



Effects of Cognitively-Based Compassion Training on Parenting Interactions and Children's Empathy

Ashleigh M. Engbretson¹ · Julie A. Poehlmann-Tynan¹ · Carolyn J. Zahn-Waxler¹ · Abra J. Vigna¹ · Emily D. Gerstein² · Charles L. Raison¹

Accepted: 31 August 2020 / Published online: 12 September 2020
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Abstract

Objectives Cognitively-Based Compassion Training (CBCT) aims to cultivate participants' compassion and enhance their well-being. CBCT was developed for college students and has been adapted for several unique populations, such as children in foster care, but it has only recently been used with parents of infants and young children. This analysis of data from a preliminary efficacy study examined effects of CBCT on parenting interactions and early empathy in infants and young children (aged 9 months to 5 years, 4 months). The study also examined the perceived benefits and challenges of participating in a 20-h CBCT intervention for parents.

Methods Thirty-nine families from university-affiliated preschools participated in this study; 25 parents were in the CBCT group and 14 parents were in a wait list control group. Parents were evaluated before and after the intervention, as well as after each session on their impressions of the class and experience with the assignments. Families were evaluated at pre- and post-intervention on observed parent-child interactions and child empathy.

Results Parents found that participating in CBCT was a positive, even life-changing experience for them, though finding time to practice the guided meditations was difficult. However, CBCT did not improve sensitive and responsive interactions between parents and children or young children's empathy assessed in a lab setting.

Conclusions CBCT for parents was viewed positively by participants but it did not change their observed parenting interactions or young children's observed empathy across a 3-month period.

Keywords Compassion · Parenting · Mindfulness · Young children · Empathy

Although most parents experience stress when raising young children, chronic parenting stress has been associated with problematic parenting interactions and less optimal child outcomes (Crnic et al. 2005; Deater-Deckard 2005). Because of this, numerous parenting programs have focused on stress reduction, including group-based interventions that incorporate mindful parenting (Duncan et al. 2009). Mindful parenting models, such as the one proposed by Duncan et al. (2009),

were developed as an approach to parenting to promote positive parent-child interactions and secure attachment relationships. The model encompasses five elements: listening with full attention, compassion for self and child, nonjudgmental acceptance of self and child, emotional awareness of self and child, and self-regulation in the parenting relationship. Mindful parenting helps parents to “consider their own and their child's behavior nonjudgmentally” (Dumas 2005, p. 780). A parent's mindful awareness of their child allows them to better understand the child's experience and have compassion for their needs and distress (Duncan et al. 2009). Intervention approaches consistent with a mindful parenting model can be used to alleviate or manage parenting stress through attention to the moment as well as fostering compassion for children. Lengua et al. (2018) evaluated an intergenerational parenting program (Social, Emotional, and Academic Competence for Children and Parents [SEACAP]) which incorporated mindfulness for parents in

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s12671-020-01495-3>) contains supplementary material, which is available to authorized users.

✉ Ashleigh M. Engbretson
aengbretson@wisc.edu

¹ University of Wisconsin-Madison, Madison, WI, USA

² University of Missouri-St. Louis, St. Louis, MO, USA

order to promote their young children's self-regulation, social emotional competence, and academic readiness. They found evidence to suggest that this program did enhance both parent and child's self-regulation skills. However, there are other contemplative practices that could affect parents as well.

Additional compassion-based interventions, developed in parallel to mindful parenting, have also applied mindfulness combined with other contemplative practices (such as different forms of meditation or yoga) to decrease stress and depression and increase empathy and compassion in adults and children. However, many of these interventions have not been implemented with parents. In this study, we analyzed additional data from our study of Cognitively-Based Compassion Training (CBCT; Ozawa-de Silva and Negi 2013) with parents of infants and young children (Poehlmann-Tynan et al. 2020). CBCT was developed in 2004 by Geshe Lobsang Tenzin Negi at the Emory-Tibet Partnership as a method for cultivating greater well-being and compassion in college students through the use of reflective practices. Since that time, CBCT has been used with many other groups including children in foster care and breast cancer survivors (e.g., Dodds et al. 2015; Pace et al. 2013).

Although there is no consensus in the literature on a definition for compassion, a systematic review of existing definitions identified five essential elements: (1) recognizing suffering in others, (2) understanding the common humanity of this suffering, (3) feeling emotionally connected with the person who is suffering, (4) tolerating difficult feelings that may arise, and (5) acting or being motivated to act to help the person (Strauss et al. 2016), all of which are incorporated across CBCT modules. For example, Modules 1 and 2 teach participants to develop mindfulness skills and how to organize their emotions. In Modules 3 and 4, participants learn how to feel compassion for themselves and develop affection and gratitude. The final four modules teach participants to apply those mindfulness and compassion skills to others.

Scholars have argued that compassion and self-compassion are important to study in the context of parenting because it may lead to sensitive and responsive caregiving (e.g., Burns and Maritz 2015), which is important for the development of secure attachment (Ainsworth et al. 1978/2015). Through repeated experiences with a responsive caregiver who exhibits self-compassion and compassion for others, children may develop internal working models—or cognitive and emotional expectations of relationships (Bowlby 1969)—indicating that the world is a caring and safe place. Before parents can use compassion to become sensitive and responsive caregivers, it is thought that they must first generate a secure base of self-compassion (Burns and Maritz 2015). Psychogiou et al. (2016) found that parents who reported higher levels of self-compassion were more likely to attribute the cause of their children's behavior to outside factors (rather than internal child characteristics), were less critical, and found it easier to understand and cope with their

children's emotions compared with parents who reported lower levels of self-compassion. Although not a parenting intervention in itself, CBCT guides participants through “cultivating self-compassion” (Module 3) as a part of global compassion training, consistent with ideas linking self-compassion and parenting (Ozawa-de Silva and Negi 2013). As participants work through the remaining modules in the program, they lean on their (potentially) newly found self-compassion skills and apply them to the world.

Although CBCT is not a parenting intervention, one way to modify the training for parents would be to ask them to think of examples of their children while developing mindfulness and reflection skills, as a way to link examples to their daily lives. By inviting parents to bridge the skills taught in CBCT to parenting, the goal is to support parents in applying the lens of interdependence, appreciation, and affection cultivated for others in CBCT to their relationship to their children. Labeling in a judgmental way creates boundaries and reinforces feelings of isolation. Overcoming these biases to develop equanimity helps cultivate compassion (Module 4; Ozawa-de Silva and Negi 2013). By removing labels and subconscious judgments about others, including the child, parents may gain acceptance of what is happening in the present and provide clear standards and expectations appropriate for the child. Some of these ideas are consistent with mindful parenting approaches (Duncan et al. 2009)—including cultivating self-compassion and compassion for one's child. However, there are differences in the scope and content of the interventions, especially regarding the cultivation of compassion for all.

The same sensitive responsive parenting interactions that facilitate children's secure relationships also promote young children's empathic responding and emerging self-regulation skills (e.g., Fearon and Belsky 2004; Grusec and Davidov 2010). We speculate that compassion training for parents may increase sensitive and responsive parenting interactions. Concern for others, also known as empathic concern, is an emotional response involving positive, caring feelings for a distressed person (Davidov et al. 2013). Studies indicate that empathy development begins in the first year of life and rapidly develops during the second year (Roth-Hanania et al. 2011). Emotion regulation is the ability to mediate or control one's emotional response to a stimulus and is thought to be a mechanism that links empathic responses with prosocial behaviors (Eisenberg 2000; Fabes and Eisenberg 1992). Empathic responses and self-regulation appear connected to children's early relationship experiences. For example, a recent study found that secure infant-mother attachment predicted young children's subsequent empathy in two longitudinal data sets (Kim and Kochanska 2017). In addition, parental mindfulness has been linked with quality of parent-child interactions (Duncan et al. 2015). Although it does not focus on parenting, CBCT has relevance to parenting and emerging parent-child relationships.

CBCT is a program that aims to cultivate compassion and well-being, including decreasing stress and depressive symptoms, by facilitating reflective practices such as mindfulness and meditation in adults and children (Ozawa-de Silva and Negi 2013). As a secularized adaptation of a Tibetan Buddhist meditation practice known as *lojong*, or mind training, CBCT helps the participant use mindfulness and meditation to focus on identifying blocks to compassion and nurturing aspirational and enacted compassion for all. CBCT is composed of eight modules, each building on the previous, designed to cultivate a greater understanding of and practice of compassion (Ozawa-de Silva and Negi 2013). The eight modules begin with developing basic mindfulness skills, and move into examining the nature of mental experiences and developing compassion for the self; cultivating impartiality, gratitude for others; and finally deepening compassion practices with a focus on acting to reduce the suffering of others (Ozawa-de Silva and Negi 2013).

Previous studies using CBCT have focused on both adults and children, finding positive effects on well-being (e.g., Dodds et al. 2015; Pace et al. 2013). Dodds et al. (2015) tested the effects of CBCT on stress, depression, fear of cancer, intrusive thoughts, medical outcomes, mindfulness, gratitude, and satisfaction among breast cancer survivors using a randomized wait list control trial. Participants were assessed prior to and after 8 weeks of training on self-report measures and salivary cortisol. Following training, participants showed improvements in depression, avoidance of intrusive thoughts, mindfulness, and reduced fear of cancer, although there were no differences in levels of salivary cortisol. In a similar study providing training to adolescents in foster care, Pace et al. (2013) found improvements in self-report measures for depression and anxiety, but no main effect of CBCT on C-reactive protein (CRP), an inflammatory marker that endures into adulthood, which in high concentrations carries an elevated risk for medical and psychiatric illnesses. However, CRP significantly decreased as practice time with CBCT homework increased. The present study is part of a broader study examining CBCT with parents of infants and young children (Poehlmann-Tynan et al. 2020). In the broader study, a process model of direct and indirect effects was proposed, and findings indicated that CBCT decreased young children's stress, but only had a small effect on decreasing clinical levels of parenting stress.

In the present study, we focused on intervention effects for parent-child interaction quality and children's empathy. Through skills learned in CBCT Module 6 (developing empathy), as well as reflection in Module 2 (awareness of sensations, feelings, emotions, and reactions), participants learned the skills to recognize and be sensitive to the feelings and experiences of others. By using examples relevant for parenting, we expected that CBCT might help parents act more mindfully and compassionately with others and toward

themselves in their daily lives, including their children. By teaching parents to be more compassionate to all, we hypothesized that parents might interact with children in a more sensitive and responsive manner and that children might observe these interactions and model those characteristics by becoming and be more empathic in their responses to others, especially their parents. We also thought that children might become more empathic after experiencing increased compassion and empathy from their parents.

Methods

Participants

Thirty-nine families in university-affiliated preschools (children aged 9 months to 5 years, 4 months) participated in the study in two cohorts. In the first cohort, participants were randomly assigned into the intervention ($n = 14$) or wait list control group ($n = 14$) using a random number generator to dictate group assignment. Interested control group participants from the first cohort or spouses of intervention participants were invited to participate in a second cohort of the intervention along with 11 new intervention participants. Both cohorts completed 20 h of CBCT. The first cohort met for 10 weeks, 2 h a week, and the second cohort met for 8 weeks for 2 h a week plus a 4-h mini-retreat. Data were collected at two time points for all families: pre-intervention and post-intervention.

The analytic sample included 38 parents and their children, including 33 mothers and 5 fathers. Almost all of the parents were married (36 of 38) and all parents had at least a bachelor's degree. There was some economic diversity, with 11% of families using public assistance (and having incomes below the federal poverty line), and an additional 18% of families with incomes at 400% of the federal poverty line for family size. Median income fell between 70 and 100K. The majority of participant parents were White (81%), and the average age of parents was 36 years old. The children included 19 boys and 19 girls. The children were slightly more diverse than their parents, with 68% White, 21% biracial or multiracial, 5% Asian, and 5% Latinx. Seventeen children were under the age of 3 years. See Table 1 for participant demographic information.

Procedure

This study was approved by the University of Wisconsin-Madison's Institutional Review Board on May 17, 2013 (Protocol Number 2013-0609) and used written consent forms for parents and verbal assent for children. Parents were recruited through university-affiliated preschools through flyers and word-of-mouth. Once parents were screened for inclusion criteria (have a child between the ages of 9 months and 5

Table 1 Demographic information ($N = 38$)

Characteristics	Parents	Children
Age in years (mean)	36.7	3.2
Female	33	19
Male	5	19
Race/ethnicity		
Black	0	0
Asian	3	2
Latinx/Hispanic	3	2
Native American	0	0
White	31	26
Biracial or multiracial	0	8
Other	1	0
Married	36	
Education		
Bachelor's degree	9	
Graduate degree	29	
Annual income		
Less than less than \$20,000	2	
\$20,000–40,000	2	
\$40,000–70,000	7	
\$70,000–100,000	10	
\$100,000–150,000	10	
Greater than \$150,000	7	
Receiving public assistance	4	

years, and speak and understand English), research assistants provided consent forms and randomly assigned parents to an intervention or wait list control and scheduled the pre-assessment session. The assessments were administered by a trained research assistant or intern in a laboratory playroom. The assessments included self-report measures as well as two video-recorded measures: a parent-child play interaction and a simulated distress interaction. Because the simulated distress task involved mild deception, children and parents were debriefed following the interaction.

Intervention Condition Each cohort was offered 20 h of CBCT training supplemented with parenting education. Class met weekly for 2 h a week for either 10 weeks (cohort 1) or 8 weeks (cohort 2). Childcare and dinner were provided onsite for cohort 1 to increase accessibility but the funds were not available to offer this again for cohort 2. Due to scheduling issues, parents in cohort 2 were offered a 4-h retreat on a Saturday in place of 2 classes that cohort 1 completed. Identical assessments were delivered pre and post the intervention by the same research assistant to reduce variability in measurement.

Prior to administration of the CBCT protocol, parents were also asked to complete a temperament assessment of their

children. The assessments were scored, and parents were given written feedback on their children's temperament styles. Throughout the CBCT modules, parents were asked to reflect on knowledge of their child's temperament in order to support development of appreciation for their child's perspective. Other modifications to the CBCT protocol included the addition of examples focusing on parent-child interactions and children during discussion, while in meditation, or as part of the homework

Cognitively-Based Compassion Training Overview Each class focused on a specific topic (module) and how that topic contributes to understanding compassion. To adapt this training for families, parents were asked to think of experiences with their children for most exercises. Classes consisted of small group discussion, lecture, and short periods of guided meditative practice. Meditative practice consisted of focusing on the breath with eyes closed in a position that was comfortable for the participant, and a variety of meditation seats and cushions were provided. Two teachers certified in CBCT from the Emory-Tibet Partnership administered the intervention. The curriculum proceeds as follows:

Module 1: Developing attention and stability of mind: The foundation for the practice is the cultivation of basic meditation techniques for focused attention and mental stability (practiced in all compassion meditation). An example practice: Participants engaged in an awareness meditation

Module 2: Awareness of sensations, feelings, emotions, and reactions: Once mental stability and focused attention is achieved, practice moves into the subjective experience and separating emotions, feelings, and reactions. An example practice: Participants imagined two different scenes, one which was stressful and one calm. Each of the situations involved their children. Participants then were asked to notice how each scene affected them.

Module 3: Cultivating self-compassion: After developing the ability to separate emotions, feelings, and reactions, this module teaches how to differentiate between which emotions, feelings, and reactions bring the participant happiness and well-being and which bring suffering. This module then teaches the participants how to focus on the happiness while still recognizing the suffering. An example practice: Participants practiced a reflection meditation where they imagined a loved one who has expressed their belief of their acceptance in the participant's goodness and worthiness.

Module 4: Cultivating equanimity: Participants learn to examine thoughts and feelings regarding categories of friends, enemies, and strangers and to relate to all people from a deeper perspective. Everyone wants to be happy and avoid unhappiness. An example practice: Participants reflect on a romantic relationship that has ended and how that person may have shifted categories throughout the relationship, from a loved one to maybe someone they dislike. This exercise is to help

the participant recognize their own destructive thoughts and behaviors.

Module 5: Developing appreciation and gratitude: Although people view themselves as independent, no one can survive without the support of others. Participants learn to realize interdependence with others, while developing appreciation and gratitude for them. An example practice: Participants reflect on what it takes, throughout the world, to bring a cup of coffee to them, including those who grow, pick, and roast the beans, to those who provide the water, to those who make the coffee mug, recognizing how thankful they are for them.

Module 6: Developing empathy: This module works to develop reflecting on kindness for others (empathy) and the drawbacks of a self-centered attitude. By relating to others with a greater sense of affection and endearment, participants are able to empathize with them. An example practice: Participants were asked to reflect on the child's point of view and experience when becoming upset over not getting what they want.

Module 7: Wishing and aspirational compassion: Skills of empathy for others with awareness of suffering and its causes give rise to compassion: the wish for others to be free from suffering and its conditions. An example practice: Participants were asked to meditate on the question, “how wonderful would it be if others were happy and free of suffering?”

Module 8: Active compassion for others: This last module teaches participants meditation practices to work to actively alleviate the suffering of others. Frequent meditation develops a greater capacity for compassion, which will become second-nature. An example practice: For the last module, participants are guided to develop a plan for continued compassion practice at home and in their communities.

Wait List Control Condition Parents who were not randomized to the intervention in the first wave of training were offered the intervention during the second wave of the training. They were assessed prior to the first wave of the training and then again at the end of the first wave training and not assessed further.

Intervention Training Fidelity Certified CBCT instructors were hired to teach each cohort. Each teacher has a Level One Certification through the Emory-Tibet Partnership, where CBCT was developed. The training consists of 65 h of retreat and workshop where trainees practice CBCT meditation and teaching skills. Following the retreat and workshop, trainees begin an 8-week practicum to develop their knowledge and understanding of the protocol through a variety of weekly exercises. To complete their teacher certification, participants spent 10 weeks in a supervised co-teaching environment.

In addition to the training and supervision provided by the Emory-Tibet Partnership, a trained research assistant attended

each of the sessions for both cohorts to observe and take notes to ensure that the sessions were identical as possible, as recommended by Bellg et al. (2004). All sessions were conducted in the same room at the same institution. All participants in both cohorts were given the same materials and shown the same presentations. The only differences between the two cohorts were the examples used by the two different instructors and the days on which the 20 h of instruction were scheduled. Towards the end of each session, participants were asked to meditate on that week's topic and ask any clarifying questions in order to ensure their comprehension of the material. Sometimes the questions differed between cohorts. At the end of each session, participants were given homework to practice that week's topic. An example of the homework given for Module 2 was that parents were prompted to observe their child playing for 5 min then join their child and play together for an additional 10 min. Afterwards, parents completed a worksheet reflecting on their time with their child, responding to questions such as “What do you think was your child's emotional reaction to you joining his or her play?” Both cohorts received the same homework.

Measures

The tasks were administered by trained research interns at the Frances and Elliott Lehman Research Lab in Nancy Nicholas Hall, which is adjacent to the School of Human Ecology Preschool. Observer-rated tasks were video recorded and then coded by five coders in the second author's lab, with 25% of protocols assessed for interrater reliability. The coders participated in a coding workshop that consisted of readings, discussion, example videos, and joint coding of sample videos. After every 5th video coded, additional examples were reviewed in group sessions. Coders were blind to parental intervention status.

Observer-Rated Parenting Interactions Parent-child play interactions were coded using the Parent Child Early Relational Assessment (ERA; Clark 1985/2017). Standard data collection recommendations for the ERA include recording a 15-min play episode and coding the second 5 min of the video clip.

The ERA was designed to assess the frequency, duration, and intensity of affect and behaviors of parents and infants or young children that occur during the 5 min of face-to-face interactions; behaviors and affect rated were chosen on the basis of attachment and developmental theories. Each variable is coded on a scale ranging from 1 (negative quality) to 5 (positive quality), with higher scores indicating more desirable parenting behaviors. In the present study, we focused on the 29 parent variables. Parental domains include tone of voice, affect and mood, attitude toward child, affective and behavioral involvement, and style. Established parent subscales that have been used in previous research (e.g., Durik et al. 2000) were calculated. The three parent subscales are Parental

Positive Affect, Involvement and Verbalizations (PPAIV, 11 items), Parental Negative Affect and Behavior (PNAB, 5 items), and Parental Intrusiveness, Insensitivity, and Inconsistency (PIII, 8 items).

The ERA has an acceptable range of internal consistency, factor validity (Clark 1999), discriminant validity between high risk and well-functioning mothers (Clark et al. 1993), and validity for children's developmental and behavioral outcomes (e.g., Poehlmann et al. 2011; Poehlmann-Tynan et al. 2015). Coders were trained by the second author who was trained to reliability by Dr. Roseanne Clark, the scale's creator. Interrater reliability for this sample was in the acceptable to high range across codes (ICCs = .65–1.0), and Cronbach's alphas for the ERA subscales were high (0.75–0.90). Means and standard deviations of each code can be found in Table 2.

Children's Emerging Empathy and Compassion We used a parent-child Simulated Distress Test to assess children's emerging empathy and compassion. This test was administered during both the pre- and post-assessments and video recorded. The video recordings were coded using the Simulated Distress Coding Convention for Preschoolers (SDC; Zahn-Waxler et al. 1992). Through consultation and

practice coding with Dr. Carolyn Zahn-Waxler, this coding convention was modified to include the 9 months through a 5-year age range (Zahn-Waxler et al. 2013). The test is designed to observe the child's empathic response to the parent being "hurt." In this study, the parent was instructed to pretend to hurt his/her back as he/she rose from the floor and provided a video example of the simulation ahead of time. Parents were asked to express pain vocally and assume pained facial expressions for more than 30 s, with a gradual subsiding of pain for an additional 30 s. Parents were cued to start feeling better with a light knock on the door. The test lasts about 90 s and research assistants were instructed to code the first 30 s. There are seven codes: prosocial acts (actions or vocalized intentions to help or comfort), problem inquiry/early perspective taking (nonverbal or verbal exploration such as looking at the "injury" and its cause or inquiring, "what happened?"), empathic concern (emotional awareness or co-feeling, including pained, concerned or sad facial expressions, sympathetic vocalizations, or gestural-postural expressions), self-referential behaviors (enactments of others' distress such as wincing and saying "I hurt my hand," or reflecting on a time they hurt their hand in the past), self-distress (expression of fear or a state of personal distress or anxiety such as signs of self-soothing, hand-

Table 2 Means and standard deviations by measure ($N = 38$)

Measure	Intervention group ($n = 25$)		Control group ($n = 13$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pre-intervention				
ERA PPAIV	3.71	0.71	3.71	0.60
ERA PNAB	4.44	0.55	4.41	0.53
ERA PIII	4.43	0.41	4.36	0.41
Child prosocial acts	1.67	0.94	1.77	1.22
Child problem inquiry	1.73	0.87	1.61	0.74
Child empathic concern	1.94	0.76	1.96	0.78
Child self-referential behaviors	1.04	0.14	1.00	0.00
Child self-distress	1.39	0.59	1.27	0.39
Child unresponsive, avoidant, or disengaged	2.25	1.01	2.35	1.25
Child active disregard	1.35	0.74	1.61	0.89
Post-intervention				
ERA PPAIV	3.49	0.87	3.66	0.88
ERA PNAB	4.76	0.46	4.94	0.37
ERA PIII	4.49	0.57	4.62	0.48
Child prosocial acts	1.78	1.07	1.82	0.75
Child problem inquiry	2.04	0.82	2.04	0.76
Child empathic concern	2.43	1.12	2.68	0.98
Child self-referential behaviors	1.17	0.47	1.00	0.00
Child self-distress	1.74	0.70	1.36	0.55
Child unresponsive, avoidant, or disengaged	2.24	1.16	2.32	0.93
Child active disregard	1.35	0.66	1.27	0.65

ERA, Early Relational Assessment; PPAIV, parent positive affective involvement and verbalization; PNAB, parent negative affect and behavior; PIII, parent intrusiveness, insensitivity, and inconsistency

wringing, fist clenching, lip biting/pressing, brow raising, or tense/frozen demeanor), unresponsive/avoidant/disengaged (child disengaging or avoiding the victim's persistent distress such as turning away for a significant amount of time and occupying themselves by playing), and active disregard (appears to be amused or irritated by the parent's distress, including suppressed amusement, judgmental or derisive comments, disengaging with callousness or anger toward the "hurt" parent). Each code was rated on a 4-point scale ranging from 1 (no observed actions) to 4 (strong observed actions). The measure has been used in many studies, including children from infancy to elementary school (e.g., Knafo et al. 2008). Dr. Carolyn Zahn-Waxler, a creator of the original coding system, trained raters and supervised the coding process. Interrater reliability for this sample was in the acceptable to high range across the Simulated Distress codes (ICCs = .65–.90). Means and standard deviations of each code can be found in Table 2.

Family Demographic Variables Families reported on their age, income, education, marital status, race/ethnicity, gender, number of children, use of public assistance, and income. Data on familiarity and previous experience with contemplative practices such as meditation, mindfulness, yoga, or other practices including courses in mindfulness were collected. Fifteen of the 38 participants reported that they or their spouse or target child had some level of exposure to contemplative practices (e.g., yoga, mindfulness, meditation) before the study began, with equal proportions in the control and CBCT groups.

Perceptions of the Intervention Parents completed brief surveys after each class indicating their evaluations of the didactic and experiential portions of the class in addition to the prior week's guided meditations. Intervention participants were asked to rate the session by responding to four questions on a 1 (not at all) to 5 (extremely) scale: How much did you learn from this session? Overall, how useful was this session? Overall, how engaged were you in this session? Overall, how satisfied were you with the session? The final two questions (Any additional thoughts or concerns? Was there anything you particularly liked, didn't like, or didn't understand?) allowed parents to write in their comments. In addition, each week in the group setting, CBCT instructors elicited verbal feedback via open-ended questions from participants about the benefits and challenges of practicing at home, and trained researchers took notes about participants' comments. Finally, parents were asked to give verbal summative evaluations at the end of the final session, and one of the PIs took notes.

Data Analysis

Independent samples *t* tests were used to compare demographics and scores on other relevant measures in the two

intervention cohorts. No significant differences emerged so they were combined into one intervention group.

Missing Data For one participant, some variables were lost at post-intervention because of a failure of the tablets or laptops used for data collection. In addition, there were some missing data for five (14%) of the other participants not lost to attrition, which appeared to occur "at random" across seven study variables, including three cases that had some missing video data because of technological glitches. To address missingness, we implemented a multiple imputation procedure (Raghuathan et al. 2001; Van Buuren 2007), involving generating twenty data sets in which missing values were randomly produced conditional upon other variables in the analysis. Subsequent analyses were applied to all twenty data sets, with aggregated results reported (Findings were similar in the original and aggregated data sets).

Control Variables Child age (in months) and family assets were used as control variables because of the wide age range of children in the study and because of parenting quality related to the asset variable. Additional demographic variables and parental prior engagement in contemplative practices were also evaluated as controls but were unrelated to outcome variables and thus not included in the final models.

Focal Analyses To assess the study hypotheses, we conducted one-way ANCOVAs on the post-intervention variables (three parent ERA subscales, seven child empathy codes), with pre-intervention scores and child age and family assets entered as controls. Because the study was a preliminary trial with parents of infants and young children, we examined effect sizes using partial eta squared and set our alpha level to .10. Reported effects were characterized as small ($r = .10$), moderate ($r = .30$), or large ($r = .50$) using Cohen's benchmarks (Cohen 1988). A power analysis was conducted using G*Power 3. For a sample of 38 families for ANCOVA with two groups and two covariates, power was .92 to detect large effects, .57 to detect moderate effects, and .16 to detect small effects. Thus, the study was only adequately powered to detect large effects. Finally, we summarized parental satisfaction with and comments about the intervention. Bivariate correlations among study variables can be found in the [Supplemental Materials](#).

Results

Bivariate Correlations

In examining bivariate correlations among variables across time, pre-ERA and post-ERA subscale scores were significantly related. Some of the children's behaviors in the simulated distress task were significantly correlated across time as well. For example, higher child self-distress scores prior to the

intervention were associated with more child empathic concern 3 months later, and higher child prosocial scores at pre-test were associated with less active disregard at post-test. These correlations were likely the result of increasing developmental competencies in empathy as children grew older. In addition, more negative parental affect and behaviors during the pre-test parent-child playtime were associated with more child active disregard during the empathy distress task at post-test across the intervention groups.

Perceived Benefits and Challenges of Participating in CBCT

For the questions about learning and usefulness of sessions, participants' numerical ratings ranged from 1 to 5, with means of 3.87 ($SD = .89$) and 4.05 ($SD = .85$), respectively. For the questions about engagement and satisfaction, ratings ranged from 2 to 5, with means of 4.05 ($SD = .81$) and 4.39 ($SD = .64$), respectively.

During the group CBCT sessions, parents generally approached the intervention with curiosity. Initially, they wanted to know about what previous research has found about the effects of meditation on health and well-being. After the third session, parents frequently discussed challenges to formally practicing with the guided meditations at home. Specific barriers included time constraints, lack of quiet space to practice, interruptions while listening to the guided meditations, and being so tired that they fell asleep while trying to practice. Instructors indicated that there were additional ways to practice, such as meditating while doing the dishes, driving in the car, exercising, or taking a break at work. Some parents involved their preschool-age children in their practice sessions, including meditating or doing yoga or breathing exercises together. If the parent was unable to engage in daily guided meditation practice, CBCT instructors encouraged parents to review the previous week's CBCT group notes and to think about course content during daily activities, although the benefits of daily meditation practice were also emphasized.

Parents had many questions about the module on self-compassion. Some parents worried that the concept of self-compassion was similar to selfishness, and these parents indicated that they tried to be selfless when it came to their children. Instructors clarified the concept of self-compassion, as it is used in CBCT. For example, one participant wrote "I really enjoyed the class. The exercises brought up a lot for me. It didn't resolve yet and I leave with some confusion. Will reach out if needed." In the subsequent sessions, some parents reported feeling calmer in their interactions with their children during potentially stressful times, while others reported not feeling calm, yet thinking of forgiving themselves for brief lapses resulting in expressions of irritability or engaging in less than ideal parenting when under stress. After the third module, when an example of melting ice cream was

introduced, one parent wrote, "That was excellent! Yeah! Ice-cream! Shifting perspective from how can I control my anger to thinking how can I accept myself just helped, it was great." In the sessions that included a discussion of gratitude, parents focused on how the CBCT sessions helped them reflect on other peoples' roles in their daily lives, including a realization of the interconnectedness of people across the world, in small and large ways. Many parents said that this realization changed the way that they thought about most things, from the clothes that they dressed their children in each day, to the coffee they drank, to the food they ate, et cetera. They reported sharing these thoughts with their children in various moments of each day or feeling reflective when playing with their child.

After the final session of CBCT, most parents in the intervention reported that participating in CBCT was a positive, even life-changing experience for them. They indicated that the biggest drawback was finding enough time to practice at home with the guided meditations. They appreciated the instructors' flexibility and attitude of "you do you"—that is, it was acceptable and encouraged to practice meditating and implement intervention ideas and goals in ways that fit into individual participants' lives and routines, such as during "mindless" activities like washing the dishes or vacuuming. The discussions and themes were nearly identical in both CBCT groups.

Although we provided childcare, a couple of parents needed to be pulled out of the room on occasion because of a crying child or another childcare issue. In their comments, they indicated "my low ratings of the session were because I had a crying child to attend to" or "it wasn't the class, I had to leave to check on my child." Suggestions for improvement were as follows: "It would be great if the handouts were bullet points or an overview of the topic that could be followed along in class, including written out definitions." "Stop more often and ask for questions—hearing from parents is helpful too." "In-class meditations are not as helpful - prefer to spend more time getting explanations of the pedagogy." "Good overall, a bit heavy on talking...I had a hard time focusing on meditation when breathing was the focus—I am used to having more focused/guided practices."

Effects of CBCT on Parenting Interaction Quality

The three one-way ANCOVAs, conducted on post-intervention parenting interaction subscales, revealed no significant intervention effects ($F(1,33) = .680, p = .417, \eta_p^2 = .03$). The control variables that were statistically significant in each model were the pre-intervention parenting variables. In addition, more parental assets related to less negative parenting behaviors ($F(1,33) = 1.685, p = .206, \eta_p^2 = .06$) and parents of older children engaged in less intrusive, insensitive, and inconsistent behaviors than parents of younger children

($F(1,33) = 1.225, p = .279, \eta_p^2 = .05$). See [Supplemental Materials for ANCOVA tables](#).

Effects of CBCT on Children’s Observed Empathy

The seven one-way ANCOVAs conducted on post-intervention child empathy scores showed similar findings. There were no significant intervention effects ($F(1,33) = 1.072, p = .309, \eta_p^2 = .04$). Children of parents with more assets showed more self-referential behaviors ($F(1,33) = 4.087, p = .05, \eta_p^2 = .12$) and children who were older showed less active disregard than children who were younger ($F(1,33) = 3.914, p = .06, \eta_p^2 = .12$). See [Supplemental Materials for ANCOVA tables](#).

Discussion

This study was conducted to understand the possible additional effects of CBCT with parents of infants and young children, beyond parent and child stress, as a recent analysis of this data set documented effects of CBCT (administered to parents) on child and parent stress (Poehlmann-Tynan et al. 2020). The results of the present analysis indicated that CBCT training with parents did not affect parenting interactions or child empathy as measured in our lab, although most parents in the intervention condition reported that the intervention was a positive experience.

Parental Perceptions of the Intervention

Because CBCT has only recently been used with parents, one aim of the study was to examine parental perceptions of the intervention. Parental ratings about their engagement and satisfaction with the intervention sessions were high. Initially the parents were interested in what research has found about CBCT and the effects of meditation-based interventions in general. After gaining some experience in the formal practice of CBCT and meditation, parents often pointed out barriers to practicing at home including lack of time, fatigue, and interruptions by children or noise. In later sessions, many parents said that once they were given permission by instructors to broaden their idea of practice, such as meditating while doing “mindless” tasks such as vacuuming, exercising, or washing the dishes, they were able to find more time to practice. Some parents decided to practice at work during a break, when they were not in close proximity to their children who might interrupt, whereas others began to interpret children’s interruptions as interest, and they began to incorporate children into their practice.

The modules that proved the most challenging to parents were the ones focusing on self-compassion, which was initially interpreted as a self-focus or selfishness. Many of the

parents articulated a belief in selflessness or self-sacrifice when it came to their children, which they often attributed to cultural expectations and the way that they were raised. Eventually parents began talking about self-compassion in a different way, which they said led to them feeling less guilty and more accepting and forgiving of themselves as parents, along with an increase in a sense of calm that was easier to regain under conditions of stress, such as when they were trying to get out of the door in the morning or when multitasking. Many parents described initially struggling to analyze their thoughts and feelings about other people and the self, but they eventually realized that all people suffer and thus can benefit from compassion, including themselves. These findings are important, especially considering the positive effects of self-compassion interventions documented on a wide variety of adult outcomes in a recent meta-analysis (Ferrari et al. 2019). Parents also reported increased feelings of compassion for all, not just their children, but also other peoples’ roles in family life and an appreciation of the interconnectedness of people across the globe. Many parents said that the latter realization was life-changing.

Children’s Empathy

This study found that children of intervention parents did not differ from children of control parents in child empathy after CBCT, observed in the lab during a simulated distress task. As a reminder, the CBCT training did not focus on children or parenting, and the children assessed ranged from infancy to age 5. Throughout the CBCT training, however, parents were asked to think of their children while learning skills in mindfulness and compassion. One research question explored was whether learning to be more compassionate to all would help parents approach parenting in a more compassionate way, and that through modeling, parents might teach their children to be more empathic to others. It is possible that the wide age range of the children made it difficult to demonstrate intervention effects on child empathy, as well as the use of repeated lab-based assessments of empathy.

We found that higher child self-distress scores during the empathy distress task administered prior to the intervention were associated with more child empathic concern during the same task administered 3 months later. Moreover, higher child prosocial scores at the pre-test assessment were associated with less active disregard of parental distress at the post-test assessment. Certain empathy-related child behaviors may improve with time, with some early behaviors laying the groundwork for later empathy and compassion (Roth-Hanania et al. 2011). In this study, child age was inversely related to active disregard, suggesting that older children were more empathic than younger children in our lab-simulated distress task.

Parenting Young Children

Although we did not find intervention effects on parenting behaviors during our lab assessments, we found that less negative parental affect and behavior toward children during the pre-test play session was associated with less child active disregard of parental distress at post-test. Similar to previous studies, it appears that children's empathy development is connected with how parents interact with them (e.g., Davidov and Grusec 2006). The lack of intervention effects on parenting behaviors using the ERA coding system may have resulted from “ceiling effects” on the ERA scale. The average ERA scores during pre-test were high. This may have been due to the high educational level of the parents, leaving them little room to improve. The ERA traditionally has been used to assess families at risk for relational issues, such as parents with psychiatric illness or children born preterm, and the scales may not have been sensitive enough to capture the small changes made in well-functioning dyads.

In addition, parents of older children engaged in less intrusive, insensitive, and inconsistent behaviors than parents of younger children, regardless of the intervention group. These findings are consistent with the literature on parental intrusiveness. Parents of younger children are typically more involved in children's daily lives—and potentially more intrusively involved; yet because children usually become more independent as they grow older, parents may become less intrusive as children age (Poehlmann et al. 2011). Very young children often look to their parents to respond to their needs and structure their play, whereas this tends to decrease as children grow older. We also found that more parental assets (age, education, and marital status) related to less negative parenting behaviors, similar to previous studies using the ERA (Clark et al. 1993).

Limitations and Future Research Directions

This study's sample size limited its power to detect small effect sizes and affected its generalizability, especially because most participants were White, educated, married women. Many stress-reducing contemplative interventions are based on studies conducted on samples with primarily White people, although stress is related to poor health outcomes in many diverse communities as well (Proulx et al. 2018). Future studies of CBCT should include more diversity. Additionally, there was a large age range of children, from 9 months old to 5 years 4 months old. This age range limited the types of measurements we could use to assess children's behaviors, although the parental measures were not directly affected. Funding was a limitation that reduced the scope of the study; because the study took longer than anticipated, some funding was lost, and we were not able to continue with the planned

post-intervention follow-up assessments. An additional follow-up assessment would help determine if the skills learned during the training persisted over time, which is critical in intervention work. The constructs we attempted to measure in this study—empathy and compassion—can be difficult to capture, especially in children. These constructs may be more or less sensitive to change over time, depending on children's age and contextual factors.

Because 20 h of instruction were provided to CBCT participants (the CBCT standard), some scholars suggest that encouraging enacted compassion, without a more lengthy focus on equanimity and coping with the pain that can come when empathizing with others' suffering, may not be enough training to prevent the possibility of compassion burnout (Shonin et al. 2015). As Shonin et al. point out, those who engage in compassion meditation often practice equanimity and recognition of their own suffering for years prior to taking on alleviation of others' suffering. It is important to keep this in mind when implementing CBCT in the future, especially with vulnerable or traumatized groups.

Another limitation is that the practice logs for participants in the second intervention cohort were lost in a lab move. We think that this is a limitation of the study because we could not analyze dosage effects. Mascaro et al. (2017) have written about the effects of practice frequency on CBCT outcomes. They found that, whereas several biological effects of CBCT related to practice time, other studies did not find a connection between practice time and CBCT outcomes. They speculate that practice time may be more or less important depending on the particular samples or outcomes of CBCT. Capturing practice time would be important in future research with CBCT.

As previously mentioned, CBCT is not specifically designed to facilitate or improve parent-child interactions. Because of this, there may have been a translation issue between the material taught to the participant families and how they could apply the information to their everyday family lives. One possible suggestion to increase compassion in parent-child interactions is to modify an existing parent-child interaction intervention such as the Triple P—Positive Parenting Program (Sanders et al. 2003)—to include aspects of compassion training. Future intervention research might explore such possibilities. Future research could also explore if parenting stress or other parent variables might function as a mediator of the relation between the intervention and child outcomes.

Because of the considerable exposure to contemplative practices in our sample, future research could explore effects of CBCT on parents and children in samples with those who are not familiar with such techniques and families who are more diverse, including those experiencing economic challenges, children demonstrating behavioral or developmental challenges, or parents experiencing high stress levels,

especially because our prior report documented effects of parental CBCT training on child stress and clinical levels of parenting stress (Poehlmann-Tynan et al. 2020). Additionally, future studies could also focus on parents with children in a more restricted age range. Measurement issues for children would be less of an issue, and other interesting constructs such as child self-regulation could be assessed. A more focused study on children's empathy or mindfulness in natural settings utilizing recorded observations would also be something to consider in future research (e.g., Lemberger-Truelove et al. 2019).

Lastly, the design of this study—wait list control—is a limitation onto itself. Multiple treatments cannot be assessed against each other in a wait list control design, and the results of this design may indicate a general treatment effect. The participants who were wait-listed were aware of the intervention and were not necessarily blinded to the experiment and control conditions.

One area heretofore missing from CBCT research is the impact of the intervention on the immediate social network of the individual participating in the training. Although we did not find intervention effects in this analysis, there is a growing body of research showing that changing a parent's behavior can alter the quality of their parenting or have an impact on children (e.g., Cuijpers et al. 2015; Curtis et al. 2019). For training that is meant to teach compassion for all, it bears consideration that this training may have an effect on the people closest to the trainee (Poehlmann-Tynan et al. 2020).

Authors' Contributions AE: data coding and analysis, writing. JPT: study conceptualization, design, funding, data collection, coding and analysis, writing. CZW: study conceptualization, data coding, review of writing. AV: data collection, coding, review of writing. EG: design, data collection, review of writing. CR: study conceptualization, funding, review of writing. All authors approved the final version of this manuscript for submission.

Data Availability All data are available at the Open Science Framework (DOI 10.17605/OSF.IO/8E2AV).

Compliance with Ethical Standards

The authors declare that they have no conflict of interest.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study. The protocol was approved by the University of Wisconsin-Madison Institutional Review Board (Protocol Number 2013-0609).

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