THESIS

# EMOTIONAL AVAILABILITY (EA) BRIEF: SINGLE SESSION FEEDBACK AND COACHING WITH MOTHERS OF CHILDREN 0-17 YEARS OLD

Submitted by

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ABSTRACT

EMOTIONAL AVAILABILITY (EA) BRIEF: SINGLE SESSION FEEDBACK AND COACHING WITH MOTHERS OF CHILDREN 0-17 YEARS OLD

The focus of this study was to determine if a brief parenting feedback and coaching session (along with background information) could provide the context for helping mothers to support optimal self-reported and observed emotional availability, as well as maternal wellbeing. Participants in this study (n = 25) were middle income mothers and their children (ages 0-17 years). Participants were sorted into two blocks: Parents in the first block of participants (i.e., the "immediate intervention group") (IIG) were asked to complete all pre-test assessments and immediately given the intervention. Parents in the second block (i.e., the "waitlist control" group) (WC) were asked to complete all pre-test assessments (pre-test 1) and then put on a waitlist, completing a second set of pre-test assessments (pre-test 2) approximately 4 weeks later and then given the intervention. All parents (in the IIG and WC) were then administered post-test assessments. Pretest and posttest assessments included observed emotional availability as well as questionnaires (Emotional Availability Self Report (EA-SR; Vliegen et al., 2009) and the Flourishing Scale (Diener et al., 2010). To compare differences in pre-post changes for IIG vs. WC participants before receiving the intervention, we conducted a One-way Analysis of Variance (ANOVA) on the difference scores (post-test minus pre-test) for the IIG and difference scores for the WC (pre-test 2 minus pre-test 1). Finally, to examine child age as a predictor of change in our outcome variables, we regressed the pre-post difference scores on child age, pooling observations from the IIG and WC groups. Results indicated that those receiving the

single session intervention showed more improvement in EA and other study variables over time when compared to those who did not receive the intervention. The child's age did not predict the effectiveness of the intervention. Results are discussed in terms of a single session of parent feedback and potentially "planting a seed."

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# EMOTIONAL AVAILABILITY (EA) BRIEF: SINGLE SESSION FEEDBACK AND COACHING WITH MOTHERS OF CHILDREN 0-17 YEARS OLD

Attachment is a characteristic of human relationships that describes how individuals interact with one another to get their needs met, especially in their closest relationships (Mikulincer & Shaver, 2008). John Bowlby pioneered the concept and theory of attachment in the 1960s (Bowlby, 1969). Mary Ainsworth (Ainsworth et al., 1978), subsequently, pioneered the methodology used to measure attachment. She observed countless hours of interactions between mothers and their infants in the home setting and then recognized these same patterns in a laboratory context involving two separations and two reunions, popularly known as the strange situation procedure (SSP). She went on to categorize infants based on the behaviors they exhibited in the SSP (Mikulincer & Shaver, 2008). In total, Ainsworth identified three attachment categories: secure, anxious and avoidant (Levine & Heller, 2010). Later, Mary Main and Judith Solomon added a fourth category, disorganized attachment (Main & Solomon, 1986).

In infancy, a secure attachment style describes an ability to modulate distress upon separation from a caregiver, acknowledge the distress, seek support from the caregiver upon return and then resume normal activity (Johnson, 2020). In contrast to the secure style, anxious, avoidant and, in most cases, disorganized styles all qualify as insecure styles (Levine & Heller, 2010). An anxious attachment style is exhibited through high levels of distress upon separation from a caregiver, preoccupation with resuming contact with him or her and difficulty being comforted and/or returning to regular activity upon reconnecting with a caregiver (Johnson, 2020). An avoidant attachment style involves feeling distress but not expressing it upon separation, distracting oneself with activities, and not seeking care from one's caregiver upon

their return (Johnson, 2020). A disorganized attachment style is exhibited through either some combination of both avoidant and anxious attachment or a lack of a coherent strategy for getting one's needs met from a caregiver (Johnson, 2020).

Since the time of Ainsworth et al.'s (1978) seminal work, additional research has examined influences on attachment styles. Recent research has shown that parents can influence whether their child has a secure attachment style, yielding voluminous empirical research on the SSP with infants and very young children (Mikulincer & Shaver, 2016). Research indicates that infants and children who are unable to get their needs met, often due to inconsistent or negative experiences with their caregivers, are more likely to develop insecure attachment styles (Mikulincer & Shaver, 2016). Generally, attachment theorists agree that individuals whose parents are rejecting develop avoidant attachments, suggesting that suppressing their emotional needs to minimize the likelihood of rejection. On the other hand, individuals whose parents are inconsistent in their nurturing develop anxious attachments, suggesting that the more frequently and intensely they express their needs, the higher likelihood the parent will respond. The dominance of "nurture" over "nature" when it comes to attachment styles is supported by recent research on adoptive families, which suggests that the behaviors of the caregiver, not their biological relation, are correlated with an infant's attachment style (Roman et al., 2012; Pace et al., 2015). Additionally, recent research has examined how attachment styles can change outside of the parent-child relationship. Today, we know that attachment styles are relatively stable over time. However, interventions conducted with adults have shown that reparative caregiver experiences, Emotionally Focused Therapy (EFT) and other therapeutic modalities that involve the development of coherent narratives all help to create an "earned secure" style (Olufowote et al., 2019).

A secure attachment style confers benefits throughout the lifespan. Several studies show that it serves as a protective factor against the effects of adverse childhood experiences (ACEs). For instance, a study of children who have experienced sexual abuse shows that those with more secure attachment styles were less likely to develop symptoms of post-traumatic stress disorder (PTSD; Ensink et al., 2021)[1]. Having a secure attachment before the age of 18 is correlated with higher positive affect and better emotion regulation strategies (Cooke et al., 2018)[2]. Compared to adults with secure attachment styles, adults with insecure attachment styles are less able to cope with stress, have lower self-esteem, have lower intelligence, are more susceptible to disease and have lower survival rates (Olufowote et al., 2019)[3].

Knowing that attachment styles are developed early in life and in relation to one's caregivers has given rise to research on attachment and specific parenting practices for younger children. For instance, some studies have shown that there is a positive relationship between regular bedtime routines and a secure attachment style (Mindell & Williamson, 2018) as well as being promptly responsive to infant cries (Ainsworth et al., 1978). But the focus on younger children in attachment research means that attachment theorists know less about what specific behaviors or parenting practices foster secure attachment beyond relationships in early childhood (Moretti & Peled, 2004). Studies focusing on attachment with older children suggest that parental monitoring (Rodriguez-Meirinhos et al., 2020) as well as a lack of interparental conflict,

[1] In this study, attachment was measured using the Child Attachment Interview (CAI), which is an interview in which children (ages 7-12) describe their relationships with their caregivers; their responses are then coded.

[2] In the 72 studies include in this meta-analysis, measures of attachment included but were not limited to the CAI, AAI (Adult Attachment Interview), SSP, Attachment Q-Sort, Separation Anxiety Test and the Security Scale.

[3] Measures of attachment in the studies referenced in this study include but were not limited to Hazan and Shaver's (1987) measure of adult attachment, the SSP and other measures.

lack of parental undermining of autonomy through withholding affection or inducing guilt (Allen et al., 2014) are important parenting practices for the development of secure attachments.

Perhaps due to this lack of research, or perhaps as a cause of it, there are competing schools of thought about to what extent changing attachment in older children and adolescents is possible. For instance, some have argued that our understanding of others becomes more complex overtime, and that, as a result, internal working models of relationships become more rigid and difficult to change (Bretherton, 1988). Others argue, on the other hand, as the number and variety of our relationships increases, they also become deeper, such that others can serve as attachment figures, challenging previously held views enough to change them (Allen et al., 2018).

In comparison to questions about attachment in infancy, questions on older children and adolescents are relatively new, and less research has been done to start answering them. Additionally, many evidence-based interventions are available for parents of younger children and give clear guidance about how to foster secure attachments with their children while they are young. But fewer interventions exist that provide parents with clear guidance on how to continue building or maintaining a secure attachment with their child after the early years. Exploring whether interventions designed to target younger age groups are still relevant for parents of older children would meaningfully advance what we know about *what parents do* to support secure attachment across a wider developmental spectrum, and whether it is significantly different from those behaviors or practices in secure parent-infant relationships.

**Interventions to Improve Parent-Child Relationships**

Evidence-based interventions that seek to improve parent-child relationships have demonstrated success in dyads with children between 0 and 12 years of age. Parent-Child

Interaction Therapy (PCIT) focuses on children 2-7 years of age (Webster-Stratton et al., 2013). Incredible Years applies to dyads with children ages 0-12 years of age (Incredible Years, 2016). PCIT and Incredible Years are evidence-based interventions, both behaviorally based and focusing on helping the parent manage and address children's early emerging challenging behaviors (Webster-Stratton et al., 2013). PCIT and Incredible Years have been found to decrease difficult child behaviors and to increase positive parenting behaviors. An attachment-based intervention that is beginning to garner evidence around the world is Circle of Security (COS), which is for dyads with children 1-5 years of age (Topham, 2018). It is delivered in at least 8 sessions (Topham, 2018). Its stated aim is to improve attachment security, and it involves the use of attachment-based assessments as part of the evaluation (Topham, 2018).

The above interventions involve a significant time commitment from the parent, even the short versions of COS (Risholm Mothander, 2018). More brief interventions include the Adolescent Mothers Program: Let's meet your baby as a person (AMPLE) (Thomson-Salo, 2014) and the Newborn Behavioral Observations (NBO) (Nugent et al., 2017). AMPLE focuses on adolescent mothers during pregnancy and with their new babies (Thomson-Salo, 2014). It is a 2-session intervention that is designed to enhance attachment security. The NBO is conducted in a single session and takes 15-20 minutes and focuses on dyads with children up to 4 months old (Nugent et al., 2017). Both AMPLE and NBO have been found to improve mother-child relationships.

Some, but not all, of these interventions use emotional availability (EA) as an indicator of program effectiveness (e.g., Risholm Mothander et al., 2018; Nicolson et al., 2013). EA is conceptually defined as the ability of a parent and child to interpret and respond to one another's emotional cues and/or reactions (Biringen et al., 2014). EA can be understood more generally as

a “receptive presence” and overall attunement in a dyad (Biringen et al., 2014). EA includes four parent qualities (sensitivity, structuring, nonintrusiveness, and nonhostility) and two child qualities (responsiveness to the caregiver and involvement of the caregiver). EA focuses on the “emotional” features of each of these qualities, and given the emphasis placed on both the parent and child sides of the interaction, EA is a dyadic/relationship-based assessment. Almost 30 years of research has identified EA as a characteristic of parents whose infants and children exhibit a secure attachment (Biringen et al., 2014). Despite the theoretical underpinnings of EA in attachment as well as the empirical linkage with attachment, it is an assessment tool that looks at the dyadic relationship from the perspective of each member in that relationship. It also emphasizes the importance of emotions—both positive and negative. This looks at a relationship from the perspective of each participant and the emphasis on emotions set it apart from traditional attachment tools and perspectives (Biringen et al., 2014).

EA is a lifespan construct and can be used for a wide developmental spectrum. While the most extensive use is in infancy and the earlier years, there is substantial work on preschoolers and school-age children (Biringen et al., 2014), and even prenatally (Salo et al., 2019). Recent work also indicates it can be used for adolescents. A study conducted in 2019 looked at the relationship between EA and mindful parenting (MP) as well as their relationship to a variety of adolescent outcomes (Benton et al., 2019). Adolescents in this study were between 10 – 14 years of age (Benton et al., 2019). In this study, parents and adolescents were filmed, and asked to discuss conflict of a difficult situation, before the filmings were coded for EA (Benton et al., 2012). The study found that the EA Scale of Non-hostility (Direct, Observed) was a significant predictor of adolescent externalizing outcomes (Benton et al., 2019). Currently, there are

additional studies looking at EA in parent-child dyads where the child is above 18 years of age, but this work is not yet published.

In 2005, programs were initiated to directly improve EA in parent-child dyads, such as 4–6-week groups involving weekly parent coaching sessions lasting two hours each (Biringen et al., 2010). As a next step, programs to enhance EA in dyads included work in childcare settings and focused on individualized coaching with center-based childcare professionals; the coaching involved 1-3 sessions, approximately one hour each (Biringen et al., 2012). Additional studies used to implement programming to improve EA indicate that it can work for adoptive families (Baker et al., 2015).

In 2020, the "EA Brief" was conceptualized, involving just a single session of individualized feedback and coaching with mothers. Promising pre/post design findings of the "EA Brief" were summarized by McConnell et al. (2020). Results from the "EA Brief" show that children ages 0-3 years and their mothers showed improvement in observed EA toward one another from pre-test to post-test (McConnell et al., 2020). Mothers also reported an increase in perceived EA, which was measured using the Emotional Availability Self Report (EA-SR) in their respective relationships, and improved well-being in their own lives (McConnell et al., 2020). Because the intervention did not have a control group, questions about whether the effectiveness of the intervention was due to the passage of time were unanswered. Also unanswered was whether the success of the intervention can be replicated in dyads with children older than 3 years of age (McConnell et al., 2020). Thus, of additional interest is to what extent age predicts change in EA between pre-test and post-test (McConnell et al., 2020).

## Present Study

To begin researching these questions, the present study focused on replicating the effectiveness of the EA Brief with a waitlist control group and with mothers of children from a wide age range (0-17 years). The present study differed from the McConnell et al.'s (2020) evaluation of the "EA Brief" in several significant ways. While McConnell et al. (2020) used two points of assessment (pre-test and post-test), known as a pre/post design, we used a waitlist control design, with two times points of assessment for the "immediate intervention group" (IIG) and three time points of assessment for the "waitlist control group" (WC) (pre-test 1, pre-test 2, and post-test)[4]. Additionally, in contrast to the study by McConnell et al. (2020) in which children in the parent-child dyads were ages 0-3 years, the children in this study were ages 0-17 years. Finally, whereas the McConnell et al. (2020) study involved an in-person workshop, this study was done entirely via the Zoom platform with no in-person contact. It is interesting to note that we chose to use a virtual platform before the onset of the Covid-19 pandemic to make the program more widely available to families. The studies were similar in that the same measures were included, not only observational EA, but also self-reported EA, as well as a measure of maternal well-being.

## Methods

### *Participants*

Although pilot work to test components of this study began in January 2020, participants for this study were recruited on an ongoing basis between February 2020 and March 2022 using convenience sampling. Recruitment methods included emails sent to a common university email

[4] All participants, in both the IIG and the WC received the intervention; the IIG received the intervention between time points 1 and 2 (e.g., pre-test and post-test) and WC received the intervention between time points 2 and 3 (e.g., pre-test 2 and post-test).

distribution list of academic faculty, staff, and students, and word of mouth. For all participants, a signed, informed consent was obtained. We focused on mothers who could read and speak English; we also lacked sufficient availability of bilingual researchers.

Participants in this study included adults and children, which we refer to together as "dyads" (n = 25 dyads) (see Table 1). On average, adults in each dyad were between 25 and 44, had at least some post-graduate education, were married and were White. On average, child participants were evenly split between male and female and just under 7 years old (82 months). Our oldest aged child participants were 17 years of age. Most dyads were biologically related.

Table 1.
*Participant Demographics*

| | N | Mean | Standard Deviation |
|---|---|---|---|
| Age | 25 | 2.72 | .678 |
| Highest Level of Education Attained | 25 | 6.16 | 1.214 |
| Marital Status | 24 | 3.13 | .900 |
| Race | 25 | 1.08 | .277 |
| Ethnicity | 25 | 1.92 | .277 |
| Nature of Relationship (Dyad) | 25 | 1.16 | .624 |
| Age in Months (Child) | 25 | 81.64 | 57.879 |
| Gender (Child) | 25 | 1.56 | .583 |

*Note*. Each of these categorical variables were assigned numeric values in SPSS. Their associated values are: Age (1 = "17-24", 2 = "25-34", 3 = "35-44", 4 = "45-54", 5 = "55-64", 6 = "65-74", 7 = "75 or older"); Highest Level of Education (1 = "Did not finish high school", 2 = "High school/GED", 3 = "Some college" 4 = "Associated Degree", 5 = "College Degree", 6 = "Some post-graduate education", 7 = "Post-graduate Degree (MS, PhD, MBA, etc.)"); Marital Status (1 = "Single", 2 = "Committed relationship", 3 = "Married", 4 = "Divorced", 5 = "Separated", 6 = "Widowed", 7 = "Multiple romantic partners/polyamorous"); Race (1 = "White American", 2 = "Asian American"); Ethnicity (1 = "Hispanic or Latino", 2 = "Not Hispanic or Latino"); Nature of Relationship (Dyad) (1 = "Biological", 2 = "Adoptive", 3 = "Foster", 4 = "Other"); Gender (Child) (1= "Male", 2 = "Female", 3 = "Transgender Male")

*Procedure*

Participants were sorted into two blocks (see Figure 1). Parents in the first block of participants (i.e., the "immediate intervention group") (IIG) were asked to complete all pre-test assessments and immediately given the intervention. Parents in the second block (i.e., the "waitlist control" group) (WC) were asked to complete all pre-test assessments (pre-test 1) and

then put on a waitlist, completing a second set of pre-test assessments (pre-test 2) approximately 4 weeks later and then given the intervention. All parents (in the IIG and WC) were then administered post-test assessments.

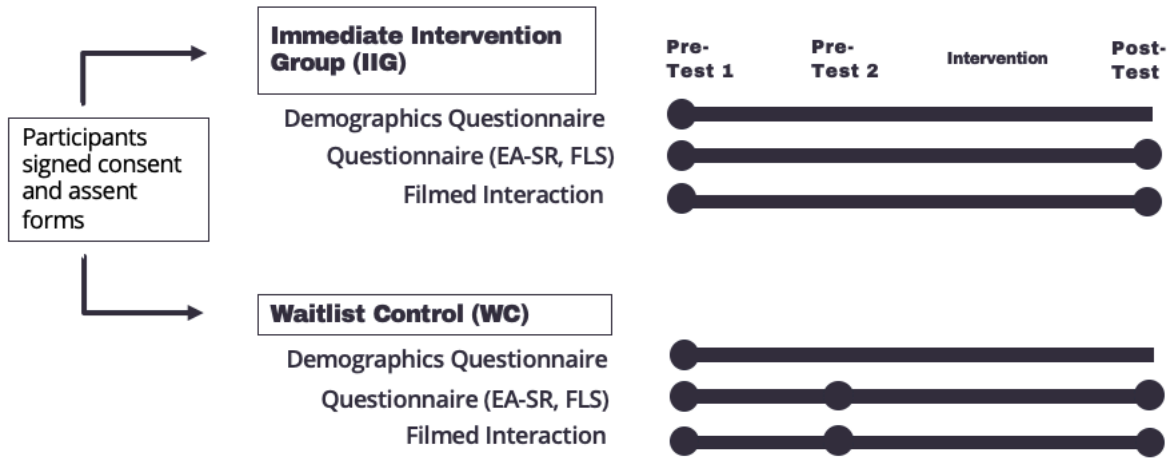


Figure 1.
*Procedure*

The assessments included a survey, described below in Measures, as well as completion of a filmed interaction. For the filmed interaction, dyads were recorded for 20 minutes via Zoom. The dyad was asked to "be with" or "interact" with one another (as opposed to "play" or "talk"). The instructions given to parent-child dyads did not differ based on age of the child. Most mothers with young children engaged in dyadic free play activities that allowed them to stay within range of the camera, while mothers of older children and adolescents tended to select varied favorite games. Mothers of older children and adolescents on occasion engaged in conversation about a topic of their choice. We let the parent select their own context and asked that they remain indoors and by themselves for the filmed interactions. In some cases, parents did not adhere to these instructions exactly. For instance, in one case, the parent and older child were outdoors. In another case, an unnamed individual appeared in the interaction; the individual was asked to leave the interaction and in less than 48 hours, the individual signed a consent form

allowing us to use the film. Each filming was later used for scoring of EA using EA Scales and referred to as Observed EA, as explained below in Measures. Except for four cases, the post-test surveys were always administered before the post-test filmed interactions. We had full data for all participants except one parent who was not sent the post-test surveys. As is typical, SPSS uses listwise deletion of these missing values.

*Intervention: Feedback on EA and coaching*

Participants attended an online, "live" group workshop and a subsequent individual, one-on-one feedback/coaching session. During the workshop, participants learned about EA with one another across 2 hours. During the one-on-one feedback/coaching session, coaches provided detailed feedback on the parent's pre-test filmed interaction, describing the level of EA in the current relationship as well as engaging in a conversation about how it might be improved in the dyad. Not all coaches were fully trained in EA, but all were part of a group where there were fully trained EA coaches and where there was a discussion of each case based on EA principles before they provided feedback in the sessions. After the sessions, parents received pre-programmed, unidirectional texts every day for 14 days that reinforced concepts taught in the group workshop and in their feedback/coaching session. These texts were developed with the help of an mHealth expert with an eye toward having brief, understandable language (McConnell et al., 2020). After the intervention, parents were re-administered the same assessments (called post-tests) and asked to complete a post-test filmed interaction with their child. At no point was the intervention changed based on age of the child; all participants received the same intervention regardless of child age.

*Analytic Strategy*

To examine baseline differences between the WC and IIG, we planned to conduct an independent samples *t*-test on all demographic variables and all outcome variables at pre-test (pre-test 1 for the WC). Then, to examine change for all participants (WC and IIG), we planned to conduct a dependent (paired) samples *t*-test of scores at pre-test (pre-test 1 for the WC) vs. post-test. Then, to compare differences in pre-post changes for IIG vs. WC participants before receiving the intervention, we planned to conduct a One-way Analysis of Variance (ANOVA) on the difference scores (post-test minus pre-test) for the IIG and difference scores for the WC (pre-test 2 minus pre-test 1). Finally, to examine child age as a predictor of change in our outcome variables, we planned to regress the pre-post difference scores on child age, pooling observations from the IIG and WC groups.

*Measures*

The surveys administered before and after the workshop as well as the filmed interactions enabled us to assess EA in the dyad and other important concepts related to attachment before and after the intervention. The pre-test (pre-test 1 for the WC) and post-test surveys included a questionnaire to collect demographic information. All surveys also included questionnaires to assess well-being of parents from a commonly used instrument (Flourishing Scale) as well as self-reported EA (EA-SR) (Vleigen et al., 2009). Participants were asked to complete the surveys no more than 2 weeks before each filmed interaction.

**Demographics Questionnaire.** In the pre-test only (pre-test 1 for the WC), part of the surveys involved a questionnaire to gather information about participants, including 8 demographic variables. This included variables for the parent (i.e., age, highest level of

education attained, marital status, race, ethnicity), the child (i.e., age, gender) and the dyad (i.e., nature of the relationship).

**Flourishing Scale (FLS).** All surveys included an 8-item questionnaire, The Flourishing Scale (FLS) (Diener et al., 2010), which is a measure of well-being often used in studies on parents and used in recent studies on EA (McConnell et al., 2020). Questions from the FLS ask adult participants to what extent they agree with an item on a Likert scale of 1-7 with 1 indicating strong disagreement and 7 indicating strong agreement. An example statement from the FLS, included in our surveys, is "I lead a purposeful and meaningful life." The answers on the FLS are then added up to create a composite score, the FLS Composite. In past studies, the FLS has demonstrated both internal validity and construct validity (Diener et al., 2010).

**EA Self-Report (EA-SR).** Finally, all surveys included the EA-SR, which is a 36-item questionnaire that assesses self-reported EA, or how the parent perceives the level of EA in the dyad. Questions in the EA-SR ask adult participants to what extent they agree with an item on a Likert scale of 1-7 with 1 indicating strong disagreement and 7 indicating strong agreement. Vliegen et al.'s (2009) factor analysis yielded five factors: Mutual Attunement, Child Involvement, Affect Quality, Non-intrusiveness and Non-hostility. These five factors demonstrated adequate internal reliability and construct validity (Vliegen et al., 2009). Using the highest loading items to each of these five factors, we created five composites, to be used in the analyses. Finally, we calculated the EA-SR Overall Composite for each participant by adding the 5 composite scores together for each participant. Due to formatting issues with paper assessments used early in this study, several answers to questions from the FLS were omitted by a few participants. We consider these random events, and for these few missing values, used the

average to calculate the relevant EA-SR composite scores and the EA-SR Overall Composite for that case.

**EA Scales.** EA Scales are Likert scales that measure six constructs in the observed parent-child relationship (Biringen et al., 2014). These include four constructs for the parent: Sensitivity, Structuring, Non-intrusiveness and Non-hostility and two constructs for the child: Responsiveness and Involvement (Biringen et al., 2014) (see Figure 2).

| **Construct in EA** | **Definition** |
|---|---|
| Sensitivity | (Parent) reading and reacting effectively to the child's cues<br>• Positive affect<br>• Clarity of perceptions |
| Structuring | (Parent) providing opportunities for engagement and play<br>• Guidance<br>• Success |
| Non-intrusiveness | (Parent) allowing the child to play freely without interruption<br>• Following the child's leads<br>• Ports of entry |
| Non-hostility | (Parent) regulating emotions so as not to show yelling, forceful handling, boredom, frustration or irritation<br>• Lacks negativity<br>• Lacks ridiculing |
| Child Responsiveness | (Child) attending to the caregiver's cues<br>• Positive affect<br>• Responsiveness |
| Child Involvement | (Child) "making bids" and engaging the caregiver in play<br>• Simple initiative<br>• Elaborate initiative |

Figure 2.
*Definitions of Constructs used in EA Scales*

Each construct is measured on 7-point scales (Biringen et al., 2014). Each of the 6 constructs also has a set of sub-scales, which help coders justify giving a parent or child a specific score. The first two sub-scales of each construct are measured on Likert scales of 1 to 7 while the remaining sub-scales are measured on Likert scales of 1 to 3. Across all scales, higher numbers indicate more desirable forms of interaction and lower numbers indicate less desirable forms of interaction. However, numbers in the middle of a scale do not necessarily indicate neutral behaviors. For example, a 4 indicates an inappropriately high level of dependency or

inconsistent behaviors in EA Scales for Child Responsiveness (Biringen et al., 2014). The scores on the subscales are added together to yield a Total Score, and a Direct Score (on a 7-point scale) is also assigned for each of the six EA dimensions. Given strong intraclass correlations for the Direct Scores, as described below, we used these for our primary analyses.

Additional measurements included in the EA System include the following:

- The Clinical Screener: This is a dimensional score on a scale from 1-100 that is based on the coder's intuitive/clinical sense of attachment styles in the dyad (Biringen et al., 2014).[5] There is one score assigned for the adult (Adult Clinical Screener) and one for the child (Child Clinical Screener). The numeric scores can be subdivided into ranges that align with the four attachment styles (e.g., 81-100 indicates a secure attachment style).
- The EA Zones: These that include four possible, categorical values that align with the four attachment styles (Saunders et al., 2017). These are: secure, complicated (anxious), detached (avoidant) and problematic (disorganized)[6]. Of the Zones, there is one score for the adult (Adult EA Zone) and one score for the child (Child EA Zone). Like the Clinical Screener, the EA Zones also reveal the coder's intuitive/clinical sense about what attachment style each person exhibits in the interaction.

While the EA Zones provide the research team with a high-level understanding of attachment in the dyad, the Clinical Screeners provide a more granular sense about the attachment in the dyad.

[5] Scores on the clinical screener align with EA Zones as follows 81-100 = secure, 61-80 = complicated, 41-60 = detached and < 40 = problematic.

[6] In our data analysis, we assigned each categorical variable for the EA Zones a number: 4 = secure, 3 = complicated (anxious), 2 = detached (avoidant) and 1 = problematic (disorganized).

By assigning numeric values to each person, coders can explain which dyads are more or less secure than others, even if the dyads fall within the same EA Zone.

***EA Scales Training.*** Coders were trained in EA using standard procedures and were certified in the use of the 4th edition of the EA Scales manual (Biringen, 2008). Both the Infancy/Early Childhood version and the Middle Childhood/Youth version of the manual were used in the present study. A primary coder and a reliability coder evaluated (all pre-test 1) recordings. The primary coder was blind to all cases that they coded, meaning that they did not know whether a filming was a "pre-test" or a "post-test". There was one case where it was likely that coders on the team would know the participant; in this case, a different, primary coder completed the EA Scales, and was not blind.

***EA Scales Reliability.*** Inter-rater reliability was established on the first 11 study cases, using intraclass correlations (ICCs). The ICCs for EA Observed, Direct Scores were .89 for Structuring, .79 for Sensitivity, .78 for Non-hostility and .65 for Child Responsiveness. In addition, the ICC was.74 for the Child Clinical Screener and the Child EA Zone and .73 for the Adult Clinical Screener and the Adult EA Zone. The ICC was .58 for Non-intrusiveness. The lower reliability for Non-intrusiveness (Observed, Direct Score) was associated with having almost no variability in the sample on this variable. The ICC was .48 for Child Involvement (Observed, Direct Score) and showed limited variability.

*Hypotheses*

We predicted that all participants would show improvements in the study variables between the pre-test (pre-test 1 for the WC) and the post-test. We also predicted that parent-child dyads in the IIG would improve their observed EA, self-reported EA, and reported well-being between pre-test and post-test, but the WC would not between pre-test 1 and pre-test 2. Finally,

we predicted that child age would predict the extent to which there is improvement in the study constructs between pre-test (pre-test 1 for the WC) and post-test. This hypothesis is supported by research that shows children seek more independence from their caregivers as they grow (Alvarado et al., 2014). Additionally, because the relationship between parent and child has had more time to stabilize before adolescence, we predicted that it would be more difficult for parents to improve EA in relationship to older children.

*A Priori Power Analysis*

For this study, we used an a priori power analysis. The "EA Brief" conducted in 2020 had 25 dyads and found significant differences in Child Responsiveness (Observed, Direct Score) and Child Involvement (Observed, Direct Score) between pre-test and post-test, with effect sizes of $d = .48$ and $d = .45$ respectively (McConnell et al., 2020). Other studies that have used the EA Scales to demonstrate the effectiveness of the intervention on other populations (e.g., adoptive families) suggest that a reasonable estimate for effect size would be .71 (Baker et al., 2015). This suggests we would expect to see moderate to large effect sizes in this study.

**Results**

*Preliminary Analysis*

We looked at correlations between the 8 demographic variables and all 17 outcome variables, or the changes (difference scores) between pre-test (pre-test 1 for the WC) and post-test for all participants (WC and IIG). We found no significant correlations either between the parent's highest level of educational attainment or between the parent's race and changes in all 17 outcome variables. We found significant correlations between age of the parent and changes in the Flourishing Scale Composite ($a < .05$), ethnicity of the parent and changes in Non-hostility (Observed, Direct Score) ($a < .05$), age of child and changes in the Adult EA Zone, the EA-SR

for Affect Quality and Non-hostility (Observed, Direct Score) ($a < .05$), nature of the relationship between parent and child and changes in the EA-SR for Non-hostility, the EA-SR for Mutual Attunement ($a < .05$) and the Child EA Zone ($a < .01$) and relationship status of the parent and changes in the EA-SR for Child Involvement, the EA-SR for Affect Quality, the EA-SR Overall Composite and the Adult Clinical Screener ($a < .01$).

*Baseline Differences in All Study Variables*

We conducted independent *t*-tests to detect differences at baseline (i.e., pre-test (pre-test 1 for the WC)) between participants in the WC and the IIG (see Table 2). Across all 8 demographic variables and 16 of 17 outcome variables, we found no significant differences at baseline between the two groups. The only significant difference was in one of the five variables measured in the EA-SR (i.e., Affect Quality), only where equal variances were not assumed ($t$ =-2.043, $p$=.039)[7].

Table 2.
*Independent samples t-test, pre-test 1*

| | | Std Er Diff. | df | *t*-test | Sig (2-tailed) |
|---|---|---|---|---|---|
| EA-SR for Affect Quality | Equal variances assumed | .18816 | 23 | -2.043 | .053 |
| | Equal variances not assumed | .17386 | 19.453 | -2.211 | .039** |

*Note*. * $a < .05$ level ; ** $a < .01$ level

*Is There an Increase in the Study Variables from Pre-test to Post-Intervention?*

A dependent (paired) samples *t*-test of pre-test vs. post-test scores for all participants (WC and IIG) who received the intervention (n=25) was conducted (see Table 3). Because many participants expressed feeling nervous when being recorded for the first filmed interaction, we chose to use the scores on pre-test 1 for the WC to avoid the influence of acclimation on differences in change (difference scores) between the WC and the IIG. Despite there being more

[7] Assuming equal variances, we found no significant differences including the EA-SR for Affect Quality ($t$ =-2.211, $p$=.053).

time between the first pre-test and the post-test for the WC, we believed that having comparable comfort levels for the two groups was most important.

Table 3.
*Dependent (paired) samples t-test on difference scores, pre-test to post-test*

| | Mean | Standard Deviation | df | *t*-test | Sig (2-tailed) |
|---|---|---|---|---|---|
| FLS Composite | -1.833 | 3.583 | 23 | -2.506 | .020* |
| Sensitivity (Observed, Direct Score) | -.6200 | .9046 | 24 | -3.427 | .002** |
| Structuring (Observed, Direct Score) | -.6000 | .9456 | 24 | -3.170 | .004** |
| Non-intrusiveness (Observed, Direct Score) | -.5800 | 1.1150 | 24 | -2.601 | .016* |
| Non-hostility (Observed, Direct Score) | -.3200 | .6436 | 24 | -2.486 | .020* |
| Child Responsiveness (Observed, Direct Score) | -.5400 | 1.0599 | 24 | -2.547 | .018* |
| Child Involvement (Observed, Direct Score) | -.5600 | .9823 | 24 | -2.850 | .009** |
| EA-SR for Mutual Attunement | -.24375 | .42536 | 23 | -2.807 | .010* |
| EA-SR for Child Involvement | -.24352 | .37234 | 23 | -3.204 | .004** |
| EA-SR for Affect Quality | -.14167 | .45865 | 23 | -1.513 | .144 |
| EA-SR for Non-intrusiveness | .10833 | .39198 | 23 | 1.354 | .189 |
| EA-SR for Non-hostility | .21528 | .48524 | 23 | 2.173 | .040* |
| EA-SR Overall Composite | -.30532 | 1.00980 | 23 | -1.481 | .152 |
| Adult Clinical Screener | -7.120 | 11.189 | 24 | -3.182 | .004** |
| Child Clinical Screener | -5.760 | 11.938 | 24 | -2.412 | .024* |
| Adult EA Zone | -.24000 | .66332 | 24 | -1.809 | .083 |
| Child EA Zone | -.20000 | .76376 | 24 | -1.309 | .203 |

*Note*. * $a < .05$ level; ** $a < .01$ level

We found significant ($a < .05$) differences across 12 of the 17 outcome variables (Flourishing Scale Composite; all six EA Observed, Direct Scores; the EA-SR for Mutual Attunement, Child Involvement and Non-hostility; and both the Adult Clinical Screener and the Child Clinical Screener). These results suggest that dyads improved significantly across this single-session intervention.

*Do Participants Who Received the Intervention Show More Improvement in Study Variables Over Time When Compared to Those Who Did Not Receive the Intervention?*

We conducted a one-way ANOVA on the change (difference scores) between the first test administered to all participants (pre-test 1 for the WC) and the second test administered to all participants (pre-test 2 for the WC); post-test for the IIG) (see Table 4). In other words, to calculate the difference scores for the IIG, we subtracted the scores on the pre-test from the scores on the post-test administered to the IIG (n=14). To calculate the difference scores for the

WC, we subtracted the scores on the first test administered to the WC (pre-test 1) from the scores on the "post-test" before receiving the intervention (pre-test 2) (n=11).

Table 4.
*One-way Analysis of Variance (ANOVA) on difference scores, pre-test to post-test*

| | | Sum of Squares | df | F | Sig |
|---|---|---|---|---|---|
| FLS Composite | Between | 27.641 | 1 | 2.144 | .157 |
| | Within | 283.692 | 22 | | |
| | Total | 311.333 | 23 | | |
| Sensitivity (Observed, Direct Score) | Between | 7.114 | 1 | 9.499 | .005** |
| | Within | 17.226 | 23 | | |
| | Total | 24.340 | 24 | | |
| Structuring (Observed, Direct Score) | Between | 7.375 | 1 | 9.431 | .005** |
| | Within | 17.985 | 23 | | |
| | Total | 25.360 | 24 | | |
| Non-Intrusiveness (Observed, Direct Score) | Between | 3.898 | 1 | 4.056 | .056 |
| | Within | 22.102 | 23 | | |
| | Total | 26.000 | 24 | | |
| Non-hostility (Observed, Direct Score) | Between | 4.124 | 1 | 11.657 | .002** |
| | Within | 8.136 | 23 | | |
| | Total | 12.260 | 24 | | |
| Child Responsiveness (Observed, Direct Score) | Between | 6.080 | 1 | 9.164 | .006** |
| | Within | 15.260 | 23 | | |
| | Total | 21.340 | 24 | | |
| Child Involvement (Observed, Direct Score) | Between | 6.649 | 1 | 10.298 | .047* |
| | Within | 14.851 | 23 | | |
| | Total | 21.500 | 24 | | |
| EA-SR for Mutual Attunement | Between | .123 | 1 | .651 | .429 |
| | Within | 4.161 | 22 | | |
| | Total | 4.284 | 23 | | |
| EA-SR for Child Involvement | Between | .609 | 1 | 4.417 | .047* |
| | Within | 3.035 | 22 | | |
| | Total | 3.645 | 23 | | |
| EA-SR for Affect Quality | Between | .369 | 1 | 1.657 | .211 |
| | Within | 4.904 | 22 | | |
| | Total | 5.273 | 23 | | |
| EA-SR for Non-intrusiveness | Between | .032 | 1 | .239 | .629 |
| | Within | 3.915 | 22 | | |
| | Total | 2.947 | 23 | | |
| EA-SR for Non-hostility | Between | .234 | 1 | .999 | .328 |
| | Within | 5.150 | 22 | | |
| | Total | 5.384 | 23 | | |
| EA-SR Overall Composite | Between | 4.181 | 1 | 3.639 | .070 |
| | Within | 25.278 | 22 | | |
| | Total | 29.459 | 23 | | |
| Adult Clinical Screener | Between | 941.615 | 1 | 8.845 | .001** |
| | Within | 2448.545 | 23 | | |
| | Total | 3390.160 | 24 | | |
| Child Clinical Screener | Between | 711.435 | 1 | 7.581 | .011* |
| | Within | 2158.565 | 23 | | |
| | Total | 2870.000 | 24 | | |
| Adult EA Zone | Between | 1.662 | 1 | 4.586 | .043* |
| | Within | 8.338 | 23 | | |
| | Total | 10.000 | 24 | | |
| Child EA Zone | Between | 1.237 | 1 | 3.501 | .074 |
| | Within | 8.123 | 23 | | |
| | Total | 9.360 | 24 | | |

*Note*. * $a < .05$ level; ** $a < .01$ level

Examining between group differences, we find significant differences ($a$ <.05) in change (difference scores) between the WC and the IG across nine of the 17 outcome variables (the Adult Clinical Screener and Child Clinical Screener; five of the six EA Observed, Direct Scores including Sensitivity, Non-hostility, Structuring, Child Responsiveness and Child Involvement; the EA-SR for Child Involvement; and the Adult EA Zone). These results indicate that those receiving the single session intervention show more improvement in EA and the other study variables over time when compared to those who did not receive the intervention.

*Does Age of The Child in The Dyad Predict the Effectiveness of The Intervention, As Measured by the Study Variables?*

A linear regression was conducted to predict the change (difference scores) in outcome variables with child age as the predictor variable (see Table 5). We again calculated the change (difference scores) for all participants by subtracting scores on the pre-test (pre-test 1 for the WC) from scores on the post-test for all participants (n=25). Below are the results showing those outcome variables where age predicted a significant difference: the EA-SR for Affect Quality, the Adult EA Zone and Non-hostility (Observed, Direct Score).

Table 5.
*Regression analyses summary with child age (in months) predicting the outcome variable*

| Outcome | B | Std. Error | Beta | *t*-test | Sig |
|---|---|---|---|---|---|
| EA-SR for Affect Quality (Post-test – Pre-Test 1) | -.154<br>.004 | .155<br>.002 | <br>.440 | -.995<br>2.296 | .331<br>.032 |
| Adult EA Zone (Post-test – Pre-Test 1) | -.195<br>.005 | .210<br>.002 | <br>.465 | -.926<br>2.517 | .364<br>.019 |
| Non-hostility (observed) (EA Scales) (Post-test – Pre-test 1) | -.092<br>.005 | .205<br>.002 | <br>.454 | -.449<br>2.444 | .658<br>.023 |

We found that age predicted no significant differences across 14 of the 17 outcome variables. Age predicted significant differences in the outcome variables of Non-hostility (Observed, Direct Score) ($a < .023$), the EA-SR for Affect Quality ($a < .032$) and the Adult EA Zone ($a < .019$). These findings suggest that the older the child, the less negative change we see in these variables.

**Discussion**

Research on attachment has demonstrated that individuals with secure attachments in childhood reap significant benefits across the lifespan (Cooke et al., 2018; Ensink et al., 2021; Olufowote et al., 2019). Research also shows that our caregivers in childhood significantly influence our attachment styles (Johnson, 2020; Mikulincer & Shaver, 2016). Today, there are many interventions designed to improve the parent-child relationship and ultimately, attachment in these dyads (Nugent et al., 2017; Risholm Mothander, 2018; Thomson-Salo, 2014; Webster-Stratton et al., 2013). Yet the time-intensive nature of parent-child interventions focused on improving attachment and the age limitations of these interventions leave parents of older children in need of greater guidance.

The goal of this study was two-fold: 1) to determine if the success of the "EA Brief" could be replicated using a waitlist control design, which would compare results of the intervention to results of merely passing time, and 2) to determine if improvements in EA between pre-test and post-test would significantly differ in dyads with older children than have previously been eligible to participate in the "EA Brief." Specifically, the research questions were "Do participants who received the intervention show more improvement in emotional availability over time when compared to those that did not receive the intervention?" and "Does age of the child in the dyad predict the effectiveness of the intervention?"

To answer the first question, participants were split into an immediate intervention group and a waitlist control group. The intervention group took a pre-test prior to receiving the intervention and subsequently, completed the post-test. The waitlist control group took two pre-tests (pre-test 1 and pre-test 2) prior to receiving the intervention and subsequently completing the post-test. We conducted a one-way Analysis of Variance (ANOVA) on difference scores, from pre-test to post-test, using the pre-test 2 as the post-test for the waitlist control group. These analyses revealed significant differences in outcomes related to observed EA, self-reported EA, as well as maternal wellbeing between pre-test and post-test for those in the immediate intervention group as compared to the waitlist control group. These findings indicate that time alone is unlikely to improve EA whereas the "EA Brief" may do so. This supports the effectiveness of the intervention at improving EA for participants.

To answer the second question, participants were recruited so that dyads with children 0-17 years of age were included in the study. Using linear regressions, we predicted the difference scores (between pre-test and post-test for our outcome variables) by child age (measured in months). This analysis revealed that age predicted only a few significant differences in outcomes related to study variables between pre-test and post-test. These included the EA-SR for Affect Quality, the Adult EA Zone and Non-hostility (Observed, Direct Score). These findings suggest that there may be some effect of the child's age. However, this is not consistent across measures and may indicate spurious findings. While more research is needed, these results suggest that the intervention, when expanded to accommodate dyads with children ages 0-17, may still yield positive outcomes.

Originally, we predicted that because the relationship between parent and child has had more time to stabilize before adolescence, it would be more difficult for parents to improve EA

in relationship to older children. These findings suggest that the older the child, the less negative change we see in those variables where age was a predictor of differences in change. This finding rejects the null hypothesis and suggests that in this intervention, it is easier for parents and their older children to maintain EA in their relationship.

This finding is significant due in part to the dearth of research in improving attachment in parent-older child or parent-adolescent relationships as compared to that in parents and child of younger ages. Our findings suggest the focus on observing attachment between parents and children in early childhood obscures how readily we can observe it throughout childhood. Given that research focused on how attachment styles change through life has looked primarily at relationships outside the parent-child relationship (e.g., with a therapist or romantic partner), our findings also suggest that interventions between parents and children in middle childhood to adolescence are a missed opportunity. Without adapting them based on age, some brief interventions may hold just as much if not more promise when used with parent-older child or parent-adolescent dyads than with parents and children of younger ages.

In summary, the "EA Brief", a single session of parent feedback/coaching intervention, was effective in improving maternal well-being as well as emotional availability (self-reported and observed) across parent-child dyads with children ages 0-17 years of age. These novel findings suggest that the intervention is applicable for a wider age range than has been seen in previous studies or that is commonly targeted in parent-child interventions focused on improving emotional attachment and emotional availability and that a single session of feedback/coaching may be a viable method to reach parents. Our results may prove helpful for advancing the relevance of interventions for parents with children ages 0-17 years.

*Limitations*

This study maintains some limitations. Although recruitment for this study did not exclude any parents based on any high-risk criteria (e.g., court involvement, criminal history, or level of education), most of the participants in this study were highly educated, middle income and White. Additionally, due to our small sample size, we were unable to compare the effects of the intervention across age groups (e.g., ages 0-5 years, 6-14 years, and 14+ years) and maintain adequate power to detect moderate to large effect sizes.

*Future Directions*

We limited adult participants in this study to those that identified as female, beyond the age of 18 years and those who had legal, physical and/or shared custody of the child. In the future, it would be important to look at fathers, as well as mothers and fathers who are separated, divorced, or divorcing. Certainly, it would also be important to include same-sex parents with their children. Future studies should also look at the effect of this intervention on parent-child dyads that might be at higher risk. During recruitment for this study, one mother who was involved in a court case with DHS expressed interest in the study but did not complete the consent forms. This mother lacked easy access to a printer, and while we provided an in-person signing option and attempted to mail her the forms with a stamp and envelope, ultimately, this may have been too stressful or burdensome for the participant. Additionally, one mother participated in the study but had difficulty finding childcare during the workshop and during her coaching session. Rescheduling sessions and accommodating the client's need to attend to her children challenged the research team's ability to provide consistent experiences within and between groups. From these experiences, conducting this research on a more high-risk sample will require significant forethought and agility on the part of the research team.

As discussed before, at no point was the intervention adjusted based on age of the child. This provides an opportunity to assess for which age groups the intervention is most effective. Due to our small sample size, we are unable to attempt to answer this question. However, future studies might divide participants into age groups (e.g., 0-5, 5-10 and 10+) and compare improvements in EA across these groups.

Feedback from parent coaches and parent participants during the study provide some suggestions for how the intervention might be adjusted based on child age. For instance, during the workshops, coaches provided examples of EA constructs, but noted that these varied greatly based on age range (e.g., "responsiveness" means handing a toy to the mom or reaching out to be held for a toddler whereas it means providing detail in response to questions about grades for high schoolers). It might be interesting for future studies to separate moms into workshop groups based on age and assess whether this improves relevance of the workshop and/or makes it easier for parents to share and learn from one another. Additionally, parents of older children in coaching sessions asked whether they could share what they were trying to improve with their child, something that parents of pre-verbal children would struggle to do. This sparked the idea of adjusting the intervention in some ways for older children; for example, providing the adolescent with an opportunity to participate in some way or providing mothers with guidance for how to talk to their adolescent about attachment or EA. In this intervention, age predicted significant differences for the Adult EA Zone, with older age predicting greater change; it would be interesting to see whether such a change in the design of the intervention might show "mirrored" significant differences in the Child EA Zone.

Finally, insight from previous research and informal observations from the research team provide some insight into how the intervention might be altered for dyads based on age. For

instance, our research team noted that parent-child dyads with older children chose to engage in conversation rather than a specific activity. Based on previously mentioned research by Benton et al. (2012), it is possible that prescribing the activity for adolescents (e.g., having a difficult conversation) might improve internal consistency and/or provide greater opportunity for improvement in EA. The research team also noted that movement and positioning between parents and adolescents changed within a single filming; in the "pre-test," children moved physically further away from the parent over time whereas in "post-test", children moved physically closer to the parent over time. This may have some implications for coding for EA in studies that focus on parent-adolescent dyads.

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