for children across a broad age range from 18 months to 7 years. Interestingly, effectiveness of the intervention was not related to child gender, levels of child attachment security or disorganization, or parent reflective functioning, all measured prior to intervention. While more boys were referred with behavioural and emotional problems, consistent with other research (Furlong et al., 2012; Webster-Stratton & Herman, 2008) and boys in our sample were rated as having more severe problems and fewer protective factors than girls, our findings of comparable responses to intervention for parents of boys and girls is consistent with recent research (Rapee, Schniering, & Hudson, 2009; Shaw, 2013; Webster-Stratton & Herman, 2008).

Higher levels of disorganization were associated with lower parent rated protective factors and lower levels of security were associated with higher teacher rated

internalizing problems, however the intervention was effective regardless of child attachment indices prior to treatment. Attachment theory and research suggest than improving security and reducing disorganization should be associated with reduced child behavioural and emotional dysregulation (Carlson et al., 2003; Guttmann-Steinmetz & Crowell, 2006; Madigan et al., 2007; Sroufe et al., 2005). The current study design did not enable changes in attachment security or disorganization to be tested as mediators or moderators of change in child behavioural and emotional outcomes because measurement of attachment and behaviour change were concurrent. A study design in which attachment change was measured post intervention and behaviour assessed some time later may enable these mechanisms to be identified.

While theory also suggests that higher levels of parental reflective functioning might be associated with more positive ratings of child behaviour due to greater parental capacity to understand and respond to behavioural and emotional needs (Slade, 2005), the current study found no association between baseline parent reflective functioning and parent reports of child behaviour strengths or difficulties, raising questions about how parental reflective functioning influences the parent–child relationship, and also how it is related to perceptions of child behaviour. One possibility is that parent reflective functioning works together with parents' caregiving representations, and that parent reflective functioning may only matter if parent representations are problematic (Moran, Hawkins, & Pederson, 2006). Another possibility is that, although the demand questions on the Circle of Security Interview and coding approach are similar to those used with the PDI-R, different results may have been obtained if reflective functioning was scored from the PDI or Adult Attachment Interview. Thirdly, while poor parent mentalization has been proposed as one possible pathway in the development of child psychopathology (Sharp & Fonagy, 2008), our approach, coding only explicit mentalizing capacity from verbal statements, may mean we did not capture every parent's full mentalizing capacity, especially in less articulate parents. Several authors suggest that implicit or non-declarative forms of mentalizing in parents might also be related to child behavioural and emotional functioning (Fogel, 2011; Shai & Belsky, 2011).

Study strengths and limitations

Study strengths included an excellent participation and retention rate, the use of multi informant, multi method assessments of child behavioural and emotional functioning, and the consideration of a wide range of possible moderators. Participation and retention rates are likely attributable to key features of the intervention, rather than the research implementation, per se, and are consistent with conclusions from previous work (Hoffman et al., 2006) that suggest the COS approach is particularly engaging for families with complex problems who have been difficult to reach with other approaches (Koerting et al., 2013; Thomas & Zimmer-Gembeck, 2012). Berlin and colleagues (Berlin et al., 2008) suggest this may be in part due to the relationship participants develop with the therapists and with others in the group.

The study also included a measure of protective factors providing information about positive changes in the child as well as reductions in negative behaviours. It was also a strength, like the original study of this intervention conducted by Hoffman and colleagues

(Hoffman et al., 2006), that the current research was conducted in a real world clinical setting, confirming the effectiveness of the intervention with, moderate to high risk families concerned about behavioural and emotional problems in their young children.

The main limitation was the lack of a control or comparison group. Future studies should include comparison with an alternative individualized intervention of similar duration (e.g., Parent–Child Interaction Therapy; Zisser & Eyberg, 2010) or a wait list control condition. The absence of a control group means it was not possible to fully exclude the conclusion that social desirability factors may have influenced parent reports post-intervention. However the similar, albeit more modest, pattern of change reported by teachers supports an interpretation of meaningful change in child behaviour as well as in parent perceptions.

Small numbers on some of the behaviour measures were a limitation, particularly with respect to teacher ratings. Not all children were in non-parental care at either or both time points; and while most parents completed the intervention, not all completed both sets of questionnaires and the pursuit of missing questionnaire data was not possible once clinical goals had been met. Another approach to corroborating change would be the inclusion of behaviour ratings by the parent who did not attend the intervention, and/or observer ratings of child behaviour in home or childcare settings. There is some evidence to suggest that some higher risk parents may rate their child's behaviour more negatively than an independent observer (Lau et al., 2006; Ordway, 2011), therefore triangulating measures of child behaviour would be important in any future study.

Conducting a study using archived data collected by clinicians was necessarily limited by clinical priorities: clinic choice of the DECA-C (limited to children aged 2–5 years), meant "protective factors" and "behavioural concerns" data were not available for the whole sample. Though the broad age range posed some challenges for outcome measurement in the current study, we sought to accommodate developmental variation in behaviour problem expression by limiting our focus to overall problem types (e.g., externalizing) rather than more specific types of behaviour (e.g., aggression) that might vary with age and we used T scores to enable cross-age and cross-instrument comparison.

Finally, it was a substantial limitation that the mechanisms through which behaviour changes occurred could not be elucidated, as we did not include observational measures of parent behaviour, nor do we have follow-up data to indicate whether changes were maintained. Future studies could include a naturalistic observation to determine if parents were behaving differently as a result of the intervention. A follow-up assessment of behaviour some time after completion of the intervention would also allow testing of whether behaviour change was related to change in parent emotional well-being, caregiving representations, reflective functioning or child attachment indices.

Conclusions and clinical implications

The current study provides new evidence that the Circle of Security attachment-based intensive 20-week group intervention is effective in improving child behavioural and emotional functioning with families of children aged 18–88 months. Children were found to have increased social and emotional resilience as well as reduced behavioural

concerns. Although families had moderate to high levels of psychosocial and demographic risk, engagement and retention rates were high, and children starting with more severe difficulties showed most improvement. This study adds to the evidence base for the use of attachment-based interventions to address child behaviour problems.

Further replication of these findings with a control and/or comparison group and a longer term follow up is warranted to enable comparison with other interventions that take a different approach. Given the availability and wide usage of a shorter, 8 week version of Circle of Security (Cooper, Hoffman, & Powell, 2009), it would also be important to test the relative effectiveness of the 20 and 8 week versions in changing child behavioural and emotional functioning.

Notes

1. All primary caregivers are referred to as "parents", and caregivers outside the home (childcare workers, preschool and school teachers) are referred to as "teachers".

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Appendix F   Improved Parental Emotional Functioning After Circle of Security 20-Week Parent–Child Relationship Intervention

Appendix F of this thesis has been removed as it contains published material. Please refer to the following citation for details of the article contained in these pages.

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