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An Emotion Coaching Parenting Intervention for Families Exposed to Intimate Partner Violence

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Abstract

The current study describes a promising new emotion coaching (EC) parenting intervention for survivors of intimate partner violence (IPV) targeting emotion regulation (ER) and parent-child relationships. We discuss the development of an EC parenting intervention, outline its key elements, and use preliminary pilot data to illustrate how such a behavioral intervention can yield improvements in behavioral and physiological indices of ER (i.e., respiratory sinus arrhythmia, RSA) and parent-child relationships, and reductions in mental health difficulties in IPV-exposed mothers and their children. A 12-week skills-based EC parenting program was developed and administered in groups. Fifty mothers were assigned to intervention (INT) or waitlist (WL) groups. Physiological, observational, and questionnaire data were obtained pre-and post-intervention. Due to small sample size, effect sizes were examined for illustrative purposes of potential effects of the EC intervention. Relative to mothers in WL group, mothers in the INT group showed (1) improvements in emotion awareness and coaching, (2) increases in ER as assessed by baseline RSA, (3) increased use of validation and decreased use of sermonizing/lecturing/scolding during parent-child interaction, and (4) increased sense of parenting competence. Relative to children of mothers in the WL group, children of mothers in the INT group showed (1) increases in ER as measured by parent-report and baseline RSA, (2) decreases in negativity during parent-child interaction, and (3) decreases in depressive symptoms. Discussion highlights potential usefulness of an EC parenting intervention for populations at risk for ER and parenting difficulties.

Keywords

Emotion socialization; parenting intervention

Fostering resilience and well-being among at-risk children is a central goal of developmental science. To maximize adjustment of children at risk for psychological difficulties it is important for interventions to target specific, well-defined processes that are likely to function as risk modifiers. Luthar and Eisenberg (2017) identified two critical processes as top priorities for behavioral interventions for at-risk children: (1) fostering emotion

regulation (ER) among both parents and children, and (2) minimizing harsh parenting and fostering nurturing parent-child interactions. With these recommendations in mind, and building from Eisenberg, Cumberland and Spinrad's (1998) model of emotion socialization that emphasizes the importance of emotion-related parenting practices, this paper describes a promising new emotion coaching (EC) parenting intervention for survivors of intimate partner violence (IPV) that targets ER and fosters positive parent-child relationships.

Theoretical discussions of factors relating to children's emotional development support the idea that children learn how to express and regulate their emotions within the course of parent-child interactions (Cole & Kaslow, 1988; Eisenberg, Cumberland, & Spinrad, 1998; Eisenberg, Fabes, & Murphy, 1996; Gottman, Katz, & Hooven, 1997; Thompson, 1990, 1991). EC has been identified as an empirically-supported emotion socialization practice that can be readily translated into a new therapeutic intervention (Gottman, Katz, & Hooven, 1996; Katz & Windecker-Nelson, 2004, 2006). EC parents are aware of low-intensity emotions in themselves and their children, view children's negative emotion as an opportunity for intimacy or teaching, validate and label emotion, and help children learn strategies for dealing with emotion causing situations (Katz, Maliken, & Stettler, 2012). Prior research suggests that emotion coaching is related to improved ER abilities in children (Gottman et al., 1996; Lunkenheimer, Shields, & Cortina, 2007), making this parenting dimension a potentially useful target for family interventions aimed at supporting healthy ER and parent-child interactions.

Consistent with Luthar and Eisenberg's (2017) recommendations, an EC parenting approach also emphasizes the importance of maintaining an emotional connection between parent and child, and reducing harsh, derogatory parenting. We discuss the development of an EC intervention, outline its key elements, and use preliminary pilot data to illustrate how behavioral interventions can yield improvements in behavioral and physiological indices of ER, as well as reductions in mental health difficulties in IPV-exposed mothers and their children.

IPV and Emotion Regulation

IPV is a significant societal problem and mental health concern with large social and economic costs (Arias & Corso, 2005). In the United States, about 3 in 10 women (28.8% or approximately 34.2 million) have experienced rape, physical violence, and/or stalking by an intimate partner, and report at least one measured psychological or physical health impact related to these these experiences (CDC, 2010). Survivors of IPV exhibit significant psychological disturbance, including depression, anxiety, substance abuse, low self-esteem and increased risk of suicide attempts (e.g., McCauley, Kendall, & Pavlidis, 1995). In addition, approximately 15.5 million American children live in homes in which IPV has occurred in the previous year (McDonald et al., 2006). Compared to children from non-violent homes, children exposed to IPV exhibit higher levels of anxiety and depression (Kernic et al., 2003), PTSD symptoms (Kilpatrick & Williams, 1998; Lang & Stover, 2008), aggression (Kernic et al., 2003), and conduct problems (Fantuzzo et al., 1991; Jouriles, Murphy, & O'Leary, 1989).

Increasing evidence suggests that ER is a critical mechanism that explains heightened risk for psychopathology in IPV-exposed women and children. From a transdiagnostic perspective, difficulties in ER are central to psychopathology (e.g., Aldao, Nolen-Hoeksema, & Schweizer, 2010; Gross, 1998) in that people who cannot effectively manage their emotional responses will more likely experience longer and more severe periods of distress than those who can. Several lines of research suggest that parent and child emotion dysregulation are two relevant pathways linking exposure to IPV and psychopathology in both parents and children. Among children, there is growing evidence that IPV-exposed children show disturbances in affective expression and regulation (Graham-Bermann 1998; Katz, Hessler, & Annett, 2005; Lee, 2001). Children's ER also mediates links between IPV exposure and children's internalizing and externalizing difficulties (Harding, Morelen, Thomassin, Bradbury, & Shaffer, 2013; Katz et al., 2007; Zarling et al., 2013). Similarly, mothers' ER predicts both child adjustment and parenting outcomes following IPV exposure (Gurtovenko & Katz, 2017; Katz & Gurtovenko, 2015).

Because mother and child ER are both factors predicting child adjustment and parenting outcomes following IPV exposure, an intervention program with IPV-exposed families aimed at increasing both mothers' and children's ability to regulate emotions is likely to result in improvements in child adjustment and parent-child functioning.

Emotion Coaching to Target Emotion Regulation

Gottman et al. (1996, 1997) introduced a new concept of parenting referred to as parental "meta-emotion philosophy" that has been found to be an important process associated with children's ER abilities. By "meta-emotion", they mean parent and child feelings, beliefs and attitudes about basic emotions. The active dimension in this research was an adaptive parental attitude and activity they called "emotion coaching" (EC), versus an attitude of "emotion dismissing (ED)." This dimension concerned the way parents interact with their children when the children display negative affect, particularly anger and sadness, and was orthogonal to parental warmth. Parents who held an EC philosophy of emotion did five things with their children: (1) noticed lower intensity negative affect in their child; (2) saw these moments as opportunities for intimacy or teaching; (3) communicated understanding of and empathy for the child's negative affect; (4) helped the child verbally label the child's affect; and (5) set limits on the child's misbehavior (but not on feelings or wishes) and coached the child in child-directed problem solving if misbehavior was involved. Parents who held an ED philosophy did not notice negative affect in their child until these were considerably escalated, believed that talking about these affects was unprofitable and even harmful, tried to cajole or distract the child into a more cheerful mood, and tried to avoid discussing emotions. The data do not claim that ED is never appropriate as a parenting behavior, but instead describe characteristic approaches parents have toward child emotions.

Parental meta-emotion was strongly related to parenting during a laboratory teaching interaction, and to the child's physiological regulatory abilities (vagal tone and the suppression of vagal tone). Vagal tone, or respiratory sinus arrhythmia (RSA) has been conceptualized as an index of the child's ability to self-soothe when upset and is associated with better ER and attentional abilities. RSA refers to variations in heart rate attributable to

the respiratory cycle, reflecting tonic functioning of the parasympathetic nervous system. Because the parasympathetic nervous system acts as a brake on the heart, it is involved in self-soothing and restoring calm to the body by lowering heart rate. Conversely, because reducing RSA increases heart rate for short-term reactions to environmental events, individuals with high baseline RSA are conceptualized as having nervous systems that respond quickly and flexibly to environmental demands (Porges, 1995), an important biological advantage when faced with stressful circumstances. Gottman et al. (1996, 1997) found that children whose parents were emotion coaching had higher vagal tone and greater ability to suppress vagal tone when engaging in tasks that demand impulse control and mental effort. Physiological regulatory abilities at age 5 predicted children's ability to down-regulate their own negative affect at age 8, and both abilities, in turn, predicted child outcomes reflecting behavioral and physical health.

Parents' ability to regulate their emotions was also identified as an important contributor to their ability to be emotion coaching (Gottman et al., 1997). Mothers who were feeling emotionally dysregulated were less aware of their own and their children's emotions. Taken together, these data indicate that an EC parenting intervention must contain three critical elements: (1) teach parents to be more aware of emotion in themselves and their child, (2) increase parents' coaching of child emotion, and (3) improve parents' ER ability.

Intimate Partner Violence, Maternal ER and Emotion Coaching

To our knowledge, only three interventions developed for IPV survivors include a parenting component. Lieberman, Van Horn, and Ippen (2005) developed the 52-week child-parent psychotherapy (CPP) for preschoolers exposed to IPV. Based in an attachment framework, the goals of CPP include creating a joint trauma narrative for mother and child, increasing maternal responsiveness, addressing nonaggressive parenting and developmentally appropriate interactions, and decreasing maladaptive behaviors. The parenting component of a second intervention, Kid's Club (Graham-Bermann, 1992; Graham-Bermann, Lynch, Banyard, Devoe, & Halabu, 2007), is designed to enhance the social and emotional adjustment of mothers who experienced IPV through enhancement of coping and strengthening social support, community resources and parenting skills. A third intervention, Project SUPPORT (Jouriles et al., 2001), includes weekly behavioral parenting training and social and instrumental support. Of these programs, only one addresses emotion awareness and regulation, and discussions occur during group-based sessions with children only (Graham-Bermann et al., 2007). No current interventions for IPV-exposed families specifically target the development of mother or child ER within the context of parenting.

In both high and low risk families, a mother's ability to regulate emotion is a critical part of effective parenting (Crandall, Deater-Deckard, & Riley, 2015). In IPV-exposed families in particular, mothers' ER is an important mechanism and risk factor related to both parenting and child adjustment outcomes. For example, higher maternal posttraumatic stress symptoms are related to more negative emotion socialization parenting following IPV exposure, but only for mothers who show poor ER abilities (Gurtovenko & Katz, 2017). There is also evidence that mothers' ER mediates relations between maternal posttraumatic stress symptoms (PTSS) and positive emotion socialization parenting practices (Gurtovenko

& Katz, 2017), as well as child internalizing and externalizing problems (Katz & Gurtovenko, 2015). How parents talk to children about emotion may be particularly important for IPV-exposed families as children are exposed to hostile and threatening interactions that can be highly emotionally arousing, and so can likely benefit from parenting that helps them learn to manage strong arousal. Not surprisingly, children's ER is a protective factor that supports child adjustment following IPV exposure (Katz & Gurtovenko, 2015; Katz, Stettler, & Gurtovenko, 2016).

EC has protective effects for children exposed to IPV. Katz and Windecker-Nelson (2006) conducted individual audiotaped interviews with female survivors of IPV using the Parent MetaEmotion Interview. Audiotapes were later rated by independent coders for both EC-related content and interview behaviors that convey parental ease at talking about emotion. Katz and Windecker-Nelson (2006) reported that EC moderates relations between IPV and child adjustment. For children whose parents were low in EC, there was a significant relation between IPV and child maladjustment. However, for children whose parents were high in EC, there was no relation between IPV and child maladjustment. Mothers who were high in EC showed respect for the child's experience of emotion, talked with their child about the situations that generate emotion, provided comfort around emotion, and taught their child strategies to deal with emotions that were age-and situation-appropriate. In a clinical sample, Shipman, Edwards, Schneider, and Sims (2007) reported that maltreating mothers used less EC (as measured by the Parent Meta-Emotion Interview) than non-maltreating mothers, and EC mediated the effects of maltreatment on child adjustment. Given the overlap between maltreatment and IPV (Appel & Holden, 1998; Edleson, 1999; McGuigan, Vuchinich, & Pratt, 2000; O'Leary, Smith Slep, & O'Leary, 2000), these data suggest that EC can buffer children from the negative effects of IPV and underscore the importance of turning these basic research findings into a viable parenting intervention for IPV-exposed families.

The Current Study

The objective of the current study was to develop and pilot test an EC parenting intervention for IPV-exposed families. Consistent with Luthar and Eisenberg (2017), the central goals of an EC parenting intervention are to foster ER in both parents and children, develop EC behaviors and minimize harsh parenting behavior patterns, and encourage a stronger emotional connection between parent and child. We describe the intervention and present preliminary pilot data from a small-scale open trial intervention to improve parent and child ER in IPV-exposed families. Mothers were assigned to either the EC intervention or waitlist control condition. Due to the small sample size, effect sizes are presented with the expectation that future studies with larger sample sizes will more fully test intervention effects using inferential statistics. Recognizing the limitation inherent in this approach, we present these findings as illustrative of potential effects of a full-scale randomized controlled trial.

Building on Eisenberg, Cumberland, and Spinrad's (1998) emotion socialization model that highlights the importance of emotion-related parenting practices and child arousal, and based on theoretical considerations, we examined outcomes representing the following

parent and child domains. For the mother, we examined: (1) *Mothers' emotion awareness and regulation, and EC philosophy*, (2) *Mothers' EC and dismissing behaviors during parent-child interaction*, and (3) *Mothers' sense of parenting competence*. For the child, we examined: (1) *Children's ER abilities*, as assessed by parent report and respiratory sinus arrhythmia (RSA). Individuals with high baseline RSA are conceptualized as having nervous systems that respond quickly and flexibly to environmental demands (Porges, 1995), and RSA has received considerable attention as a marker of ER at the physiological level (Beauchaine, 2001). Moreover, both child and mother RSA has been found to be an important marker of ER in previous IPV research (Gurtovenko & Katz, 2017; Katz & Gurtovenko, 2015); (2) *Children's psychological adjustment*. Given high rates of internalizing problems in IPV-exposed children, child depression and PTSS were also measured to assess potential effects of the intervention; and (3) *Child behavior during parent-child interaction*. Based on previous research suggesting that children of mothers high in EC engage in less negative conversation and display less negative affect compared to children of mothers low in EC (Katz et al., 2012), we examined whether the EC intervention would be associated with less child negativity and higher child positivity towards the mother during parent-child interaction. The intervention was designed to target improvements in these domains for both mothers and children.

Method

Intervention Development

The EC intervention was developed with several principles in mind. We attempted to reflect the main theoretical notions inherent in Gottman et al.'s (1996) work on EC. It was also designed to address central concerns in IPV-exposed groups (e.g., dealing with anger; talking about the abuse) while also being easily modifiable for use with other at-risk populations. A group-based intervention delivery model was used to parallel the group structure common in support groups for IPV survivors and to maximize cost effectiveness.

A 12-week skills-based EC program was developed targeting the following skills and components: (1) Introduction (session 1), (2) mothers' awareness of emotion in herself and her child (sessions 2 & 3), (3) ER abilities (sessions 4–5), (3) emotion coaching abilities (sessions 6–9), and (4) responding to anger and talking about the abuse (sessions 10–11). The last session (session 12) provided an opportunity to review and summarize essential points of the intervention with the mothers and develop a plan for continuing support of their children. The rationale for ordering sessions was based on several considerations. Since emotional awareness is a prerequisite skill for both ER and EC, it was the first skill to be taught. Similarly, since parents cannot be effective at EC without some basic competence in ER, mothers' ER was targeted as the second skill to be taught. Sessions on responding to anger and talking about the abuse were included towards the end of the intervention as these are highly sensitive topics that could easily trigger strong emotional reactions in mothers. Our goal was to provide mothers with the maximum skill level before introducing topics that provided the greatest challenge to their ER abilities and parenting.

The intervention was administered in groups consisting of approximately 5–8 mothers. Two female therapists administered the intervention with each group. Therapists included one

Master's level clinician, two advanced graduate students in clinical psychology, and the first author. Four sessions of the emotion coaching module occurred with both mother and child to allow for in-vivo training and feedback. The intervention relied on didactic presentations, vignettes or case studies, modeling and role playing, and discussions. Videotapes demonstrating EC behavior (e.g., validation, feeling talk, emotional scaffolding) and parental derogation (i.e., criticism, derisive humor, minimizing/punishing) were used to illustrate behaviors the intervention is targeting.

Introduction (session 1).—This session focused on introductions, establishing group rules, providing psychoeducation about IPV and the purpose of the program, and setting goals.

Mothers' awareness of emotion (sessions 2–3).—This segment targeted 4 component skills, and taught mothers to: (1) pay attention to bodily cues and cognitive processes associated with different emotional states, (2) differentiate between different negative emotions (e.g., anger, sadness, fear) in themselves and their child, (3) increase sensitivity to low intensity emotion in themselves and in their child, and (4) understand the cause of negative emotions in themselves and in their child. Homework exercises included use of a diary to increase attention to bodily cues and cognitions associated with specific emotions, and creation of a personal emotional barometer with anchors of what constitutes a “1”, “5” and “10” to increase sensitivity to different levels of emotional intensity. Session 2 focused on awareness of one's own emotion, and Session 3 focused on awareness of child emotion.

Mothers' own ER abilities (sessions 4–5).—Five component skills were targeted, borrowing select elements on ER from Dialectic Behavior Therapy (Linehan, 1993). Mothers were taught to: (1) increase mindfulness to current emotions through acceptance of painful feelings; (2) apply distress tolerance techniques to tolerate negative emotions without impulsive actions; (3) apply ER techniques when their emotional barometers escalate beyond a low set point; (4) use proximal strategies to self-soothe (e.g., taking deep breathe, stopping/inhibiting action, taking a time-out to calm down), and (5) use distal strategies to self-soothe (e.g., take a bath; talk to friend; listen to music; watch a funny movie).

Emotion coaching (session 6–9).—Eight component skills were targeted teaching mothers to: (1) view emotional moments as an opportunity for intimacy and teaching, (2) increase active listening skills (e.g., eye contact, nodding, saying “um-hum”), (3) increase their use of emotion language with the child, (4) pay attention to the emotion behind the child's words, (5) validate the child's expression of feelings, (6) use feeling talk and storytelling to contextualize the child's emotional experience, (7) increase “emotional scaffolding” by letting the child come up with solutions, and (8) decrease parental minimizing, punishing and invalidation of emotion.

Responding to anger and talking about the abuse (sessions 10–11).—This segment of the program focused on psychoeducation about trauma and anger, teaching mothers how to accept intense trauma related emotions, set limits and define appropriate child behaviors, and talk to their children about the abuse and the abuser.

Summary and planning (session 12).—A final session focused on reviewing the program content, assessing progress and discussing plans for maintaining and expanding support of their child past the end of the intervention.

Participant Characteristics

Seventy-five mother-child dyads (child age $M = 9.32$, $SD = 1.50$; mother age $M = 39.21$, $SD = 7.18$) were recruited through distribution of flyers to local domestic violence agencies and brief presentations in support groups. All mothers were receiving supportive services from these agencies. Mothers were identified as being in violent relationships based on (1) their self-identification and use of support services at domestic violence agencies, and (2) recent experience with domestic violence, operationalized as an affirmative response, for the previous 12-month period, to any item on the Conflict Tactics Scale's (Version 2) Physical Assault, Sexual Coercion, or Psychological Aggression subscales (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Individuals who were interested in participating called the study office for a brief screening to assess eligibility. To be eligible for participation, families must have (1) been out of the violent relationship for at least four months, (2) endorsed one or more items on the Conflict Tactics Scale's (Version 2) Physical Assault, Sexual Coercion, or Psychological Aggression subscales as having occurred in the last 12 months (Straus et al., 1996), (3) had at least one child between the ages of 6 and 12, (4) and were able to speak, read, and write English. Families with children ages 6–12 were targeted for the intervention for three reasons. First, since most existing research on parenting interventions for families exposed to IPV have been conducted with this age range, we wanted to provide data that could be compared to previous samples. Second, examining changes in how parents talk to their children about emotion are optimally assessed with children who are old enough to have discussions about emotion. While EC is relevant for both younger and older children, we reasoned that a more reliable assessment of intervention effects would best be obtained with children over age 5. Third, the upper age limit was capped at age 12 to both reduce the age range of study participants and to limit potential effects of including adolescents in the sample, given broad changes in parent-child relationships during the adolescent period. All mother-child dyads were recruited from three domestic violence agencies.

Of the seventy-five mother-child dyads, 25 families dropped from the study or were lost to contact and did not go on to any substantive study procedures. Of the dropped group, two of the families dropped due to relocating out of state, and two families dropped due to a lack of fit with the intervention program. The rest of the families were dropped due to loss of contact with the research staff. The remaining 50 participants included 23 families who were assigned to receive the intervention and 27 families assigned to the waitlist control group. A one-way analysis of variance indicated that there were no significant differences in demographic factors of child age ($F(2, 56) = 2.19, p = .12$), child gender ($F(2, 61) = 0.87, p = .42$), and child race ($F(2, 57) = 0.49, p = .612$), between the dropped, control, and intervention groups. Similarly, no significant group differences were found for mothers' age ($F(2, 49) = 1.16, p = .32$), income ($F(2, 49) = 1.08, p = .35$), education ($F(2, 49) = 1.42, p = .25$), mothers' race ($F(2, 46) = .63, p = .54$), or the total length of reported abuse ($F(2, 42) = 1.82, p = .18$).

Table 1 describes participant characteristics. Approximately half of the families had female children (53.1%). The sample was diverse with regards to mothers' educational background and income level, as well as the race/ethnicity of mothers and children. 80% of the mothers had family incomes less than \$50,000 and 75% had some college or more, suggesting that IPV experiences and other stressors and life circumstances may have impacted the discrepancy between income and education. On average, mothers reported experiencing about seven years of abuse ($M = 81.87$ months, $SD = 51.22$); however, there was wide variability (range = 1–204 months). Similar variability was observed in the time since mothers left the abusive relationship (range = 4–144 months, $M = 28.57$ months, $SD = 32.64$). Participants retained in the intervention group attended between 6 and 12 sessions ($M = 9.77$, $SD = 1.85$). The distribution of attendance for the intervention group was as follows: 1 family (4.5%) attended 6 sessions, 3 families (13.6%) attended 7 sessions, 1 family (4.5%) attended 8 sessions, 4 families (18.2%) attended 9 sessions, 3 families (13.6%) attended 10 sessions, 6 families (27.3%) attended 11 sessions, and 4 families (18.2%) attended all 12 sessions. If mothers missed a group, session content was not made up. Nearly all of the families in the dropped group did not receive any treatment, primarily due to loss of contact with research staff and/or moving out of the area before being able to continue with the study and intervention program. Only one of the families in the dropped group attended 5 sessions of the intervention, but was dropped due to missing a majority of the research assessments. One family from the intervention group was also excluded from the final sample because they attended only a single session. The decision to drop this family was based on prior evidence that similar kinds of treatments are beneficial only when families receive a sufficient dose of intervention (3–4 active treatment sessions; Dorsey et al., 2014).

Procedures

Participants screened into the study completed a brief interview to obtain basic demographic information and history of IPV. A safety assessment was also performed to ensure that parents were not at imminent risk, and that their involvement in the study did not pose a threat. During two initial research visits, mothers completed the Parent Meta-Emotion Interview (PMEI; Katz & Gottman, 1986) and questionnaires assessing demographic information, their own and their child's psychological functioning. Children also completed self-report questionnaires. Measures were completed by children of all ages, and questionnaires were read to any child who had difficulty reading. Additionally, mothers and children engaged in a 10-minute interaction to assess how parents and children resolve areas of disagreement. To determine a topic for conversation, mothers and children completed the "Issues Checklist" (Robin & Foster, 1984), consisting of 17 topics that are typically discussed between parents and children (e.g., homework, chores, siblings) and can be a source of disagreement. Research assistants reviewed the ratings and chose two topics that were rated as highest for both mother and child. Dyads were instructed to discuss one issue and then move to a second if they had made sufficient progress and had time remaining. This methodology has been well-validated and used in hundreds of studies of parent-child interaction across many different laboratories. Physiological data assessing heart and respiratory rate of both mothers and children were recorded during baseline and during parent-child interaction. To obtain baseline RSA, both mothers and children were seated and

mothers read aloud a neutral story to their child for two minutes. Having a child listening to a neutral story has been used in several previous studies (Gottman, Katz & Hooven, 1986; Katz & Gottman, 1995, 1997; Rigterink & Katz, 2010). Five silver chloride electrodes were placed on participants' chest during study visits to measure cardiac interbeat interval (IBI), and respiratory rate was measured using a respiration monitor belt. The PMEI was audio recorded and the parent-child interaction was videotaped for later coding. Families were compensated for completing research procedures but were not compensated for participation in the intervention.

Assignment to condition was done after the completion of the pre-treatment assessment. An intervention group at a given domestic violence agency was initially filled and remaining families receiving services at that agency were assigned to the waitlist group. Families assigned to the parenting intervention attended weekly sessions at a domestic violence agency. For families assigned to the waitlist control condition, research staff contacted them after 6 and 12 weeks to foster retention and to collect brief questionnaire data. After the 12-week intervention was completed, families in both the intervention and waitlist control group completed an additional in-person research visit, during which questionnaires and the parent-child interaction task were repeated. Mothers also completed another PMEI at this time. Questionnaire, interview and physiological data were collected from both mothers and children at both the baseline assessment and post-intervention. Families in the waitlist control group were then offered the opportunity to participate in the intervention. Random assignment to condition was not possible as recruitment was slow and it was important to fill groups in as timely a way as possible to provide care to mothers who were already enrolled and to minimize attrition. All study procedures were approved by the Institutional Review Board (University of Washington; Application #31088 entitled "Domestic violence: An emotion coaching parenting intervention").

Measures

Mothers' emotion awareness and emotion coaching.—The Parent-Meta Emotion Interview (PMEI) was used to assess mothers' awareness of her own emotion and coaching of their children's emotions. The PMEI is a semi-structured interview asking questions regarding their experiences with and attitudes towards anger, sadness and fear in themselves and their children (Katz & Gottman, 1986). Sample questions include "What is it like for you to be sad?", and "How do you know when your child is angry?". This interview was coded using the Meta-Emotion Coding System (Katz, Mittman, & Hooven, 1994). Items related to awareness and coaching were first coded separately for each of three emotions (sadness, anger, and fear) on a five point Likert scale (1 = strongly disagree, 5 = strongly agree), and were combined across emotions to create two scales: (1) total awareness and (2) total coaching. Awareness assessed the degree to which parents notice that they experience an emotion, whereas Coaching consisted of items tapping the degree to which mothers show respect for the child's experience of emotion, talk about the situations that generate emotion, provide comfort around emotion, and teach children how to use strategies to deal with emotions that are age- and situation-appropriate. Raters were extensively trained to reliability on a set of gold standard recordings that have been used to train coders in the United States and abroad. Coders needed to reach a minimum inter-correlation of .60 or

higher on all dimensions for each separate emotion on the PMEI before coding the data in the current study. Inter-rater reliability was computed on 63 percent of the audiotapes from the current study and ranged from .72 to .99 across all subscales, with a mean of .85.

Mother ER.—Respiratory sinus arrhythmia (RSA) under baseline conditions was used as an index of mother ER. Cardiac IBI was assessed continuously by measuring the time between successive R-waves of the electrocardiogram (ECG). ECG recordings, collected at 1 kHz sampling rate, were then loaded into custom Matlab software to detect R-wave peaks and to screen and correct for artifacts. Mindware software was used to conduct spectral analysis of IBI data, and RSA was calculated by measuring the time among successive R-waves of the ECG. The amount of variance in the IBI spectrum within the participant's respiratory sinus frequency band was examined using spectral time-series analysis. The sum of the power densities in the IBI spectrum within the 0.2 to 0.3 Hz band over the total amount of power across all frequency bands was used as the measure of RSA. This method has been well established and found to be related to ER abilities and family processes (Gottman & Katz, 1989; Katz & Gottman, 1995). It is also highly correlated with output from Porges's MXEDIT program ($r = .96$; Gottman et al., 1997). Mothers' baseline RSA values for analyses were calculated as the average RSA across a 2-minute period when the mother was in a neutral resting state before the parent-child interaction began. Baseline RSA was used as we conceptualized ER as a stable characteristic that is independent of behavior and emotional reactions during challenge, such as during parent-child interaction.

Parenting competence.—Mothers completed the Parenting Sense of Competence Scale (PSOC; Johnston & Mash, 2010), which measures parental competence on two dimensions: satisfaction and efficacy. The PSOC contains 16 items (e.g., "The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.") rated on a 6 point Likert scale (1 = "Strongly Disagree" to 6 = "Strongly Agree"). The current study employed the 7 item parenting efficacy subscale which ranged from a score of 7 to 42, with higher scores indicating a higher sense of parenting efficacy. The PSOC has shown good reliability and validity in prior psychometric research (Rogers & Matthews, 2011). Internal consistency of the efficacy subscale in the current study was .78.

Parenting and child behaviors.—Observed parent and child behaviors were assessed through coding of video and audio of the parent-child interaction task using the Parent & Child Coding System (PACCS; Katz, Heater, Walpole, & Cohen, 2007). PACCS is a computer-based second by second observational coding system. For the current study, mother validation indexed emotion coaching behavior and sermonizing/lecturing/scolding were considered emotion dismissing parent behavior. In regard to child behaviors, we coded: (1) Child positivity, which was a composite score comprised of humor and interest, and (2) Child negativity, which was a composite score consisting of child sadness, embarrassment, and contempt. Scores on this measure are quantified as the percentage (%) of the total interaction time the mother or child exhibited the behavior. Inter-rater reliability was .90 for mothers' validation, and .92 for mothers' sermonizing/lecturing/scolding. Inter-rater reliability was .89 for child positivity, and .90 for child negativity.

Child ER.—Mothers completed the Child Regulation Index (CRI; Katz & Gottman, 1986) at both time points. The CRI consists of 45 items assessing children’s ER abilities. Mothers were asked to report on a five point Likert scale (from 1 = Never to 5 = Very Often) how frequently they had to help their child in up-regulation (e.g., “Encourage him/her to join in an activity that was unfamiliar”) and down-regulation (e.g., “Calm him/her down when s/he was very excited”) during the past week. The CRI had a strong internal consistency of .94 in the current study. A total subscale score which includes both up and down-regulation was used for this study. In addition, respiratory sinus arrhythmia (RSA) was also used as an index of child ER. Similar measurement methods as described above for mother RSA were used for gathering and quantifying child RSA. RSA was defined as the log of average power density from frequency components in the band falling between 0.33 and 0.42 Hz (Litvack, Oberlander, Carney, & Saul, 1995). This band corresponds to the range of children’s respiration rates reported by Behrman, Kliegman, and Nelson (2002). Child baseline RSA values for analyses were calculated as the average RSA across a 2-minute period while the child read aloud a neutral story.

Child depression.—Children reported on their own depressive symptoms using the Child Depression Inventory (CDI; Kovacs, 1981). The CDI is a 27-item self-report measure of depressive symptoms in children ages 7 to 17. Each item provided three response options reflecting particular depressive symptoms (0 = lack of depression, e.g. “I am sad once in a while, 1 = may indicate depression, “I am sad many times”, 2 = indicative of depression, e.g., “I am sad all the time”) experienced in the past two weeks. The total score, which ranges from 0 to 54, was used in the current study. The CDI has shown good internal consistency, test-retest reliability, and discriminant validity in prior research (Reynolds, 1994), and showed an internal consistency of .90 in the current study.

Child posttraumatic stress symptoms (PTSS).—Children completed the Children’s Posttraumatic Stress Symptoms Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001), a 24-item self-report scale measuring children’s PTSD symptoms. Children rated whether they had experienced a symptom (e.g., “Having upsetting thoughts or images about the event that came into your head when you didn’t want them to”) in the last two weeks on a four-point Likert scale ranging from 0 (*none or only one time per week*) to 3 (*almost always/ five or more times per week*). The CPSS has been shown to have high test-retest reliability and good convergent and discriminant validity (Foa et al., 2001). The CPSS showed an internal consistency of .86 in the current study.

Demographics.—Mothers completed a demographic information questionnaire that assessed family income, mothers’ education, child age, child sex, and ethnicity.

Data Analytic Plan

Estimates of effect-size, rather than statistical significance, were used to examine intervention effectiveness in this pilot sample as effect size estimates serve as an index of the strength of the association between intervention group and outcome scores that is independent of the sample size (Cohen, 1988). To estimate effect sizes across different outcomes, general linear models (GLM) were run which included a predictor of time as well

as a time by group interaction predictor. The effect of the time by group interaction assessed the degree to which change in the outcomes from baseline to post-treatment varied as a function of being in the waitlist vs. intervention group. Partial eta-squared (η^2) effect size values for the time by group interactions were computed, and are reported along with means and standard deviations for both groups at both time points in Table 2. Small, medium, and large effects were defined by partial eta squared values of .01, .06, and .14, respectively (Cohen, 1969; Richardson, 2011).

Results

Group Differences across Outcomes at Pre-treatment

Given the lack of random assignment to treatment condition in the study design, pretreatment differences in outcomes between the intervention and the waitlist group were examined using independent samples t-tests. There were no significant pre-treatment differences across mothers' outcomes. Similarly, no significant pre-treatment differences were found between intervention and waitlist groups across child adjustment outcomes.

Group Differences across Outcomes from Pre- to Post-treatment

A summary of means and standard deviations with effect sizes for both control and intervention groups at pre-treatment and post-treatment are presented in Table 2. In addition, zero order correlations between outcomes and demographic variables at pre-treatment and post-treatment are presented in Tables 3 and 4. The following results describe directional patterns of change in outcomes based on examination of means between the two groups.

Mothers' emotion coaching and awareness.—The intervention showed a medium effect size for mothers' EC ($\eta^2 = .109$), showing that on average mothers in the intervention group showed increases in EC from pre-treatment to post-treatment, compared to decreases in EC for mothers in the waitlist group. Similar small to medium effect sizes were observed for mothers' awareness of her own emotion ($\eta^2 = .058$), showing that on average mothers in the intervention group increased in their awareness compared to mothers who did not receive the intervention.

Mothers' ER.—A small effect size was found for mothers' ER as measured by RSA ($\eta^2 = .041$), indicating that on average mothers in the intervention group increased in their baseline RSA compared to mothers who did not receive the intervention.

Mothers' observed parenting.—The intervention showed a small effect size for mothers' validation ($\eta^2 = .013$), showing that on average mothers in the intervention group showed greater increase in observed use of validation during the parent-child interaction relative to the waitlist control group. A medium effect ($\eta^2 = .123$) was observed for mothers' use of sermonizing/lecturing/scolding, suggesting that on average mothers in the intervention group showed slight decreases in these negative parent behaviors whereas the waitlist group showed relatively large average level increases in these behaviors by post-treatment.

Mothers' sense of parenting competence.—There was a medium effect ($\eta^2 = .105$) for parenting efficacy, suggesting that on average mothers in the intervention group showed increases in their sense of parenting efficacy relative to mothers in the control group who decreased in their average level parenting efficacy over time.

Child's ER.—A medium effect size for children's ER as reported by mothers ($\eta^2 = .108$) was found, suggesting that children of mothers in the intervention group on average showed increased ER at post-treatment relative to pre-treatment, while children of control group mothers showed overall decreased ER at post-treatment relative to pre-treatment. A small effect size was also observed for child ER as measured by baseline RSA ($\eta^2 = .019$), with children in the intervention group showing a slight average increase in their baseline RSA between pretreatment and post-treatment, compared to children in the control group who showed a slight average level decrease.

Child's behavior during parent-child interaction.—A medium effect ($\eta^2 = .118$) was observed for child negativity, suggesting that on average children of mothers in the intervention group showed a slight decrease in negativity towards their mother over time. Inspection of means indicated that children in the control group showed a relatively large increase in negativity towards their mother from pre-treatment to post-treatment. No effect was seen for child positivity ($\eta^2 = .003$), with children in both groups showing similar average level increases from pre-treatment to post-treatment.

Child depression.—There was a medium effect ($\eta^2 = .09$) on child depression, suggesting that on average children of mothers in the intervention group reported decreases in their depression at post-treatment. Inspection of means indicated that children of mothers in the control group showed increased average level in depression from pre-treatment to post-treatment.

Child PTSS.—There was no observed effect ($\eta^2 = .004$) on child PTSS. Examination of means showed that on average children of mothers in the intervention group and control group similarly showed little to no change in PTSS from pre-treatment to post-treatment, although children in the control group showed slight average level increases in PTSS over time.

Discussion

An emotion coaching intervention was developed to target ER and parenting, two specific processes that are known to function as risk modifiers (Luthar & Eisenberg, 2017). The intervention, which focuses on how parents talk to children about their emotions, was implemented with survivors of IPV since both mothers and children in these households are at risk for disrupted ER (Gurtovenko & Katz, 2017; Katz & Gurtovenko, 2015; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009) and are exposed to hostile interactions that can be emotionally arousing (Katz et al., 2016; Katz et al., 2007).

The current results are both in line with prior intervention research with IPV-exposed families, as well as build on prior work by suggesting EC interventions may foster

improvement in several key areas. Similar to work by Jouriles et al. (2001) who found their intervention decreased mothers' inconsistent and harsh parenting, the EC intervention showed promising results in decreasing mothers' negative parenting behaviors, such as sermonizing, lecturing and scolding. A unique contribution of the EC intervention is its promise in fostering mothers' awareness and validation of their children's emotions. Not only were mothers more skillful at parenting, they also felt more confident in themselves as a parent, which is an important area of improvement since survivors of IPV often worry about their children and can feel helpless in protecting them from the negative effects of violence exposure.

Several trends suggesting positive intervention effects were found for children as well. Similar to prior interventions for IPV exposed families (Graham-Bermann et al., 2015), the current intervention showed positive effects on children's depression. Intervention effects on children's PTSD symptoms were not observed. This is in contrast to work by Lieberman & colleagues (Ghosh Ippen, Harris, Van Horn, & Lieberman, 2011; Lieberman et al., 2005) and Cohen, Mannarino, & Iyengar (2011) who have shown decreases in child PTSD symptoms for IPV-exposed children. In the current study, approximately 41% of children in the control group and 31% of children in the intervention group reported scores of 16 or higher on the CPSS at post-intervention, which is the suggested cut-off indicating clinically significant PTSD symptoms (Nixon et al., 2013). Thus, child PTSD is a treatment target in need of additional focus in future iterations of the program. Given that not all children exposed to IPV will develop clinically significant PTSD symptoms that require treatment, future iterations of an EC intervention could benefit from taking a modular approach to incorporating exposure-based treatment components such as those based on TF-CBT (Cohen, Mannarino, & Deblinger, 2006) for children who need them.

The EC intervention also resulted in improvements in children's observed negativity during parent-child interactions, which is consistent with prior research showing improvements in children's externalizing problems (Graham-Bermann et al., 2007; Jouriles et al., 2001), and also suggests that promising improvements in the parent-child relationship can be observed in the child's behavior following the EC intervention. However, no differences in child positivity during parent-child interaction were found between the intervention and control group. Children in both groups appeared to improve in their positivity during parent-child interactions, although improvements were minimal as positivity was observed at most 1% of the time. Low base rates may be understandable given that the parent-child interaction task involved discussing an area of disagreement. Similarly, while mothers in the EC intervention showed increases in validating behaviors, overall levels of validation were also relatively low. Previous research has suggested that being able to engage in neutral behaviors, let alone positive behaviors, during a discussion about an area of conflict is a sign of a healthy relationship (Gottman, 1979). Future studies of the EC intervention might examine negative and positive child and parenting behaviors in the context of other types of interactions, including discussions that may generate positive emotions in both parent and child. Further study of parent-child interactions across a range of tasks and contexts can increase our understanding of how an EC intervention can support parent or child positivity, parental validation, and other behaviors that contribute to a healthy parent-child relationship.

One hallmark feature of the EC intervention is its potential to create improvements in both parent and child ER. To our knowledge, the EC intervention is one of the first to target children's and mothers' ER in the context of parenting in IPV-exposed families. Mothers showed improvements in ER as measured by increases in baseline RSA from pre- to post-treatment. These findings are in line with the field's broader emphasis on the utility of targeting ER in psychological interventions. In adults, positive changes in ER are associated with treatment gains across a range of mental health outcomes (Berking, Orth, Wupperman, Meier & Caspar, 2008). Moreover, adaptive ER supports effective parenting efforts (Crandall et al., 2015), and has been linked to more adaptive emotion socialization parenting in IPV exposed mothers in particular (Gurtovenko & Katz, 2017). Thus, preliminary positive effects of the intervention on mothers' ER are promising markers of improvements in mothers' individual mental health and well-being, which in turn can support healthy future parenting, which ultimately benefits children.

Positive effects on ER were also observed in children. Compared to children of mothers in the waitlist control condition, children of mothers in the EC condition showed improvements in mother-reported ER in addition to smaller but nonetheless promising improvements in baseline RSA from pre- to post-treatment. To date, only one other investigative team has evaluated the effects of parenting on children's autonomic activity in treatment-outcome contexts. Our findings are consistent with this line of research suggesting that interventions, particularly those that target improvements in parenting behaviors, may positively alter developmental trajectories of important physiological markers that underlie children's capacity for ER (Bell, Shader, Webster-Stratton, Reid, & Beauchaine, 2018; Beauchaine et al., 2014, 2015). For example, Bell et al. (2018) reported that decreases in negative parenting were associated with increases in resting RSA and pre-ejection period reactivity from pre- to post-intervention. Similarly, Beauchaine et al. (2015) found that a parenting intervention was associated with longitudinal changes in electrodermal activity in the treatment group compared to the control group. Such findings are particularly exciting, given that ER is a transdiagnostic factor related to a wide range of mental health problems (Aldao et al., 2010; Zeman, Cassano, Perry-Parrish, & Stegall, 2006), physical health and quality of life (Trindade, Ferreira, Moura-Ramos, & Pinto-Gouveia, 2017), academic achievement (Seibert, Bauer, May, & Fincham, 2017), as well as parenting (Gurtovenko & Katz, 2017). Interventions that target ER improvements in mothers and children have the potential to create substantial downstream changes in important domains of psychosocial functioning.

While positive changes were observed, it is important to consider the extent to which pre-post changes reflect meaningful improvement. In some cases the statistical interaction between time and group reflects both pre-to-post deterioration in the control group as well as improvement in the intervention group. In light of the caustic effects of IPV on the mental health of both children and parents, we consider any intervention that staves off a natural decline in parent or child functioning over time to have value. At the same time, there were meaningful improvements in the intervention group in a variety of domains. Children showed increases in ER across both mother report and physiological domains of measurement, and inspection of means indicates that changes were reasonable in size. Consistent increases in mothers' emotion coaching were also seen across both self-report and observed behaviors. Mothers in the EC group showed increases in validation and

decreases in sermonizing/lecturing/scolding. Although inspection of means indicate that changes were small, we believe that these negative parenting behaviors are corrosive to the emotional fabric of the parent-child relationship and even small decreases coupled with increases in positive behaviors such as validation that forge a stronger emotional bond can have a notable impact on parents and children. The observed decrease in child depression may be one such consequence. Improvement in mother's sense of competence is also likely to be clinically meaningful given the feelings of helplessness and disempowerment commonly observed in survivors of IPV. Interventions that empower mothers to better support their children can counteract the consequences of the control tactics that IPV survivors experienced during their abuse.

The pattern of findings on emotion coaching and physiological elements of ER are also consistent with Eisenberg, Cumberland, and Spinrad's (1998) emotion socialization model that highlights the importance of emotion-related parenting practices and child arousal. Relevant approaches that focus on the affective quality of the parent-child relationship include work by Luthar and colleagues on relational psychotherapy with at-risk populations (Luthar & Suchman, 2000; Luthar, Suchman & Altomere, 2007) and work by Havighurst and colleagues (Havighurst et al., 2013, 2015). Based on principles of emotion coaching, Havighurst's 'Tuning into Kids' intervention shows similar changes in emotion coaching in children with externalizing problems (Havighurst et al., 2013, 2015). Taken together, there is increasing evidence that continued focus on emotion-related parenting practices has beneficial effects across a variety of samples and populations.

Several strengths of the current study are to be noted. At the conceptual level, the EC intervention targeted specific processes that are known to modify risk. Moreover, we targeted ER in a population for whom ER difficulties have been previously identified (Gurtovenko & Katz, 2017; Katz & Gurtovenko, 2015; Katz et al., 2016). Addressing healthy development and improvements in ER for IPV-exposed families is particularly needed given that mothers' and children's ER abilities appear to underlie a range of outcomes including parenting as well as child internalizing and externalizing difficulties (Gurtovenko & Katz, 2017; Katz & Gurtovenko, 2015; Katz et al., 2016; Zeman et al., 2006). While we believe that changes in ER is a central mechanism of change, it is also possible that social support from the group-based intervention may have contributed to some extent to mothers' improvements. It will be important for future research to examine this and other mechanisms of change. Another strength is the use of a multi-method approach in which physiological, observational, and self-report measures were obtained from both mothers and children. The current study also recruited service-seeking families and did not require children or mothers to have a specific diagnosable mental health condition. In addition, there was good attendance at EC intervention sessions (i.e., $M = 9$ out of 12 sessions), suggesting successful engagement and that the intervention was well-received. Finally, an additional strength of the study is the potential cost effectiveness of the EC intervention, given that it is a time-limited and group based model.

Several limitations should also be noted. Although there were no significant pre-treatment differences in demographic and outcome variables, as an open trial there may be unmeasured systematic differences between the treatment and control groups given the lack

of random assignment to treatment conditions. An open trial was used due to difficulties with recruitment. Survivors of IPV are a difficult-to-recruit population as they are highly emotionally taxed and are often meeting the demands of multiple social service systems (e.g., Child Protective Services, Temporary Assistance for Needy Families). Limitations in resources often led to the use of limited cell phone plans or landlines being disconnected which, along with unsuccessful efforts to reach alternative contacts, resulted in difficulty maintaining contact with survivors. Communication difficulties not only impacted randomization but also resulted in a pre-intervention attrition rate of 33% (i.e., between screening and group assignment). Other parenting intervention programs for survivors report attrition rates of 12% at pre-intervention, 26% at post-intervention, and 50% at 8 months post-intervention (Graham-Bermann et al., 2015). Because some mothers were required to wait a few weeks until a new group was formed at their domestic violence agency, attrition rates for the current study may be more akin to the post-intervention rates observed by Graham-Bermann et al. (2015). However, judging from attendance data, once mothers attended EC interventions sessions they remained very engaged. Future iterations of the intervention with this population should structure the program to minimize wait time. A related limitation is that the small sample size prevented the use of inferential statistics, intent-to-treat analyses, and analyses addressing potential site differences. Because of the small sample size, the data are necessarily preliminary in nature. Finally, it should be noted that any null findings, including those testing for pre-treatment differences between the control group and the intervention group as well as potential moderator effects could be due to significantly restricted statistical power. Future studies with larger sample sizes and random assignment to condition are needed to further test the effectiveness of an EC intervention for survivors of IPV and their children.

Despite these limitations, the EC intervention targeted and resulted in improvements in parent and child ER abilities and mental health outcomes, the quality of the parent-child relationship, and mothers' sense of confidence in dealing with difficult child behavior. Findings also highlight the value of building interventions based on clear theoretical considerations and informed by a transdiagnostic perspective, and underscore the utility of Luthar and Eisenberg (2017)'s mandate to build interventions that target mechanisms with the potential to affect change across multiple domains of functioning. The consistency in findings across a variety of domains of child and parent functioning add confidence that the results capture meaningful group differences between the intervention and control group. While this iteration of the EC intervention was designed for use with IPV-survivors and their children, we believe it can be useful for a variety of populations in which parenting and ER difficulties are present. With the potential downstream effects of changes to ER and parenting on many areas of both children and mothers' psychosocial functioning, an EC intervention may be an effective mechanism to alleviate adverse outcomes for families in a variety of stressful or adverse contexts.

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Table 1.

Demographic Characteristics of the Sample

	Mothers	Children
Mean age (<i>SD</i>)	39.21 (7.18)	9.32 (1.50)
Gender	100% female	53.1% female 46.9% male
Race	42.9% Caucasian 16.7% African American 7.1% Asian 4.8% American Indian 4.8% Native Hawaiian/Pacific Islander 23.9% Other	44.4% Caucasian 8.9% African American 2.2% Asian 11.1% American Indian 2.2% Native Hawaiian/Pacific Islander 31.1% Other
Ethnicity	22.4% Hispanic 42.9% <\$10,000 26.2% \$10–19,000 4.8% \$30–39,000 7.1% \$40–49,000	10.0% Hispanic
Annual Household Income	4.8% \$50–59,000 7.1% \$60–69,000 0.0% \$70–79,000 4.8% \$80–89,000 0.0% \$90–99,000 2.4% >\$100,000	–
Education	11.4% Did not graduate high school 14.3% Graduated high school 42.9% Attended some college 22.9% Graduated college 8.6% Completed some graduate study	–

Table 2.

Intervention Outcomes: Means and Standard Deviations with Effect Sizes

Outcome variable	Control group		Intervention group		Effect size (partial η^2)	<i>p</i> value
	Pre-Tx	Post-Tx	Pre-Tx	Post-Tx		
Mother Awareness, ER, & EC						
Emotion awareness	96.22 (4.76)	97.25 (3.85)	96.23 (4.90)	99.00 (4.62)	.058*	.23
Emotion coaching	59.94 (4.86)	58.88 (2.80)	58.76 (5.08)	61.80 (5.74)	.109**	.10
ER (RSA)	5.52 (1.10)	5.44 (1.49)	5.30 (2.12)	5.76 (1.43)	.041*	.32
Mother Parenting Behaviors & Efficacy						
Mothers' Validation	.21 (.72)	.27 (.68)	.29 (.74)	.42 (.72)	.013*	.49
Mothers' Sermonizing/ Lecturing/Scolding	6.22 (11.75)	14.31 (16.62)	3.54 (5.55)	3.05 (4.97)	.123**	.03
Parenting Efficacy	26.74 (6.93)	26.00 (8.44)	25.00 (5.67)	27.38 (4.43)	.105**	.08
Child Outcomes						
Emotion regulation index	100.26 (26.14)	86.42 (23.66)	91.15 (20.04)	96.91 (28.76)	.127**	.08
Child ER (RSA)	6.84 (.88)	6.69 (1.11)	6.67 (.94)	6.93 (1.09)	.019*	.56
Child positivity	.17 (.31)	.42 (.88)	.27 (.42)	.41 (.71)	.003	.76
Child negativity	1.55 (3.81)	6.38 (13.61)	1.77 (1.83)	1.14 (1.61)	.118**	.03
Child depression	11.10 (7.24)	13.61 (9.54)	9.97 (7.03)	6.82 (5.68)	.09**	.17
Child PTSS	14.19 (10.48)	14.41 (12.13)	10.92 (7.94)	13.88 (9.54)	.004	.79

Note. Effect size is for time by group interaction;

* = small effect (partial eta-squared > .01),

** = medium effect (partial eta-squared > .06),

*** = large effect (partial eta-squared > .14). RSA = respiratory sinus arrhythmia, PTSS = posttraumatic stress symptoms. Control group child age: $M = 8.78$, $SD = 1.53$, child gender: 61.50% female, mother age: $M = 37.57$, $SD = 7.18$. Intervention group child age: $M = 9.86$, $SD = 1.30$, child gender: 45.50% female, mother age: $M = 40.86$, $SD = 6.97$.

Table 3. Zero Order Correlations Between Outcomes and Demographic Variables at Pre-treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Mothers' Emotion Awareness		.33*	-.24	.06	-.28	.11	-.02	.21	.22	.04	-.12	.16	-.10	-.06	.16
2. Mothers' Emotion Coaching			-.26	.04	.06	.18	-.19	.09	-.19	-.10	.10	-.04	-.05	-.08	.20
3. Mothers' ER (RSA)				.16	.09	.02	.22	.31	-.03	.10	.17	.13	-.07	-.11	-.45**
4. Mothers' Validation					-.14	-.10	-.13	.14	-.13	.70***	.21	.50**	.07	-.04	-.08
5. Mothers' Sermonizing/ Lecturing/Scolding						-.08	.22	.02	-.04	-.15	.18	-.01	.18	.31*	-.13
6. Parenting Efficacy								-.38*	.01	-.20	-.04	.07	-.41**	.14	-.16
7. Child Emotion Regulation Index									-.08	-.05	.30	.25	.07	.33*	-.24
8. Child ER (RSA)									-.06	.04	.00	.12	.00	-.23	.01
9. Child Positivity										-.19	-.19	-.34	-.27	-.30	-.16
10. Child Negativity											.23	.53**	.07	.05	-.04
11. Child Depression												.80***	.08	.17	.18
12. Child PTSS													-.07	.26	.06
13. Child Age														.07	.38*
14. Child Gender															
15. Mother Age															

Note.

* = $p < .05$;

** = $p < .01$;

*** = $p < .001$.

Child gender coded as 0 = male, 1 = female. ER = emotion regulation, RSA = respiratory sinus arrhythmia, PTSS = posttraumatic stress symptoms.

Zero Order Correlations Between Outcomes and Demographic Variables at Post-treatment

Table 4.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1. Mothers' Emotion Awareness		.47*	-.04	-.16	.07	.09	-.18	.19	-.07	.05	-.30	-.13	.10	-.18	.31	
2. Mothers' Emotion Coaching			.07	-.03	-.11	.15	.09	-.19	.18	-.06	-.20	.03	.03	.01	-.13	
3. Mothers' ER (RSA)				.17	.09	.06	.15	.16	.13	.07	-.11	.12	.01	-.19	-.54**	
4. Mothers' Validation					-.12	-.23	.22	-.14	.07	-.14	-.21	.12	-.24	-.03	-.10	
5. Mothers' Sermonizing/ Lecturing/Scolding						.14	-.10	.02	.06	.04	.27	-.12	-.05	.12	-.24	
6. Parenting Efficacy							.08	-.33	.32	.04	-.07	-.37	-.02	-.10	-.14	
7. Child Emotion Regulation Index								-.11	.17	-.07	.04	.13	.18	.16	-.15	
8. Child ER (RSA)									.03	-.04	-.17	-.26	.42*	-.33	.09	
9. Child Positivity										-.17	-.19	-.25	.14	-.01	-.22	
10. Child Negativity											.58**	.46*	-.15	.18	-.17	
11. Child Depression												.48**	-.10	.14	-.01	
12. Child PTSS													-.11	.09	-.31	
13. Child Age														.07	.38*	
14. Child Gender																-.06
15. Mother Age																

Note.

* = $p < .05$;

** = $p < .01$;

*** = $p < .001$.

1 = female. ER = emotion regulation, RSA = respiratory sinus arrhythmia, PTSS = posttraumatic stress symptoms.