Empirical Article

# I'm with you, baby: Using parental embodied mentalizing in a pilot study to capture change following the circle of security parenting intervention

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Supported by a large body of work demonstrating the impact of infant attachment representations on subsequent development, numerous therapeutic programs have been developed to promote secure attachment, with increasing focus on parental mentalizing. Nonetheless, empirical evidence supporting their effectiveness has yet to be fully established. The current pilot study ($N$ = 24) was designed to evaluate whether and to what extent parents' shifts in parental mentalizing following a brief attachment-based group intervention, namely circle of security parenting (COSP; Cooper, Hoffman & Powell, 2009) can be captured using the parental embodied mentalizing instrument (PEM; Shai & Belsky, 2017). Compared to a waiting list–control group, this small-scale study examined whether community-based low-risk mothers of infants aged 5–48 months show an increase in their observed PEM capacities following the intervention. Secondary self-reported outcome variables parental stress, feeling of competence, and self-compassion. Findings show that PEM ratings improved significantly over time in the COSP group, but not in the control group. Intervention group mother–infant dyads also presented significantly longer embodied interactions communication post intervention compared to the control group. No effects of the COSP on parental stress, competence, or self-compassion were found. Despite the small sample size, these results tentatively suggest that COSP can improve embodied mentalizing abilities.

*Key words*: Circle of security, parental embodied mentalizing, attachment, COS, parental mentalizing.

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## INTRODUCTION

Contemporary scientific evidence from neuroscience, psychology, medicine, and economics confirms the importance of the early parent–infant relationship to children's short and long term emotional, cognitive, social, and medical wellbeing (e.g., Heckman & Masterov, 2007; National Scientific Council on the Developing Child, 2020). Accumulative evidence demonstrates that the quality of caregiving is central to the child's developing resilience in the face of adversity (Johnson, Guthrie, Smyke *et al*., 2010; Julian, Lawler & Rosenblum, 2017). One of the chief developmental outcomes examined in this context is the individual's internalized representation of attachment security. Broadly speaking, this affective-cognitive representation reflects the extent to which the child feels secure with respect to the caregiver (Bowlby, 1973). Infants developing secure attachments to their caregivers exhibit a range of short- and long-term positive cognitive, social, and emotional developmental outcomes (Cassidy & Shaver, 2016; Slade, Holland, Ordway *et al*., 2020; Sroufe, Egeland, Carlson & Collins, 2005). In contrast, infants developing insecure or disorganized patterns of attachment to their caregiver have been linked to a range of long-term negative outcomes (Carlson, 1998; Lyons-Ruth & Jacobvitz, 2016).

Given the impact of infant attachment representations on subsequent development, it is unsurprising that numerous therapeutic programs have been developed to promote secure attachment (Cassidy, Brett, Gross *et al*., 2017; Slade *et al*., 2020). In many cases, maternal sensitivity is targeted as a means of influencing child attachment (e.g., for reviews, see Berlin, Zeanah & Lieberman, 2016; Zeanah, 2018). Caregiving sensitivity refers to the caregiver's ability to notice the infant's signals, interpret them accurately and to respond to them promptly and appropriately (Ainsworth, Bell & Stayton, 1974). However, as research has consistently revealed only modest predictive associations between caregiving sensitivity and attachment quality, researchers have turned to identify additional potential factors explaining individual differences in attachment security with a focus on parental mentalizing (Verhage, Schuengel, Madigan *et al*., 2016). Parental mentalizing – the capacity to consider one's own and others' behavior in terms of underlying mental states (Fonagy & Target, 1997) – is a target of many attachment-based interventions and a construct yet has been challenging to capture fully (Shai & Belsky, 2017).

Most measures of parental mentalizing are linguistically-verbally based assessments and tap to the caregiver's explicit verbal representation of the child's internal world (Shai & Belsky, 2017). Nonetheless, a large body of work indicates that both babies and their caregivers rely heavily on nonverbal communication (e.g., Beebe & Lachmann, 1998; Hobson, 2004;

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Shai & Belsky, 2011; Stern, 2018). Therefore, there is merit in studying the intricate interactive elements comprising this caregiver-infant early relationship and identifying its crucial components supporting the child's emerging attachment representation of this relationship. Parental embodied mentalizing (PEM) is a construct and measure, offering a video-based observational assessment of the caregiver's nonverbal, body-based, capacity to consider the infant as a psychological agent, whose mental states are expressed through his or her body movements, and to adjust to these to better meet the child's given mental state (Shai & Belsky, 2017). PEM taps the caregiver's nonverbal appreciation of the infant's mind as reflected in the nonverbal dyadic exchanges of bodily movements of caregiver and infant, and the parent's attempt to modify one's own movement to adjust and respond to the child's nonverbally expressed mental state (Shai & Belsky, 2011, 2017; Shai & Meins, 2018). The underlying working hypothesis is that infants who repeatedly experience interactive encounters with a caregiver high on PEM will develop a sense of themselves as intentional beings, whose internal worlds are meaningful, respected, and considered. They are likely to feel safe to experience and share a range of feelings with their caregiver, eventually leading to the establishment of a secure attachment with their caregiver. Indeed, several studies have demonstrated that PEM in infancy was useful instrument predicting child attachment at 12, 15, and 36 months, even when considering the variance explained by caregiving sensitivity (Gagné, Lemelin & Tarabulsy, 2021; Shai & Belsky, 2017; Shai & Meins, 2018).

The unit of analysis and consideration in the PEM coding process is that of embodied circles of communication (ECC; Shai & Belsky, 2017), an embodied communicative chain, where one party of the dyad responds to the movement of the other and vice versa. ECCs could be thought of as an embodied conversation; these could be brief or extended and elaborated. Longer, elongated ECCs could express the parent's ability to be attentive to the child's mental states and follow them, to be willing and curious to discover what content of the child's mind will unfold and manifest itself, and to engage with the child's mind rather than trying to control it. High frequency of ECCs could, in contrast, reflect difficulty to notice, to be with, and to stay with the baby's mind.

Since one of the main objectives of attachment-based interventions is to propel change in the parent–child relationship through enhancing caregiving sensitivity (Cassidy *et al.*, 2017), there is value in using a nonverbal observational interactive instrument to assess intervention impact. This is particularly relevant when assessing the circle of security parenting intervention (COSP™; Powell *et al.*, 2009). COSP™ is an eight-session manualized group intervention program that leverages research on parent–child attachment (Powell *et al.*, 2009). It is adapted from a more intensive group therapy model (COS-Intensive; Hoffman *et al.*, 2006; Huber, Hawkins & Cooper, 2018; Powell *et al.*, 2013), and was designed to be more widely available to both high and low-risk parents of young children (Cassidy *et al.*, 2017). The COSP™ uses pre-produced video vignettes of sensitive and problematic interactions between parent and child to illustrate patterns of parental struggles in meeting young children's attachment needs. It is a manualized group intervention for parents of children from infancy to age 6 that leverages research on parent–child attachment and is aimed at promoting secure attachment bonds (Powell *et al.*, 2009). It contains both educational and therapeutic aspects (Marvin, Cooper, Hoffman & Powell, 2002), and there is considerable use of pre-produced video vignettes of parent–child interactions to illustrate patterns of parental struggles in identifying and responding to young children's attachment needs. Research demonstrates the efficacy of the COSP™ intervention, in terms of facilitating change in parents' ability to cope with their children's emotional needs (Maxwell, McMahon, Huber, Reay, Hawkins & Barnett, 2021). Nonetheless, the sample sizes in some of the studies were small and results were based on non-experimental designs (Maupin, Samuel, Nappi, Heath & Smith, 2017). Moreover, most of the existing research involves evaluating parental change using self-report rather than measuring observed behaviors (for an exception, see Risholm Mothander, Furmark & Neander, 2018).

It is contended that the PEM measure would be able to capture shifts in the caregiver's quality of interactive behavior with the infant., Moreover, as parental mentalizing seems to be an important capacity involved in the intervention (Maupin *et al.*, 2017; Maxwell *et al.*, 2021), an outcome measure of parental mentalizing would be important to better understand the role parental mentalizing indeed plays in promoting the intervention aims, especially in infancy. Finally, it appears that the practice applied in COSP™, namely, watching and discussing parent–infant interactions, fosters and promotes the parent's embodied mentalizing capacities. These include calling attention to notice the infant's subtle cues, discussing what they may possibly mean, what parental response would be most appropriate to meet the child's attachment need, etc. Furthermore, COSP™ providers are trained to reflect with caregivers about what "being with" their child entails (Stern, 2018). "Being with" refers to the caregiver's capacity to accept, name and attune to the child's emotional state. Taken together, it is possible that the assessment of PEM before and after the COSP™ intervention, while comparing to a control group, could illuminate some of the mechanisms of change caregivers undergo in this attachment-based intervention, namely COSP™.

### *The current study*

Given the parallels between PEM and the attachment based COSP™ intervention, a key aim of this pilot study is to test empirically whether PEM is a well-suited measure to capture the impact of the intervention. Using a waiting list – control design, we address the following main research question: Can an 8-week group intervention result in observable changes in parental mentalizing skills assessed during mother-infant interaction using the PEM measure as the primary outcome? Building on previous studies using self-reports to measure effects of the COSP™, we also include self-reports of the mothers' parental stress, parental competence, and self-compassion as secondary outcomes. These three parenting variables are central to parental care and to the parent–infant relationship (e.g., Dubois-Comtois, Moss, Cyr & Pascuzzo, 2013; George & Solomon, 2011), and have been shown in previous work to change in a positive direction following

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positively COSP™ interventions (e.g., Huber *et al*., 2018; Maxwell *et al*., 2021). We hypothesize that mothers participating in the intervention group will demonstrate a significant increase in their global PEM rating, as well as decrease in ECC frequency, in comparison to the control group. We further hypothesize that COSP™ mothers will show significant improvement in their parental competence, and self-compassion and report significantly less parental stress once following the intervention.

## METHODS

### *Participants*

The current study included 28 mothers, who were allocated to either COSP™ ($n$ = 15) or control ($n$ = 13). Mothers were eligible if one or more of the following statements applied to them: feels stressed or insecure as a mother; has many conflicts with the child (e.g., in feeding situations or when putting the child to sleep); finds it difficult to interpret the child's signals; feels lack of joy being a mother (primary inclusion criteria). Further inclusion criteria were does not have a psychiatric diagnosis, has at least one child aged 0–2 years, has at least 12 years of education; holds a job; speaks Danish; does not have problems that require contact with the social authorities (secondary inclusion criteria).

Maternal mean age was 33.00 (range: 28–41; $SD$ = 3.46), mean years of education was 15.63 (range: 12–17; $SD$ = 1.61), all mothers held a job and reported having a life partner. Four (21%) of the 19 mothers had one child, and the remaining had two children. The enrolled child (i.e., the child with whom the mother interacted at pre- and post-assessment) was the youngest if the mother had more than one child or the mother's first child. Of these children, 63.2% ($n$ = 12) were girls and mean age at the pre-intervention assessment was 8.79 months (range: 4–19, $SD$ = 4.45). As shown in Table 1, $t$-tests revealed no significant differences between the control and the intervention group in terms of these background variables.

Table 1. *Comparisons between intervention and control groups on background and study variables*

| Variable | COSP™ sample ($n$ = 12) | Control sample ($n$ = 7) | Statistic test | Test variable | $P$ value |
|---|---|---|---|---|---|
| Child's sex | | | | | |
| Boy | 3 | 4 | $\chi^2_{(1)}$ | 2.57 | 0.23 |
| Girl | 9 | 3 | $\chi^2_{(1)}$ | | |
| Child's age (months) | 9.5 (4.62) | 5.86 (1.21) | $t^2_{(17)}$ | 1.31 | 0.20 |
| Education level | 15.33 (1.83) | 16.14 (1.07) | $t^2_{(17)}$ | −1.52 | 0.14 |
| Maternal age | 33.5 (3.71) | 32.14 (3.08) | $t^2_{(17)}$ | 0.93 | 0.36 |
| Baseline PEM rating | 3.83 (1.03) | 3.86 (.69) | $t^2_{(17)}$ | −0.05 | 0.96 |
| Baseline ECC frequency | 37.08 (9.61) | 37.71 (7.74) | $t^2_{(17)}$ | −0.15 | 0.89 |
| Baseline stress | 48.5 (15/07) | 38.1 (7.03) | $t^2_{(17)}$ | 2.02 | 0.06 |
| Baseline self-compassion | 8.57 (3.41) | 10.00 (3.62) | $t^2_{(17)}$ | −0.45 | 0.66 |
| Baseline competence | 38.38 (4.7) | 39.6 (5.39) | $t^2_{(17)}$ | −0.60 | 0.55 |

*Note*: NS = Not Significant, PEM = Parental Embodied Mentalizing, ECC Frequency = Number of Embodied Circles of Communication.

### *Recruitment*

The study was conducted in two Danish cities and participants were recruited by public health visitors during routine home visits offered to all Danish families during the first year postpartum and received ethical approval from the Scientific Committee of North Jutland. Danish health visitors are specialized nurses who are trained in screening (formally and informally) for physical and mental health issues in parents and infants with the purpose of referring families to secondary services. In the current study, a health visitor could invite a mother to participate if, based on clinical judgement (observations and conversations), the mother fulfilled the primary inclusion criteria. The health visitor informed eligible mothers about the project and gave them a flyer about the project. If the mother was interested in entering the study, she was asked to give written consent, and her contact information was sent to the project manager (second author). When the mothers were referred to the study, the project manager assessed the secondary inclusion criteria during a telephone interview.

### *Group allocation*

The project manager allocated mothers to either an intervention group list (COSP™ group) or a waitlist group (control group). Allocation was done according to the order the mothers were recruited. Specifically, the first six mothers recruited by the health visitors were allocated to COSP™, and the next six recruited mothers were allocated to control, then the next eight recruited mothers were allocated to the intervention group, and the final eight mothers were allocated to control. All mothers were recruited and assigned to intervention or control within 1 month. Neither the mothers, nor the health visitors knew what group the mother would be allocated to at enrollment. The project manager had no knowledge about the mothers at enrollment.

### *Sample size*

After enrollment, but before pre-intervention assessments, three control mothers dropped out of the study due to child sickness making it impossible to schedule pre-intervention assessments the intervention started, and one COSP™ mother dropped out because she did not have time to participate (was planning her wedding). These four mothers did not differ from the rest of the included mothers in terms of age, child age, or educational level. A total of 24 mothers completed pre- and post-intervention assessments. Due to technical and practical issues, PEM assessments were not available for five mothers (intervention, $n$ = 2; Control, $n$ = 3). Thus, the final sample size of the current inquiry was 19 mother-infant dyads (intervention, $n$ = 12; Control, $n$ = 7).

### *Procedure*

Pre- and post-assessments (video-recordings of mother-infant interactions and questionnaires) were conducted during a home visit within 1 month before and after the intervention. The home visits lasted between 1 and 2 h and was scheduled to fit the infant's sleeping and eating routines. For the video-recordings of the mother-infant interactions, mothers were instructed to interact with their infant for 10-min as they usually would do. If the infant was asleep when the tester arrived, questionnaires were completed before the interaction was filmed, and if the infant was awake and alert at the beginning of the visit, the order was reversed. The second author conducted all pre- and post-assessments.

### *The COSP™ intervention*

COSP™ is a video-based, manualized intervention for parents. The COSP™ program uses the Circle of Security diagram (see Fig. 1) to provide parents with a visual representation of key attachment constructs and of children's attachment needs (see Fig. 1). The top of the circle corresponds to the child's exploration and the parent's corresponding autonomy support (Matte-Gagné *et al*., 2015). The bottom of the circle

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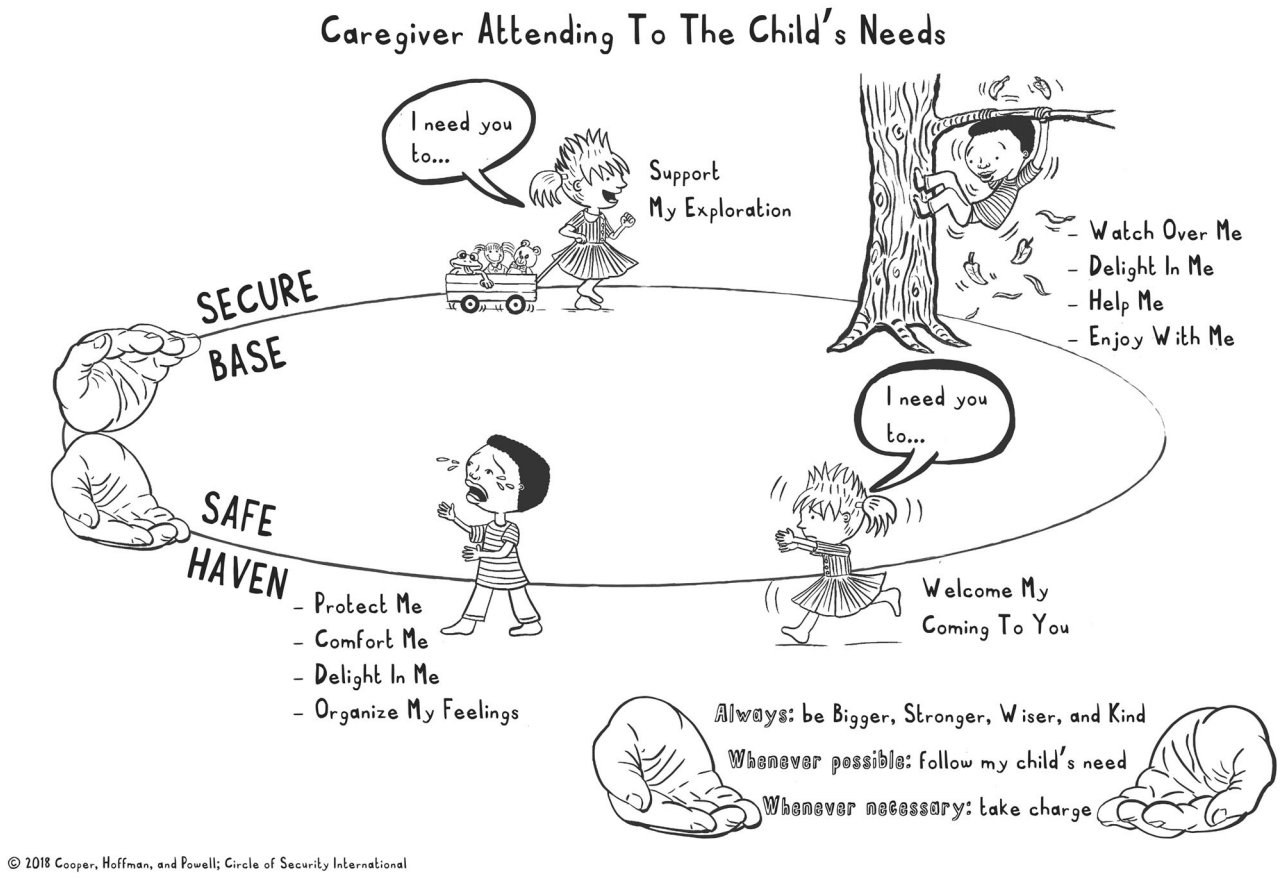


*Fig. 1.* Circle of security.

corresponds to the child's needs for emotion regulation and is linked to a central aspect of the COSP™ intervention, namely supporting parents' ability to simply "be with" their child's emotional state. The third part of the circle of security – the "hands" – represents the caregiver's emotional presence and is derived from Winnicott's (1971) concept of the "holding environment."

The circle diagram suggests that being a secure base and safe haven means allowing the child "out on the top of the circle" (i.e., supports the child's exploration) then tracking and (whenever possible) meeting the child's needs. When the child "comes in on the bottom," once again the parent is there to recognize, attune to and meet the child's need. At the same time, a vital aspect of "being the hands" is also about deciding when not just to meet a need, but also when and how to "take charge." The caregiver's presence – summarized as their capacity to balance being bigger, stronger, wiser, and kind in any given moment – is critical to being "the hands."

Throughout the intervention, parents observe stock video clips and reflect upon the interactive process between parents and children in the age group birth to 6 years. To facilitate the internalization of the material, parents are invited to present "circle stories" in each session; descriptions of how their child signals his or her internal states and needs. The stories are used by the facilitator to help the group members better understand their child's need for the provision of a secure base/safe haven.

The COSP™ manual specifies how the facilitator uses each chapter's video content to focus group discussion on specific themes. The current study made use of the COSP™ protocol translated into Danish by trained providers who are native speakers in consultation with the program creators. The intervention was offered in two groups of six–eight mothers over eight weekly 90-min sessions. Three health visitors, all certified COSP™ facilitators, ran the groups. Each group was led by two facilitators, and the second author was one of the facilitators in each group.

### *Measures*

The primary outcome was maternal capacity for embodied mentalizing and assessed with PEM (Shai, 2011; Shai & Belsky, 2017). PEM is an observation-based instrument designed to capture kinesthetic aspects of parent–infant interaction. To assess this interaction, the quality, and dynamics of the movement – of both the parent and the infant – are examined, and the appropriateness of the parent's response is examined through the child's response to the parent. Since the sole focus when using PEM is on the nonverbal, kinesthetic behaviors, the coding is therefore performed with the sound off. In this study, the PEM coding was used on the last seven out of 10 minutes of the mother–child free-play video-recordings, after allowing a three-minute "settle in" period.

In this study, PEM coding was used on the last seven out of 10 minutes of the mother–child free-play video-recordings, after allowing a three-minute "settle in" period. Coding adhered to the PEM coding protocol (Shai, 2011; Shai & Belsky, 2017) which is a manualized five-step process. First, interactions are delineated into ECCs, which are identified as a bodily-based communicative exchange between infant and parent. The ECCs are identified from the movement qualities of both the infant and the parent. These movement qualities are partially based on the Kestenberg movement profile (Amighi, 1999). The six kinesthetic movement qualities coded in PEM include spatial and temporal qualities. The spatial qualities include directionality (where the movement is in relation to the torso?, e.g., toward or away); space (the positioning of the movement in relation to the infant's body, e.g., near or far) and; pathway, the imaginary line in space the movement creates (e.g., rounded or linear). The temporal movement qualities include pacing (the extent to which the movement changes, e.g., abruptly or gradually) and tempo (which refers to the frequency of the pulse of the movement within a time unit, e.g., fast or slow). Finally, there is also consideration of the tension flow, (the muscle tone used in the movement, e.g. free-flow or bound.

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Once an ECC has been identified – in terms of its temporal boundaries (i.e., its beginning and ending) and its kinesthetic qualities – each ECC is further classified into one of five themes: support, body ownership, transitions, promoting exploration, and connectivity. Where applicable, each ECC is further classified into a relevant subtheme. A PEM score is assigned to each of the ECCs (using a seven-point scale), reflecting the mother's capacity to respond and adjust her kinesthetic qualities in regard to the infant's kinesthetic-manifested mental states. A score of "1" reflects very low PEM capacity, that is, the parent demonstrates considerable difficulty in acknowledging the infant as a mental entity and does not repair any ruptures, infant's mental state is expressed clearly for an extended amount of time, Parent does not repair the rupture, instead acts upon their own mental state. A score of "4" reflects moderate PEM capacity, that is, the parent perceives the infant as a mentalistic entity and is a basic appreciation of infant's mental state, and the parent is more able to appreciate and respond to infant over positive, rather than negative states. A score of "7" reflects very high PEM capacity, that is, The infant's mental state is fully expressed, the parent detects infant's subtle mental states, repairs any ruptures very quickly and there is a wider variety of movement qualities.

PEM was coded on mother-infant interactions pre- and post the intervention by the second author who was reliable and trained at the first author, the developer of the PEM coding scheme. To evaluate inter-rater reliability, and because the principal coder was not blind to group status, as she was involved in the clinical program facilitation, a randomly selected subset of the videos (40%, $n = 8$) were coded by a second coder, an experienced PEM coder also trained at the Anna Freud National Centre of Children and Families, and blind to group status and to the principal coder's ratings. An Intraclass Correlation Coefficient (ICC) for the PEM score was 0.98, $p < 0.001$, indicating a very high level of agreement between the two coders. ECC frequency ICC was 0.78, $p < 0.001$.

*Maternal competence* was measured before and after the intervention using the Karitane parenting confidence scale (KPCS: Črnčec, Barnett & Matthey, 2008a, 2008b). The KPCS is a f item, self-report measure that can be used for parents of infants aged 0 to 12 months. Although there were infants older than 1 year of age in the current investigation, the measure was deemed suitable to capture the doubts that parents encounter beyond the first year of life. Each item is rated on a four-point scale (From "No, hardly ever" to "Yes, most of the time"). Sample items include: "I know what to do when my baby cries" and "I am confident about playing with my baby". Scoring results in a total score (range: 0–45) with higher scores indicating greater parenting competence. The KPCS has showed acceptable internal consistency ($\alpha = 0.81$; Črnčec *et al*., 2008a). A Danish version of the scale, developed for another study (Pontoppidan, 2015), was used in this inquiry and its internal constancy was $\alpha = 0.84$.

*Maternal stress* was assessed pre- and- post intervention using the parental stress scale (PSS; Berry & Jones, 1995). The PSS is an eighteen-item, self-report instrument that uses a five-point Likert-type scale (from "Strongly disagree" to "Strongly agree") on all ranges of parents' age. Sample items include: "Having a child leaves little time and flexibility in my life" and "I feel close to my child". Scoring results in a total score (range: 18–90) with higher scores reflecting more parenting stress. The PSS has demonstrated good internal consistency ($\alpha = 0.83$; Berry & Jones, 1995) in a low-risk study. In the current inquiry, internal consistency was $\alpha = 0.85$.

*Maternal self-compassion* was measured pre- and post the intervention using the self-compassion scale (SCS: Neff, 2003). This is a twenty-six-item self-report measure used on all parents' ages rated on a five-point Likert-type scale (From "Almost never" to "Almost always"). Sample items include "I try to see my failings as part of the human condition" and "when something painful happens I try to take a balanced view of the situation," Higher scores indicate more self-compassion. The scale has demonstrated good internal reliability ($\alpha = 0.92$; Neff, 2003). A shortened, eighteen-item Danish translation version of this questionnaire was developed for this study and internal consistency was $\alpha = 0.92$.

## RESULTS

### *Statistical analyses*

We performed the analysis in several steps. First, using a series of independent-sample *t*-tests, we compared between the control and intervention group on the study's variables to examine baseline differences between the two groups. Next, we conducted a series of zero-order correlations for all study variables. We then ran a series of mixed (between–within) two-way analysis of variance (ANOVA) analyses to compare the main effects to the interaction effect between group (intervention vs. control) and time (pre- and post- intervention) on mothers' global PEM ratings, ECC frequency, stress, competence, and self-compassion while controlling for background variables where necessary. We then ran follow-up post hoc paired-samples *t*-tests to identify in-group changes in the outcome measures. A power analysis was conducted using G*Power version 3.1.9.7 (Faul, Erdfelder, Lang & Buchner, 2007) to determine the minimum sample size required to test these study hypotheses. Results indicated the required sample size to achieve 80% power for detecting a large effect, at a significance criterion of $\alpha = 0.05$, was $N = 20$ for a mixed (between-within) two-way ANOVA analysis. Thus, the obtained sample size of $N = 28$ is adequate to test the study hypotheses.

### *Preliminary analyses*

The independent samples *t*-tests comparing the groups – control and intervention – at baseline on the study's outcome variables, as well as descriptive statistics, are presented in Table 1. As can be seen, no significant differences were revealed between the groups on parental stress, self-compassion, or competence. Examination of the associations between the study's outcome variables and background variables (Table 2) revealed that there was no association between the study's variables measured at baseline and the child's sex or age, or the mother's age. The only exception was the significant association between parental stress and child's sex, with mothers of girls reporting higher levels of stress ($M = 49.75$, $SD = 13.11$) than mothers to boys

Table 2. *Zero-order correlations between background and study's variables*

| Variable | Maternal age | Child age | Child sex | Education level |
|---|---|---|---|---|
| Baseline PEM rating | −0.14 | 0.22 | 0.36 | 0.23 |
| Baseline ECC frequency | 0.19 | −0.09 | −0.25 | 0.18 |
| Baseline stress | 0.31 | 0.32 | 0.47* | 0.25 |
| Baseline self-compassion | −0.39$^{\dagger}$ | −0.33 | −0.41$^{\dagger}$ | −0.24 |
| Baseline competence | 0.12 | −0.19 | −0.27 | 0.16 |

*Notes*: PEM = Parental Embodied Mentalizing, ECC Frequency = Number of Embodied Circles of Communication.
$^{\dagger}p < 0.1$,
*$p < 0.05$.

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Table 3. *Comparison table of COSP™ intervention and control groups on study's variables*

| | COSP™ group | | | | | Control group | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Pre | | | Post | | Pre | | | Post | |
| Variable | *N* | *M* | *SD* | *M* | *SD* | *N* | *M* | *SD* | *M* | *SD* |
| PEM | 12 | 3.83 | 1.02 | 6.17 | 0.71 | 7 | 3.86 | 0.69 | 3.86 | 0.69 |
| Number of ECC | 12 | 37.08 | 9.61 | 32.00 | 5.82 | 7 | 37.71 | 7.74 | 42.14 | 5.46 |
| Self-compassion | 12 | 54.17 | 16.40 | 54.75 | 10.47 | 7 | 56.57 | 13.89 | 59.42 | 10.93 |
| Parental stress | 12 | 49.08 | 16.28 | 39.75 | 8.30 | 7 | 37.14 | 7.34 | 35.43 | 5.91 |
| Parental competence | 12 | 38.33 | 6.12 | 39.42 | 1.88 | 7 | 39.14 | 6.12 | 39.57 | 5.29 |

*Note*: N = Number, M = Mean, NSD = Standard Deviation, PEM = Parental Embodied Mentalizing, ECC Frequency = Number of Embodied Circles of Communication.

($M$ = 36.00, $SD$ = 13.81). For that reason, post hoc analyses examining possible shifts in parental stress post intervention included child sex.

Descriptive statistics of the study's variables of COSP™ intervention and control groups are presented in Table 3. As can be seen, global PEM ratings increased from $M$ = 3.83 to $M$ = 6.17; whereas mothers in the control group showed no change in their global PEM ratings over time ($M$ = 3.86, both pre and post the intervention). Additionally, the frequency of ECCs increased in the control group over time, while decreasing in the intervention group. To examine the statistical significance of these differences, we ran a set of mixed (between-within) two-way ANOVA analyses.

### *ANOVA analyses*

*Parental embodied mentalizing.* A mixed (between-within) two-way ANOVA was conducted to compare the main effects to the interaction effect between group (intervention vs. control) and time (pre- and post- intervention) on mothers' global PEM ratings. As shown in Fig. 2, results revealed a significant interaction between group and time on PEM ratings ($F_{(1,17)}$ = 630.11, $p$ < 0.001). Cohen's effect size value ($d$ = 0.74) suggested a moderate to high practical significance.Two follow-up post hoc paired-sample $t$-tests revealed a significant increase between the global PEM ratings of the COSP™ intervention group before and after the intervention such that the PEM ratings of mothers in the intervention group increased significantly following the intervention (pre: $M$ = 3.83; $SD$ = 1.03; post: $M$ = 6.17; $SD$ = 0.72) ($t_{(11)}$ = −9.11, $p$ < 0.0001). Cohen's effect size value ($d$ = −2.63) suggested a high practical significance. A paired-sample $t$-test for the global PEM ratings of the control group could not be computed as there was no change in any of the group's ratings over time (pre: $M$ = 3.86; $SD$ = 0.69; post: $M$ = 3.86; $SD$ = 0.69).

There was also a trend towards significance in the interaction between group and time on the ECC frequency ($F_{(1,17)}$ = 4.01, $P$ = 0.061, $d$ = 0.19). As shown in Fig. 3, differences approaching significance were detected in mothers' ECC frequency. Two follow-up post hoc paired-sample $t$-tests revealed a significant change in the ECC frequency of the COSP™ intervention group before and after the intervention such that the ECC frequency of mothers in the intervention group decreased following the intervention (pre: $M$ = 37.08; $SD$ = 9.61; post: $M$ = 32; $SD$ = 5.82) ($t_{(11)}$ = 1.99, $p$ = 0.04; $d$ = 0.58, being a medium effect size). No significant difference in ECC frequency over time was detected in the control group (pre: $M$ = 37.71; $SD$ = 7.74; post: $M$ = 42.14; $SD$ = 5.46) ($t_{(6)}$ = −1.16, $p$ = 0.29; $d$ = 0.44).

*Parental stress, competence, and self-compassion.* A set of repeated ANOVA analyses were conducted to compare the main

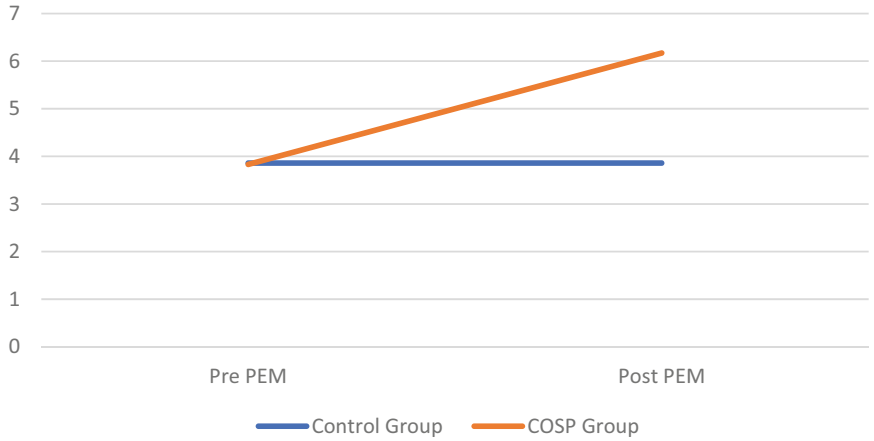


*Fig. 2.* Group × time interaction on PEM rating.

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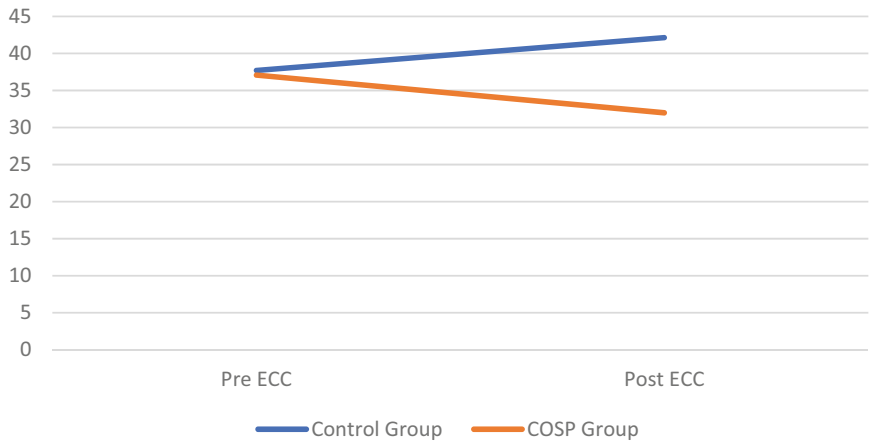


*Fig. 3.* Group × time interaction on ECCs frequency.

effects to the interaction effect between group (intervention vs. control), time (pre- and post-intervention) and sex (in the case of stress) on mothers' ratings of parental stress, parental competence, and self-compassion. No significant interaction was found between group and time on parental stress levels ($F_{(1,15)} = 0.67$, $p = 0.47$, $d = 0.08$), ratings of parental competence ($F_{(1,22)} = 0.44$, $p = 0.52$, $d = 0.01$), or self-compassion ($F_{(1,22)} = 0.18$, $p = 0.64$, $d = 0.02$). Furthermore, running a set of zero order correlations did not reveal any significant associations between the parents' self-reports and their PEM rating.

## DISCUSSION

The current pilot study was designed to assess whether the COSP™, a short term, attachment-based group intervention for parents can result in observable changes in parental mentalizing skills, as well as self-reported parenting capacities and wellbeing, namely, parental competence, stress, and self-compassion. Parental mentalizing was assessed during mother-infant interaction using the parental embodied mentalizing (PEM) measure (Shai & Belsky, 2017).

In line with our expectations, following the intervention, mothers' PEM ratings improved significantly compared with the control group, where no change in PEM ratings was observed. We further documented a significant increase in the PEM ratings within the intervention group after the intervention. In fact, mothers in the COSP™ group almost doubled their average PEM rating after ($M = 6.2$), in comparison to before ($M = 3.9$) the intervention. Clearly, these are findings from a pilot, small sample, study, and thus must be treated cautiously. Nonetheless, the robust increase in PEM ratings and the effect size tentatively supports the premise that COSP™, within a short and focused intervention, can promote the parent's ability to mentalize – to identify the infant as a psychological being, to appreciate that he or she has a mind, and that this mind is expressed nonverbally. This appreciation and recognition of the child's mind results, as the findings indicate, in an increased ability to attune appropriately to the infant, manifested in a more accurate reading of and responding to the infant's mind, as this is expressed on the embodied level.

Moreover, when examining the frequency of ECCs, the pre-post difference between the control and the intervention groups approached significance, such that mothers in the intervention group exhibited close to significantly fewer PEM ECCs following the intervention in comparison to the control group. Follow-up analyses revealed that mothers in the COSP™ group had a significant decrease in their ECC frequency after the intervention in comparison to baseline, whereas no such change was documented in the control group. The decrease in the frequency of the ECCs in the COSP™ treatment group suggests that these mothers were able to slow down the interactions with the infant, to sustain their presence, and be more able to "be with" the baby rather than "doing" something with him or her. In other words, it is likely that following the COSP™ intervention, mothers were more able to wait and discover what their infant's need is on the circle, and perhaps also to recognize where their own actions might be motivated from their own, rather than their child's need. These realizations are, in turn, translated into a parent–infant interaction that is led by a parent who can sustain her own action or reaction, who can tolerate the uncertainly of what her infant needs or wants, and give the time for it to unfold and be discovered.

Unexpectedly, we found no effects of the intervention on self-reported parental competence, stress, or self-compassion. This is somewhat surprising because some previous studies have reported significant effects of COSP™ on similar outcomes measured using self-reports (Cassidy *et al.*, 2017; Horton & Murray, 2015; Kohlhoff, Stein, Ha & Mejaha, 2016). Nonetheless, others have failed to document such results (e.g., Maupin *et al.*, 2017). These null findings could be explained by the small sample size, which had enough power enabled us to detect only large effects, thus limiting the ability to reveal less robust significant differences between the groups. It is also possible is that the characteristics of the sample, that is., a low-risk sample, implied that this population experience, to begin with, less parental stress than higher risk populations, and that for this reason, no change in parental stress was detected because of participation in the intervention.

It is also possible that the knowledge acquired during the intervention is coded and encoded in different ways in the

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parental mind, are processed differently, and may manifest themselves at different times and pacing. There is some evidence that cognitive and reflective shifts in the parent's representation after going through the COSP™ program may take time to form in a more articulate fashion (Kitagawa, Iwamoto, Umemura *et al*., 2021), while the procedural, behavioral knowledge and insights gained from the COSP™ intervention may be implemented more promptly in the parent's behavioral repertoire. A similar pattern of findings was found in a randomized control trial of a mentalization-based, home-based, interdisciplinary intervention for 105 infants and their families called minding the baby (MTB; Sadler *et al*., 2013). In this study, the children in the intervention group were significantly more likely to be classified as securely attached, and mothers improved in their behavioral interactive behavior. Nonetheless, no improvements were evident in the mothers' self-reports of parental mentalizing. The authors concluded that "it might be more appropriate to use a nonverbal measure of mentalization such as that developed by Shai & Belsky (2011) or a more behaviorally based measure such as Meins, Fernyhough, Fradley & Tuckey's (2001) measure of mind-mindedness" Sadler *et al*., 2013, p. 12). Future research would highly benefit from a follow-up design, revisiting the families some time post the intervention to examine the long-term impact of the intervention.

PEM (Shai, 2011; Shai & Belsky, 2017) was used as the primary outcome for several reasons. First, and as mentioned in the introduction, the COSP™ is designed to enhance parents' abilities to mentalize their child's inner states, thereby to "be with" the child. A core assumption is that such attuned caregiving responses in infancy are, more often than not, nonverbal in nature (e.g., Beebe & Lachmann, 1998; Hobson, 2004; Shai & Belsky, 2011; Stern, 2018). PEM captures this core aspect of sensitive caregiving behavior, namely the parent's capacity for "online mentalizing." Second, only one previous study (Risholm Mothander *et al*., 2018) has reported changes in observed parental behavior following COSP™. Addressing observable behavioral changes is of vital importance because it can be argued that improved parental mentalizing can truly benefit the child only if it translates into attuned caregiving responses (which, in turn, promotes attachment security). Therefore, there value in capturing the effects of COSP™ on the behavioral level. Hence, our study makes an important contribution to the literature on both the possible usefulness of the COSP™ intervention and the PEM measure as an outcome assessment.

Thus far there are only three known studies examining shifts in self-reported parental mentalizing following COSP™ (Kohlhoff *et al*., 2016; Maupin *et al*., 2017; Maxwell *et al*., 2021), while only two of them found significant effects of the intervention on parental mentalizing capacities. Thus, the current findings tentatively indicate that using the PEM measure may enable capturing the changes in mentalizing. Together, this evidence supports the usefulness and importance of PEM as a mentalizing outcome measure for an attachment-based intervention. Moreover, based on these preliminary findings, we can carefully assert that assessing parent–infant dynamics within a free play context is useful in illuminating attachment-related dynamics of both comforting and exploration needs, and that PEM is sensitive to this form of attachment behavior. Therefore, it would be useful for developmental assessments to consider not only parental response to infant distress, but also parental support of infant exploration (e.g., Bernier, Carlson & Whipple, 2010).

In contrast to previous studies suggesting that intervention effects are more likely to be expected in parent–infant dyads at greater risk (e.g. Cassidy, Woodhouse, Sherman, Stupica & Lejuez, 2011), that low-risk samples are slow to respond to intervention effects, or even that interventions targeting low-risk parents might interfere with intuitive caregiving (Papousek & Papousek, 1987, 2002; Smith, 2014), we detected robust effects of COSP™ on observed maternal embodied mentalizing in a sample of well-resourced Danish mothers. These results are in line with the original use COSP™ was designed for – a broad scaled preventive intervention (Powell *et al*., 2009). Indeed, the current results tentatively indicate that COSP™ is a useful intervention for low-risk groups, where parents face sub-clinical difficulties, that nonetheless may place the parent–child relationship at risk.

### *Limitations and future directions*

Despite the promising findings this pilot study offers, a central limitation that needs to considered is its sample size. The small sample size allows for only robust, large effects to be revealed such that some effects were unable to reach significance. Hence, the finding herein reported calls for caution in terms of generalization. A larger sample would have been valuable and should be attained in future studies. Another limitation is the allocation process, that was based on a clinical judgement rather than a set score on a scale or a diagnostic criterion. It should be stressed that this was a study conducted in a real-life setting where the health visitors routinely refer mothers to secondary services, for example, to parenting groups, extra visits from the health visitor, or to additional assessment (e.g., to the GP, a psychologist, or another specialist). Nonetheless, future similar studies would benefit from attempting to produce a more "objective" allocation process wherever possible.

It could be argued that it is a limitation that the principal coder of the PEM was not blind to group status. Moreover, there is potential for bias inherent in the fact that the second author both conducted the COSP™ groups and participated in the evaluation, including data collection. To encounter this, however, a randomly selected subset of 40% of the PEM recordings (rather than the generally agreed upon 20%), were double coded by a second coder who was blind to group status, thereby ensuring the sound inter-rater reliability of the PEM coding. Yet another noteworthy limitation of the current investigation was that the hypotheses were not pre-registered, thereby potentially jeopardizing the study's credibility. Although this work was certainly hypothesis-driven, future research would benefit from pre-registration, thus proving a transparent and eloquent practice of research and scientific practice.

In terms of mentalizing, there is only limited evidence that COSP™ promotes parental verbal mentalizing (e.g., Kitagawa *et al*., 2021; Kohlhoff *et al*., 2016; Risholm Mothander *et al*., 2018). Future studies would benefit from adding to the embodied assessment of parental mentalizing also verbal measures, to provide a more comprehensive understanding of how COSP™ shapes different aspects of parental mentalizing.

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Additionally, it is of great importance to examine the longer-term effects of the intervention – both on PEM as well as on parental stress, competence, and self-compassion. Although the short-term effects presented in the current pilot study are promising, the real question is the extent to which the impact of this, as any other intervention, holds over time. We strongly suggest that future studies following up on this preliminary work will include in their design a longer-term follow up of the sample.

Expanding on this work, it would be interesting to examine if and how COSP™ with high-risk families increases PEM in a similar fashion to low-risk family studies in the current work. Noteworthy is that in the current study, the Treatment as Usual (TAU) was a waiting list. Although this is often the care that is offered, future work would benefit from comparing the intervention to clinical group work that does not involve reflection and enhancing parental mentalizing so that the unique contribution of the COSP™ intervention, beyond the group setting, could become evident.

## CONCLUSION

Findings from this pilot study provide preliminary results of parents' increased bodily movement coordination and responsiveness to the infant's embodied expressed mental states following the intervention, suggesting the parent's improved mentalizing of the infant. Using the PEM measure to evaluate the impact of attachment-based interventions holds promise.

Ethical approval for this study was obtained by the Scientific Ethics Committee for Region North Jutland, Denmark, on September 16, 2014. The authors of this manuscript declare no conflict of interest in the execution and write up of the work reported in the current manuscript. The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions

## REFERENCES


Amighi, J.K. (1999). *The meaning of movement: Developmental and clinical perspectives of the Kestenberg Movement Profile*. Taylor & Francis.

Ainsworth, M.D.S., Bell, S.M. & Stayton, D. (1974). Infant–mother attachment and social develop- ment. In M.P. Richards (Ed.), *The introduction of the child into a social world* (pp. 95–135). Cambridge: Cambridge University Press.

Beebe, B. & Lachmann, F.M. (1998). Co-constructing inner and relational processes: Self-and mutual regulation in infant research and adult treatment. *Psychoanalytic Psychology*, *15*, 480–516.

Berlin, L.J., Zeanah, C.H. & Lieberman, A.F. (2016). Prevention and intervention programs to support early attachment security: A move to the level of the community. In J Cassidy, PR Shaver (Eds.), *Handbook of attachment* Theory, research, and clinical applications. 3rd (Vol. *3*, pp. 739–758). New York: Guilford Press.

Berlin, L.J., Zeanah, C.H. & Lieberman, A.F. (2016). Prevention and intervention programs to support early attachment security: A move to the level of the community. In: Cassidy J & Shaver PR (Eds.), *Handbook of attachment: Theory, research, and clinical applications*. 3rd (Vol. *3*, pp. 739–758). New York: Guilford Press.

Bernier, A., Carlson, S.M. & Whipple, N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development*, *81*, 326–339.

Berry, J.O. & Jones, W.H. (1995). The parental stress scale: Initial psychometric evidence. *Journal of Social and Personal Relationships*, *12*, 463–472.

Bowlby, J. (1973). Attachment and loss: Volume II: Separation, anxiety and anger. In *Attachment and loss: Volume II: Separation, anxiety and anger* (pp. 1–429). London: The Hogarth Press and the Institute of Psycho-Analysis.

Carlson, E.A. (1998). A prospective longitudinal study of disorganized/disoriented attachment. *Child Development*, *69*, 1107–1128.

Cassidy, J., Brett, B.E., Gross, J.T., Stern, J.A., Martin, D.R., Mohr, J.J. *et al*. (2017). Circle of security–pParenting: A randomized controlled trial in Head Start. *Development and Psychopathology*, *29*, 651–673.

Cassidy, J. & Shaver, P.R. (2016). *Handbook of attachment: Theory, research, and clinical applications*, 3rd edition. New York: Guilford Press.

Cassidy, J., Woodhouse, S.S., Sherman, L.J., Stupica, B. & Lejuez, C.W. (2011). Enhancing infant attachment security: An examination of treatment efficacy and differential susceptibility. *Development and Psychopathology*, *23*, 131–148.

Črnčec, R., Barnett, B. & Matthey, S. (2008a). *Karitane parenting. Confidence scale: manual*. Sydney: Sydney South West Area Health Service.

Črnčec, R., Barnett, B. & Matthey, S. (2008b). Development of an instrument to assess perceived self-efficacy in the parents of infants. *Research in Nursing & Health*, *31*, 442–453.

Dubois-Comtois, K., Moss, E., Cyr, C. & Pascuzzo, K. (2013). Behavior problems in middle childhood: The predictive role of maternal distress, child attachment, and mother-child interactions. *Journal of Abnormal Child Psychology*, *41*, 1311–1324.

Faul, F., Erdfelder, E., Lang, A.G. & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191.

Fonagy, P. & Target, M. (1997). Attachment and reflective function: Their role in self-organization. *Development and Psychopathology*, *9*, 679–700.

Gagné, K., Lemelin, J.P. & Tarabulsy, G.M. (2021). Non-verbal and verbal parental mentalization as predictors of infant attachment security: Contributions of parental embodied mentalizing and mind-mindedness and the mediating role of maternal sensitivity. *Infant Behavior and Development*, *65*, 101622.

George, C. & Solomon, J. (2011). Caregiving helplessness. *Disorganized attachment and caregiving*, 133–166. New York: Guilford Press.

Heckman, J. J. & Masterov, D. V. (2007). *The productivity argument for investing in young children*.

Hobson, P. (2004). *The cradle of thought: Exploring the origins of thinking*. Oxford University Press.

Hoffman, K.T., Marvin, R.S., Cooper, G. & Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: the Circle of Security intervention. *Journal of Consulting and Clinical Psychology*, *74*(6), 1017.

Horton, E. & Murray, C. (2015). A quantitative exploratory evaluation of the circle of security-parenting program with mothers in residential substance-abuse treatment. *Infant Mental Health Journal*, *36*, 320–336.

Huber, A., Hawkins, E. & Cooper, G. (2018). Circle of security. In J. Lebow, A. Chambers & D. Breunlin (Eds.), *Encyclopedia of couple and family therapy* (pp. 413–418). Cham: Springer.

Johnson, D.E., Guthrie, D., Smyke, A.T., Koga, S.F., Fox, N.A., Zeanah, C.H. *et al*. (2010). Growth and associations between auxology, care-giving environment, and cognition in socially deprived Romanian children randomized to foster vs ongoing institutional care. *Archives of Pediatrics and Adolescent Medicine*, *164*, 507–516.

Julian, M.M., Lawler, J.M. & Rosenblum, K.L. (2017). Caregiver-child relationships in early childhood: Interventions to promote well-being and reduce risk for psychopathology. *Current Behavioral Neuroscience Reports*, *4*, 87–98.

Kitagawa, M., Iwamoto, S., Umemura, T., Kudo, S., Kazui, M., Matsuura, H. *et al*. (2021). Attachment-based intervention improves Japanese parent-child relationship quality: A pilot study. *Current Psychology*, *41*, 8568–8578.


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Kohlhoff, J., Stein, M., Ha, M. & Mejaha, K. (2016). The circle of security parenting (COS-P) intervention: Pilot evaluation. *Australian Journal of Child and Family Health Nursing*, *13*, 3–7.

Marvin, R.S., Cooper, G., Hoffman, K. & Powell, B. (2002). The circle of security project: Attachment-based intervention with caregiver–Preschool child dyads. *Attachment & Human Development*, *4*, 107–124.

Matte-Gagné, C., Harvey, B., Stack, D.M. & Serbin, L.A. (2015). Contextual specificity in the relationship between maternal autonomy support and children's socio-emotional development: A longitudinal study from preschool to preadolescence. *Journal of Youth and Adolescence*, *44*, 1528–1541.

Maupin, A.N., Samuel, E.E., Nappi, S.M., Heath, J.M. & Smith, M.V. (2017). Disseminating a parenting intervention in the community: Experiences from a multi-site evaluation. *Journal of Child and Family Studies*, *26*, 3079–3092.

Maxwell, A.M., McMahon, C., Huber, A., Reay, R.E., Hawkins, E. & Barnett, B. (2021). Examining the effectiveness of circle of security parenting (COS-P): A multi-site non-randomized study with waitlist control. *Journal of Child and Family Studies*, *30*, 1123–1140.

Meins, E., Fernyhough, C., Fradley, E. & Tuckey, M. (2001). Rethinking maternal sensitivity: Mothers' comments on infants' mental processes predict security of attachment at 12 months. *Journal of Child Psychology and Psychiatry*, *42*, 637–648.

National Scientific Council on the Developing Child. (2020). Connecting the brain to the rest of the body: Early childhood development and lifelong health are deeply intertwined: Working Paper No. 15. Retrieved September 27, 2023 from www.developingchild.harvard.edu.

Neff, K.D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, *2*, 223–250.

Papousek, H. & Papousek, M. (1987). Intuitive parenting: A dialectic counterpart to the infant's integrative competence. In J.D. Osofsky (Ed.), *Handbook of infant development* (2nd ed., pp. 669–720). Chichester: Wiley.

Papousek, H. & Papousek, M. (2002). Intuitive parenting. In M.H. Bornstein (Ed.), *Handbook of Erlbaum parenting. Bd. 2: Biology and ecology of parenting* (2nd ed., pp. 183–203). Mahwah, N.J: Erlbaum.

Pontoppidan, M. (2015). The effectiveness of the Incredible Years™ Parents and Babies Program as a universal prevention intervention for parents of infants in Denmark: Study protocol for a pilot randomized controlled trial. *Trials*, *16*, 386.

Powell, B., Cooper, G., Hoffman, K. & Marvin, B. (2013). *The circle of security intervention: Enhancing attachment in early parent-child relationships*. Guilford Publications.

Powell, B., Cooper, G., Hoffman, K., & Marvin, R.S. (2009). The circle of security. *Handbook of infant mental health*, *3*, 450–467.

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

Sadler, L.S., Slade, A., Close, N., Webb, D.L., Simpson, T., Fennie, K. *et al.* (2013). Minding the baby: Enhancing reflectiveness to improve early health and relationship outcomes in an interdisciplinary home-visiting program. *Infant Mental Health Journal*, *34*, 391–405.

Shai, D. (2011). Beyond words: Introducing parental embodied mentalising and its links with maternal sensitivity and attachment security Unpublished Doctoral Dissertation. Birkbeck University of London.

Shai, D. & Belsky, J. (2011). When words just won't do: Introducing parental embodied mentalizing. *Child Development Perspectives*, *5*, 173–180.

Shai, D. & Belsky, J. (2017). Parental embodied mentalizing: How the nonverbal dance between parents and infants predicts children's socio-emotional functioning. *Attachment & Human Development*, *19*, 191–219.

Shai, D. & Meins, E. (2018). Parental embodied mentalizing and its relation to mind-mindedness, sensitivity, and attachment security. *Infancy*, *23*, 857–872.

Slade, A., Holland, M.L., Ordway, M.R., Carlson, E.A., Jeon, S., Close, N. *et al.* (2020). Minding the Baby®: Enhancing parental reflective functioning and infant attachment in an attachment-based, interdisciplinary home visiting program. *Development and Psychopathology*, *32*, 123–137.

Smith, L. (2014). Foreldres intuitive omsorgsatferd [intuitive parenting]. *Scandinavian Psychologist*. https://doi.org/10.15714/scandpsychol.1.e1

Sroufe, L.A., Egeland, B., Carlson, E.A. & Collins, A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York: Guilford Press.

Stern, D.N. (1985). *The interpersonal world of the infant: A view from psychoanalysis and developmental psychology*. London: Routledge.

Verhage, M.L., Schuengel, C., Madigan, S., Fearon, R.M., Oosterman, M., Cassibba, R. *et al.* (2016). Narrowing the transmission gap: A synthesis of three decades of research on intergenerational transmission of attachment. *Psychological Bulletin*, *142*, 337–366.

Winnicott, D.W. (1971). *Playing and reality*. London: Tavistock Publications, pp. 1–156.

Zeanah, C.Z. (2018). *Handbook of infant mental health*, 4th edition. New York: Guilford Press.

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