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Mindful With Your Toddler Group Training: Feasibility, Acceptability, and Effects on Subjective and Objective Measures

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Abstract

This study examined the effectiveness of Mindful with your toddler, a 9-week mindful parenting group training for mother–toddler dyads experiencing (co-)regulation difficulties. Eighteen clinically referred mothers and toddlers (18–48 months) with (co-)regulation problems participated in groups, each comprising three to six dyads. At waitlist, pretest, and post-test, mothers completed questionnaires on parenting (overreactivity, parental stress, sense of incompetence), psychopathology (internalizing and externalizing), partner relationship, mindful parenting (listening with full attention, compassion for child, non-judgmental acceptance of parental functioning), mindfulness (acting with awareness, non-judging of inner experience, non-reactivity), self-compassion, and child outcomes (psychopathology and dysregulation) and mother–toddler freeplay observations were conducted, and coded for maternal sensitivity and acceptance. Questionnaires were completed again at 2-month and 8-month follow-up. No significant differences occurred between waitlist and pretest, except for a deterioration in listening with full attention and an improvement in compassion for child. Between pretest and post-test, observed maternal sensitivity and acceptance improved (medium effect sizes). Child psychopathology, maternal listening with full attention, acting with awareness, non-reactivity, and self-compassion also improved (medium effect sizes). Effects were stable or further improved during follow-up (medium/large effect sizes). Improvement in child dysregulation, maternal internalizing psychopathology, maternal stress, sense of parental incompetence, non-judgmental acceptance of parental functioning, and non-judging of inner experience was only seen at 2- and 8-month follow-up (medium/large effect sizes). No changes in maternal externalizing psychopathology, overreactivity, compassion for child, and partner relationship occurred. Mindful with your toddler is a promising intervention for mothers with toddlers with (co-)regulation problems.

Keywords Mindful parenting · Toddlers · Preschoolers · Regulation · Sensitivity · Behavior problems · Parenting intervention

Self-regulation is the ability to control or direct attention, thoughts, and emotions and to adjust behavior to adapt to a given situation (McClelland and Cameron 2012). The toddler years are essential in the development of self-regulation in

children (Garon et al. 2008). It is a period in which children progress from being externally regulated to being self-regulated. Toddlers develop a desire to do things independently, and they take steps in the development of goal-directed behavior (Whitebread and Basilio 2012). At the same time, toddlers become more able to comply with requests or inhibit something that has been prohibited, they become more capable of controlling emotions, more aware of how others feel, and show more prosocial behavior (Whitebread and Basilio 2012). The development of self-regulation goes hand in hand with increasing cognitive capacities, and is influenced by the temperament of the child (Horton et al. 2015; Jahromi et al. 2004). The development of self-regulation, however, is not just an unfolding of the potential of the child but is being affected by and affects its environment (Kiss et al. 2014). Regulation is enabled by well-attuned regulation by others at the beginning of life (Kochanska et al. 2000). Especially in the first few years, children need help in regulating their

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emotional and cognitive states and their behaviors by, in most cases, the parents and mostly the mother (von Suchodoletz et al. 2011). In a process of alternating other- and self-regulation, children gradually progress from being primarily, externally regulated to mostly self-regulated. When a mother's (or other primary attachment figure's) availability or capability to help her child regulate is insufficient, this can have negative consequences in terms of social, emotional, cognitive, and motor development of the child (NICHD 2004). In case of problems in regulation, early intervention and support for the mother–child dyad is important to re-establish a well-functioning co-regulation relationship, in which the child can learn to trust on the mother's availability and ability to support him in his regulation when he needs it, and by regulating her own reactive response to the child's dysregulation.

That parents are important in facilitating healthy self-regulation capacity is underlined by a body of studies showing that parental or parenting features predict or associate with young children's development of self-regulation. First of all, certain parental qualities, such as sensitivity or responsiveness (Bernier et al. 2010; Kochanska et al. 2000), acceptance (Kliewer et al. 1996), and mind-mindedness (Bernier et al. 2010; Zeegers et al. 2018), and parental control contribute to the development of self-regulation in young children. For instance, parents' sensitivity, their ability to understand the child's signals and respond to them appropriately, has shown to affect infants' affect and self-regulation capacity across the first years of life (Bernier et al. 2010; Kochanska et al. 2000). Parents who are able to appropriately interpret and respond to their infant's cues seem better able to adjust themselves and the environment in a way that allows the infant to regulate arousal. Another factor of importance for the development of regulation in children is the regulatory capacity of the parent itself (Morris et al. 2007). Parental overreactivity was found to be associated with children's negative emotionality (Lipscomb et al. 2011), and a moderator of genetic influences in children's negative emotionality and externalizing problems (Lipscomb et al. 2012). Further, parental mental health status is of influence; parental psychopathology is a risk factor for problems in the development of self-regulation in children (Kim et al. 2012). Family factors have also shown to affect self-regulation. The partner relationship between parents affects the regulatory processes between parent and child and the development of child self-regulation (Frankel et al. 2015). The combination of the above described child, parenting, parent, and family factors may contribute to either a predominantly well-functioning co-regulatory relationship between a parent and toddler or, in case of accumulating risk factors, to escalating co-regulatory difficulties between parent and child, and dysregulation in the child, which both have been identified as risk factors for later behavior problems (NICHD 2004; Geeraerts et al. 2015).

The behavior that is associated with developmental needs that toddlers have (for example, a high need for both

autonomy, and support and co-regulation) may pose specific challenges to the parents. Both the toddler and his parents may experience complicated emotions when he does not have the social and communicative abilities to make his wishes clear, negotiate in an appropriate manner, or when his regulatory abilities fall short in controlling his anger, resulting in tantrums or aggressive outbursts. Most parents recognize these behaviors as age-appropriate, but this knowledge does not necessarily protect all parents from stress or give them the appropriate regulatory and parenting abilities. When, for example, a tempered boy reminds his mother of her abusive father, she will experience stress when her son starts screaming, which will elicit a fight or flight response, and undermine her possibilities to stay calm, sensitive, and persistent, and help her son to regulate his anger. Age-appropriate difficulties may, when parents consistently miss the abilities to deal with them, develop into longer lasting behavior problems (Campbell et al. 2000). High parental stress and child behavior problems have a transactional relationship (Neece et al. 2012). Also, low parental self-efficacy is predictive of child behavior problems and vice versa (Jones and Prinz 2005). Although some degree of parental stress and feelings of inadequacy may be normal in reaction to challenging toddler behavior, it is important to be alert to signs that mothers are not able to regulate their stress and feelings of insecurity, resulting in persisting and high levels of parental stress and feelings of inadequacy.

When problems arise in co-regulation, this means that the bidirectional linkage of oscillating emotional channels between mother and child does no longer contribute to emotional and physiological stability for both (Butler and Randall 2013), and that regular imbalance arises which is not easily resolved. Intervention programs aimed at reestablishing well-functioning regulation between mother and child are scarce. When co-regulation difficulties are associated with maternal mental health problems, interventions are oftentimes focused on relieving psychopathology (Murray et al. 2014). However, even when the mother's mental health problems diminish, this does not necessarily mean that mother and infant are capable to re-establish a well-functioning co-regulation relationship (Murray et al. 2014). After individual treatment, a mother may still feel insecure in her ability to be there for her child, which may form a vicious circle with the child's lack of reaching out to the mother. When co-regulation difficulties are associated with specific child behavior problems, such as problems with sleeping or temper tantrums, oftentimes parenting interventions are offered. Parenting programs can be very effective when parents are able to carry out the advice they receive (Kaminski et al. 2008). However, this may be difficult for parents who experience high levels of stress in the face of family adversity (Lundahl et al. 2006). For example, a parent may be advised to bring their toddler back to bed every time he gets up in the evening and to calmly say that it is time for

sleep. Although the advice may be correct and helpful for most parents, the implementation may be very difficult for parents feeling overwhelmed by, for example, anxiety (“I may harm my child by not giving him what he needs”), frustration (“He is bullying me by not listening!”), or despair (“I can’t do it anymore, I’m giving up”). Parents having difficulties regulating their own emotions will also have more difficulties helping their toddler regulate during these moments.

The self-regulatory capacity of the mother is an important factor in successful co-regulation between mother and child (Lotzin et al. 2015). Many of the mothers with difficulties in self-regulation have a history of difficulties in the co-regulation with their attachment figures (Lopez and Brennan 2000). They may have experienced insecure attachment and may have had, during their own development, too little experiences in which they were helped in regulating their emotions and behavior in a healthy way, and in which they were able to internalize well-functioning regulatory capacities. For these mothers, therapy can be a corrective experience, in which a secure “other,” the therapist, may offer experiences of being helped with regulation, which can form the basis of the development of effective self-regulative strategies (Mallinckrodt et al. 2009). However, corrective experiences should not only be looked for in relation to others; mothers may also learn how to give themselves the experience of being supported and cared for in times of stress (Snyder et al. 2012). Mothers can learn this by practicing mindfulness. Mindfulness can be defined as “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn 1994, p. 4) and can be practiced during meditations. How can practicing mindfulness become a corrective experience that these women may need? First of all, in meditating, they may learn to become aware and open to their experience, including experiences of stress. They may learn to tolerate the emotions that accompany the experience of stress, rather than avoid them. They may become aware of the types of thoughts that arise under stress, such as self-critical and catastrophizing thoughts, and how they enhance suffering, of their ways of coping with stress, and of the consequences of these coping strategies. They may learn to adapt their inner attitude toward more supportiveness and friendliness and become more flexible in their ways of coping (Farb et al. 2014). Altogether, this may support the self-regulation capacity of mothers.

Mindfulness is not only being used to learn to regulate their own stress more efficiently, but also to improve co-regulation, for example in parent–child dyads (Duncan et al. 2009). Bögels et al. (2014) reported that parents with children with mental health problems who participated in a Mindful Parenting training learned to regulate their own emotions and behavior better (decreased parental psychopathology), to regulate stress in relationship to their child better (decreased parental stress), to change their parenting style to one that is

more supportive to the child (decreased rejection), and that improved co-regulation by the parents supported children in the development of self-regulatory abilities (decreased child psychopathology). Similar effects have been shown in studies in which parents of children with ADHD, autism, and other developmental disabilities were offered mindfulness (e.g., Benn et al. 2012; Dykens et al. 2014). Mindfulness in parenting is also hypothesized to reduce parental preoccupation with aspects of their children they find complicated and improve acceptance, and to improve co-parenting (Bögels et al. 2010).

A mindful parenting intervention that is specifically directed at improving parental self-regulation and parent–child co-regulation might be a suitable intervention for mothers and toddlers who experience regulatory difficulties. For mothers with infants aged 0 to 18 months, the Mindful with your baby intervention was developed, aimed at offering mothers of babies tools they could use for both self-regulation and co-regulation in relationship to their babies (Potharst et al. 2017). The first results on the effectiveness were hopeful: mothers improved not only in their general functioning (self-reported psychopathology, well-being, and mindfulness) but also in parenting and relating to their baby (self-reported parental stress and confidence, responsivity, and hostility toward their infant). Also, the babies reacted to the intervention in a positive way: their (mother-reported) positive affectivity improved. An important element of Mindful with your baby was the presence of the babies in most of the sessions. This helped the mothers generalize what had been learned to the home situation with their child. A limitation of this study was the use of questionnaires only, while these are not sufficient to reliably measure quality of parent–child interaction (Miron et al. 2009).

The promising results of the Mindful with your baby intervention lead to the question whether similar effects could be maintained for mothers and their toddlers. Such a training should, just as the Mindful with your baby training, invite the toddlers in part of the training, so that not only self-regulatory abilities can be practiced during training sessions but also co-regulatory abilities. In the current study, a newly developed mindful parenting group training for mothers with toddlers present is evaluated: *Mindful with your toddler*. The goal is to evaluate the effects of Mindful with your toddler in mother–toddler dyads who were referred to a mental health clinic because of regulation problems (co-regulation problems and/or self-regulation problems of mother and/or child). We used a longitudinal design, with a waitlist, pretest, post-test, 2-month follow-up, and 8-month follow-up to study the treatment effects. We hypothesized that Mindful with your toddler would be feasible, acceptable, and effective in improving observed maternal sensitivity and acceptance of the child, and mother-rated child dysregulation and psychopathology, maternal overreactivity, parenting stress, parenting sense of

competence, maternal psychopathology, partner relationship, mindful parenting, mindfulness, and self-compassion, as compared to waitlist, and that these effects would remain after the training had ended.

Method

Participants

Twenty-two mothers ($M_{\text{age}} = 37.3$ years; $SD = 3.9$) with toddlers 18 to 48 months old ($M_{\text{age}} = 2.4$ years; $SD = 0.6$)—15 boys (68%) and 7 girls; 17 firstborns (77%)—were referred to Mindful with your toddler because of stress related to motherhood. Most mothers and babies lived with the father of the toddler ($n = 17$; 77%). One mother had divorced recently (5%), one lived together with the father of her second child, which was not the father of the participating toddler (5%), one ended the relationship with the father during the pregnancy (5%), one never had a relationship with the father, but had an agreement with the father to have a child together (5%), and one had a donor, who did not take on a father role (5%). The mothers' ethnicities were Dutch ($n = 15$; 68%), European ($n = 5$; 23%), and non-European ($n = 2$; 9%). With regard to the level of education, 11 (50%) mothers had a master degree, 9 (41%) a bachelor degree, and 2 (9%) a high school diploma. Nine mothers (41%) were working at the time of the training, five (23%) were on sick leave, seven (32%) were stay-at-home mothers, and one (5%) was on parental leave. The majority of mothers (16; 73%) had had psychological or pedagogic support (often Infant Mental Health (IMH) care) in the waitlist period prior to Mindful with your toddler.

Mothers and toddlers were admitted to the training because of regulation problems (co-regulation problems and/or self-regulation problems of mother and/or child). Examples of problems that mother and child were admitted with were maternal overreactivity (7; 32%), separation anxiety/demandingness of the child (9; 41%), child sleeping problems (4; 18%), child eating problems (3; 14%), and excessive crying (3; 14%). Fourteen (64%) of the mothers had a mental disorder (obtained by clinical assessment), depression (5; 23%), anxiety disorder (5; 23%), or post-traumatic stress disorder (4; 18%). Many mothers had other stress factors as well, such as relationship problems with the father of the child (7; 32%).

Four mothers had already participated in a *Mindful with your baby* (Potharst et al. 2017) training. The reasons that they wanted to participate in this training as well were (1) a more problematic relationship with the toddler than with the baby, (2) recently heightened stress because of a divorce, (3) many sessions missed in the Mindful with your baby training because of health problems, and (4) severe mother–child relationship problems that had not improved sufficiently. Mothers that had already participated in the video observations for the

purpose of effectiveness research of Mindful with your baby did not participate in the video observations again. Another mother had participated in and dropped out of a Mindful Parenting training in a non-clinical (preventive) setting before she participated in the Mindful with your toddler training.

Mindful with your toddler was provided in secondary mental health care centers. The starting dates of the trainings were between February 2016 and February 2018. Twenty mother–toddler dyads participated in one of five Mindful with your toddler group trainings consisting of three to six dyads. Two English-speaking mothers were given the training partly with the two of them (because of a lack of other English-speaking mothers) and partly individually (because of a bad match between the toddlers, one of which hurt the other, and because of practical difficulties to do the sessions together). For these two mothers, the training sessions thus deviated from the regular group training, which led us to exclude these mothers from the analyses.

Two participants (9%) did not finish the training. One participant dropped out because she was in a turbulent time, with her son having medical problems, receiving a diagnosis of autism, besides the diagnosis of developmental delay that he already had, and a transfer of schools. The other participant dropped out after missing a few sessions because of illness. Because both drop-outs did not complete the post-test and follow-up measurements, they were also excluded from the analyses. Therefore, of the 22 training participants, 18 were also research participants. Of these 18 research participants, 13 mothers (72%) received at least two sessions of other forms of psychological or pedagogic support during the training. During the first 2 months after the training, 11 mothers (61%) received at least two sessions of other forms of support.

Procedure

Assessments A quasi-experimental design was used in order to control for the effects of time and assessment; a waitlist assessment was administered when parents had to wait at least 5 weeks before starting the training. The mean waiting time for those who had to wait was 7.9 weeks ($SD = 1.2$). Pretest assessment was administered in the week before the start of the training. Post-test and follow-up assessments were administered directly after, 2 months and 8 months after the training, respectively. Questionnaires were completed at home online by the participating mother. Of the research participants, 78% completed waitlist, 94% pretest, 100% post-test, and 94% 2-month follow-up. The 8-month follow-up has not yet been administered to the last group. Of the 14 research participants that had been administered the 8-month follow-up, participation rate was 86%. The exact number of questionnaires completed per measurement occasion is displayed in Table 1. Home visits were conducted at three measurement

occasions (waitlist, pretest, post-test) to record 10-min free-play sessions between the mother and child.

Training The Mindful with your toddler program is, just as the Mindful with your baby (Potharst et al. 2017) program, an adaptation for mothers with a toddler of the Mindful Parenting training (Bögels and Restifo 2013), which is based on MBSR (Kabat-Zinn 1990) and MBCT (Segal et al. 2002). Mindful with your toddler is adapted to the presence of the toddlers in half of the sessions, and the themes that play a role for most mothers with a toddler. The Mindful with your toddler training consists of nine weekly 2-h sessions, plus a follow-up session 9 weeks later. Groups were led by a mindfulness trainer (E.S.P.), who was responsible for offering the meditations, inquiries, and psycho-education, and an Infant Mental Health (IMH) specialist, who monitored the well-being of all mother–toddler dyads and the well-being of the toddlers during the formal meditations.

As opposed to the Mindful with your baby training, in which both mothers and babies participate after the first moms-only session, the toddlers only join the training after

session 4. Compared to babies, toddlers can make an appeal to their mothers quite strongly, and the interaction patterns between mothers and toddlers exist longer, and may have become inflexible. In order to learn to apply mindfulness in this relationship, the foundations of mindfulness practice need to be laid. In the first three sessions, mothers learn to meditate, to apply mindfulness in their daily lives, with a special focus on the use of the foundational attitudes of mindfulness, such as acceptance, patience, and trust, in relation to themselves. In the fourth session, the group prepares for the arrival of the toddlers the week after. Part of the preparation is psycho-education about the Circle of Security (Powell et al. 2013). Mothers are explained that in order to feel emotionally secure in relationship to their parent, children have a need for both a secure base, supporting their exploration, and a safe haven, welcoming them when they need comfort. From session 5 on, when the toddlers join the training, the intervention becomes an ‘on-the-job training’. The mothers practice with bringing awareness to (the experience of) their child, to their own experience in the presence of the child, and to the relationship with the child. They also practice applying mindfulness in stressful situations, which arise spontaneously when bringing

Table 1 Means and standard deviations of all dependent measures at all measurement occasions, the Mindful with your toddler training took place between pre-test and post-test

Outcome variable	Waitlist		Pretest		Post-test		2-month follow-up		8-month follow-up	
	<i>n</i>	<i>M</i> (SD)	<i>n</i>	<i>M</i> (SD)	<i>n</i>	<i>M</i> (SD)	<i>n</i>	<i>M</i> (SD)	<i>n</i>	<i>M</i> (SD)
Parent–child interaction observations										
Sensitivity	10	6.4 (1.6)	14	6.4 (2.1)	14	7.4 (1.3)				
Acceptance	10	6.7 (1.7)	14	6.3 (2.3)	14	7.6 (1.1)				
Mother report										
Child psychopathology (CBCL 1.5–5)	12	54.25 (8.9)	15	51.1 (9.2)	16	47.6 (7.0)	15	46.3 (10.8)	11	44.5 (9.8)
Dysregulation	12	0.5 (0.3)	15	0.5 (0.3)	16	0.4 (0.2)	15	0.4 (0.2)	11	0.3 (0.2)
Parental overreactivity (PS)	13	3.1 (1.0)	16	2.8 (0.9)	16	2.6 (0.8)	15	2.6 (0.8)	10	2.7 (0.6)
Parenting stress (PSI)	14	2.6 (0.9)	17	2.8 (0.9)	18	2.5 (0.7)	17	2.4 (0.8)	12	2.2 (0.6)
Sense of incompetence in parenting (PSI)	14	2.8 (1.0)	17	2.9 (1.0)	18	2.6 (0.9)	17	2.3 (0.7)	12	2.4 (0.7)
Maternal internalizing psychopathology (ASR)	13	65.2 (17.1)	15	67.7 (11.5)	16	62.0 (12.9)	15	59.1 (13.8)	11	57.5 (13.6)
Maternal externalizing psychopathology (ASR)	13	58.2 (9.8)	15	56.7 (10.5)	16	53.0 (10.3)	15	52.4 (13.8)	11	50.8 (12.3)
Partner relationship (VGFO)	10	38.0 (9.9)	13	44.2 (14.1)	14	41.6 (10.6)	14	44.2 (15.4)	9	48.6 (12.3)
Mindful parenting (IM-P)										
Listening with full attention	11	3.7 (0.5)	14	3.0 (0.7)	15	3.3 (0.6)	15	3.3 (0.6)	9	3.3 (0.8)
Compassion for the child	11	4.0 (0.6)	14	4.2 (0.6)	15	4.4 (0.4)	15	4.1 (0.4)	9	4.4 (0.3)
Acceptance of parental functioning	11	3.1 (1.0)	14	2.8 (1.0)	15	3.0 (0.9)	15	3.3 (0.7)	9	2.8 (0.9)
Mindfulness (FFMQ-SF)										
Acting with awareness	14	2.9 (0.7)	17	2.8 (0.8)	18	3.2 (0.6)	17	3.3 (0.5)	11	3.3 (0.5)
Non-judging of inner experience	14	3.4 (1.0)	17	3.0 (1.1)	18	3.4 (0.8)	17	3.6 (1.0)	11	3.5 (0.8)
Non-reactivity	14	2.6 (1.1)	17	2.5 (1.0)	18	3.1 (0.6)	17	3.4 (0.6)	11	2.9 (0.8)
Self-compassion (SCS-3)	13	3.6 (1.9)	17	3.2 (1.5)	15	4.1 (1.6)	17	4.4 (1.3)	12	4.3 (1.0)

Data are presented as mean (standard deviation). ASR, CBCL total, and VGFO scores are T-scores, and other scales are mean item scores (scale ranges were 0–2 for CBCL dysregulation; 1–5 for the VGFO, IM-P, FFMQ, and SCS-3; 1–6 for the PSI; and 1–7 for PS)

the toddlers into the room. The sessions with the toddlers are started with a song in which every mother and child is welcomed, and explanation to mother and children about the program of the session, and is followed by formal meditation. In the introduction of this meditation, mothers are explained that this meditation is different from the formal meditations that they have become acquainted with, in which they were invited to bring their full attention, from moment to moment, to their body or their breath. In this meditation, mothers are invited to bring their attention to themselves only in moment they feel the space to do so, when the child is secure in the situation. Hearing sounds or feeling being touched by their child are not seen as distraction, but as a part of the meditation. After the formal meditation, inquiry, a discussion of the home practice, and a short break, the theme of the session is introduced, for example Parenting patterns, or Stability and flexibility. A small activity between mother and child is introduced, in which the mothers can practice awareness of the theme that has just been introduced. Then the mothers practice a watching meditation with focus on the toddler, in which the mothers learn to (1) intentionally bring their attention to their toddler, concerning not only what the mother sees and hears the toddler do but also to what the toddler's experience may be like, (2) to notice their own inner reaction to whatever they observe in each moment, and (3) practice a beginner's mind, and other attitudinal qualities toward themselves and their children while watching. In the inquiry, mothers reflect about their own experience and on what their child may have experienced. The session is ended with a goodbye song for all mother–child dyads. Nine weeks after the end of the training, a follow-up session takes place with mothers only, in which they meditate together, share experiences from the last 2 months, and renew their intention for meditation and mindful parenting.

Measures

Sensitivity and Acceptance Sensitivity was assessed during the 10-min free play sessions recorded at home. Mothers were asked to play with their child with (5 min) and without (5 min) age-appropriate toys. Maternal sensitivity and acceptance were assessed using the scale descriptions of Ainsworth (1969). The first scale, sensitivity versus insensitivity, captured whether a mother was sensitive or insensitive to the signals of her child. Sensitive mothers made themselves available to perceive child signals, attributed meaning to these signals by acting promptly and appropriately upon them. The second scale, acceptance versus rejection, captured whether a mother showed acceptance of the child's initiatives and positive and negative feelings, showing patience, positive affectivity, and warmth toward the child. Video observations were coded by four trained coders who were blind to the measurement occasion. Twenty percent of the observations were

coded to assess interrater agreement. The intra-class correlation among the coders was excellent (ICC = 0.83) for the sensitivity versus insensitivity scale and good (ICC = 0.76) for the acceptance versus rejection scale (Cicchetti 1994). After satisfactory ICC between the coders had been established, every video fragment was coded twice, by two different observers. Differences in scores were resolved by discussion.

Child Dysregulation and Psychopathology Toddlers' dysregulation was operationalized using three subscales of the Dutch version of the preschool Child Behavior Checklist (CBCL 1 ½–5; Achenbach and Rescorla 2000), namely Anxious/Depressed, Aggressive behavior, and Attention problems were used, and were summed up to a Dysregulation Score (Geeraerts et al. 2015). Child psychopathology was measured using the total score of the CBCL 1 ½–5. Problem behavior of the toddlers was rated by the mother on a 3-point scale: 0 (not true), 1 (somewhat or sometimes true), and 2 (very true or often true). Good psychometric properties have been shown for the American version of the CBCL 1 ½–5 (Achenbach and Rescorla 2000). In the current study, pretest Cronbach's alpha of the dysregulation score was 0.91 and of the total scale 0.92.

Overreactivity The subscale Overreactivity of the Dutch version of the Parenting Scale (Arnold et al. 1993) was used to measure maternal overreactivity, a harsh, coercive, and authoritarian form of parenting. This subscale contains of 10 items that are rated on a 7-point Likert scale presented between two counterparts. A higher score represents increased overreactivity. The Parenting scale possesses adequate reliability and validity (Arnold et al. 1993). The current study showed an internal consistency (Cronbach's alpha) of 0.78 at pretest.

Parenting Stress and Sense of Incompetence Parenting stress was assessed with the Dutch Parenting Stress Index (PSI; de Brock et al. 1992) based on the American Parenting Stress Index (Abidin 1983). We used a combination of the short form of the PSI and 7 extra items needed for the 15-item subscale Sense of incompetence, measuring the extent to which the parent feels incompetent in parenting the child. The items were rated on a 6-point Likert scale, ranging from 1 (totally disagree) to 6 (totally agree). The Dutch PSI possesses good reliability (de Brock et al. 1992). In the current study, Cronbach's alphas at pretest were 0.91 for the short form and 0.87 for subscale Sense of incompetence.

Maternal Psychopathology Mothers' psychopathology was assessed with a Dutch version of the Adult Self Report (ASR; Achenbach and Rescorla 2003). This self-report scale for adults (18 to 59 years) contains 126 items on problem behaviors, which are rated on a 3-point scale: 0 (not true), 1 (somewhat or sometimes true), and 2 (very true or often true).

In this study, the Internalizing Score and Externalizing Score are reported. Those are regarded as subclinical and clinical when T-scores exceed 59 and 63, respectively. Good psychometric properties have been shown for the American version of the ASR (Achenbach and Rescorla 2003). In the current study, Cronbach's alpha was 0.94 and 0.82 for the Internalizing and Externalizing scale, respectively.

Partner Relationship Partner relationship and parental cooperation was measured by the subscale Partner relation of the Dutch questionnaire Vragenlijst Gezinsfunctioneren voor Ouders (VGFO, translated Questionnaire Family Functioning for Parents; Veerman et al. 2012). The VGFO aims to measure different aspects of problematic family functioning. This subscale consists of five items that are rated on a 4-point Likert scale, ranging from 1 (does not apply) to 4 (applies completely). Subscales are regarded as subclinical and clinical when they are below 37 and 34, respectively. The psychometric properties of the original scale were good (Veerman et al. 2012). In the current study, internal consistency (Cronbach's alpha) was 0.92 at pretest.

Mindful Parenting To measure mindful parenting, the Dutch version (De Bruin et al. 2014) of the Interpersonal Mindfulness in Parenting scale (IM-P; Duncan et al. 2009) was used. The 29 items were scored on a 5-point Likert scale, ranging from 1 (never true) to 5 (always true). In a Dutch validation study, a factor analysis revealed a structure of six dimensions (Listening with full attention, Compassion for the child, Non-judgmental acceptance of parental functioning, Emotional non-reactivity in parenting, Emotional awareness of the child, and Emotional awareness of the self), the first five of which showed satisfactory reliability (De Bruin et al. 2014). In the current study, internal consistency (Cronbach's alpha) of the total scale was 0.87 at pretest, and 0.88, 0.79, 0.84, 0.59, 0.38, and 0.13, respectively. Because of the weak internal consistency of the last three subscales in the current study, only the first three subscales were analyzed.

Mindfulness Mindfulness was assessed using the short form (Bohlmeijer et al. 2011) of the Dutch version of the five facet mindfulness questionnaire (FFMQ; De Bruin et al. 2012). Items were scored on a 5-point Likert scale ranging from 1 (never or very rarely true) to 5 (very often or always true). Although the short form comprises only 24 of the original 39 items, the short form also showed a five-factor structure (Bohlmeijer et al. 2011). Of the five, only three were measured in this study: Acting with awareness, Non-judging of inner experience, and Non-reactivity (Truijens et al. 2016). The psychometric properties of the original scale were good in both a meditating as a non-meditating sample (De Bruin et al. 2012). In the current study, pretest Cronbach's alphas were 0.82, 0.94, and 0.88 for the subscales, respectively.

Self-Compassion To measure self-compassion, the 3-item Self-Compassion Scale (SCS-3) was used (Raes and Neff, unpublished manuscript). The three items represent the three different subscales of the Self-Compassion Scale (SCS, Neff 2003a): Common humanity, Overidentification, and Self-judgment. The items were scored on a 5-point Likert scale, ranging from 1 (almost never) to 5 (almost always). The internal consistency of this 3-item scale (Cronbach's alpha) was found to be 0.74 and the correlation with the total score of the 12-item short form of the SCS 0.90 (Raes and Neff, unpublished manuscript). In the current study, the Cronbach's alpha was 0.70 at pretest.

Evaluation At post-test, participants completed a program evaluation with multiple choice questions, which was an adapted version of the stress reduction program evaluation, developed at the Center for Mindfulness of the University of Massachusetts medical school, to evaluate how they appreciated Mindful with your toddler (see Table 2 for the questions).

Data Analyses

Inspection of distribution of differences (scores post-test minus pretest) indicated sufficient normality; skewness and kurtosis of all variables were $< |2|$ (Garson 2012), except for Ainsworth Scale Sensitivity, and FFMQ Total score and subscales Acting with awareness and Non-judging of inner experiences. Of the FFMQ total scale and subscale Non-judging of inner experience, one outlier (> 3.29 SD) was replaced by the next most extreme value at the end of the distribution of the difference scores of these (sub)scales (Tabachnick and Fidell 2013). Hypotheses on the effects of the training on all outcomes were tested with multilevel regression models. In contrast to ANOVA, which requires deletion of cases with missing data because matching of measurement occasions is used to estimate parameters, in multilevel analyses all cases can be included, even those with missing data, because the models are fitted by maximum likelihood (Bagiella et al. 2000). The structure of the multilevel models for both mother and toddler questionnaire data consisted of the repeated measurements of these outcomes across the measurement points (at waitlist, pretest, post-test, 8-week and 8-month follow-up; fixed effects, level 1) which were nested within the mother–toddler dyad (level 2). For the observational data, the structure consisted of repeated measures of the sensitivity and acceptance scores (waitlist, pretest, post-test) were nested within the mother–toddler dyad. Measurement occasions were dummy coded with pretest scores as reference. The intercept was a random effect in all models. Scores on all outcomes were standardized across assessments. The multilevel models equation can be found as a footnote in Table 1, which displays the results of the multilevel analyses. Parameter estimates can be interpreted as effect sizes. Effects were regarded as significant when $p < 0.05$. Cohen's d effect sizes were based on mean

Table 2 Evaluation of the Mindful with your toddler training at post-test ($n = 18$)

Question			Yes	No
Do you feel you got something of lasting value as a result of taking this training?			18 (100%)	0 (0%)
	Never	1–2 times	3–4 times	5–7 times
How often per week did you usually practice the formal meditations at home?	0 (0%)	4 (22%)	8 (44%)	6 (33%)
Has there been change as a result of the training in...	Clear	Some	No	Negative
... how often you give your child conscious attention?	3 (17%)	8 (44%)	7 (39%)	0 (0%)
... knowing how to take better care of yourself?	6 (33%)	11 (61%)	1 (6%)	0 (0%)
... actually taking better care of yourself?	4 (22%)	13 (72%)	1 (6%)	0 (0%)
... awareness of what is stressful in your life?	7 (39%)	9 (50%)	2 (11%)	0 (0%)
... awareness of stressful parenting situations at the time they are happening?	5 (28%)	11 (61%)	2 (11%)	0 (0%)
... the frequency of parental stress?	3 (17%)	9 (50%)	6 (33%)	0 (0%)
... the intensity of parenting stress or frustration?	4 (22%)	10 (56%)	4 (22%)	0 (0%)
... dealing with emotions while taking care of or parenting your child?	5 (28%)	11 (61%)	2 (11%)	0 (0%)
... the ability to handle stressful parenting situations appropriately?	4 (22%)	12 (67%)	2 (11%)	0 (0%)
... being content with the relationship with your child?	6 (33%)	10 (56%)	2 (11%)	0 (0%)
... the confidence you have in yourself as a mother?	6 (33%)	9 (50%)	3 (17%)	0 (0%)
... feeling hopeful as a mother?	5 (28%)	10 (56%)	3 (17%)	0 (0%)
Likert scale ranging from 1 (not important) to 10 (enormously important)				
How important has the training been for you?	8.7 (1.3)	Meditation for self-compassion?	8.1 (1.8)	
Meditation while seated in the group?	8.0 (1.5)	Breathing space?	8.9 (1.2)	
Meditation while seated at home?	7.6 (1.6)	Awareness in daily parenting	8.5 (1.0)	
Bodyscan in the group?	8.3 (1.2)	Group discussions and education	8.2 (1.6)	
Bodyscan at home?	8.9 (1.0)	The diaries	6.9 (2.6)	
Seeing meditation with focus on your toddler?	7.9 (2.0)	The texts in the workbook	7.8 (1.4)	

Data are presented as n (%) or mean (standard deviation)

scores of the comparison between the measurement occasions and pretest, and the pooled standard deviations. For child outcomes, it was checked whether child age was a significant covariate. A reliable change index was calculated for all participants on all outcome measures to get a better understanding of how many mothers showed a clinically significant improvement after the training.

Results

Feasibility and Acceptability

Attendance rates of the mothers who finished the training were acceptable (84%). Acceptability was high as well, which was shown by the results of the evaluation that was completed at post-test by all (100%) research participants (see Table 2).

Direct and Delayed Effects

Mean scores (SD) on all outcome measures at pretest, post-test, 2-month follow-up, and 8-month follow-up are displayed in Table 1. Results of multilevel models of

treatment outcome predicted by measurement occasion are displayed in Table 3. No significant differences were seen in outcomes between waitlist and pretest assessment, except for a deterioration in listening with full attention (large effect size) and an improvement in compassion for the child (small effect size). Compared to pretest, at post-test mothers were more sensitive and more accepting toward their child (medium effect sizes). Child psychopathology had decreased at post-test (medium effect size), and this effect was maintained at 2-month and 8-month follow-up. At post-test, a borderline significant improvement in child dysregulation was revealed (small effect size), and this effect was significant at 2-month and 8-month follow-up (medium effect sizes). It was checked whether this improvement in child behavior problems and child dysregulation was related to the age of the children. When child age was added to these two models, this variable was non-significant, while the effects of measurement occasion were similar to the original models. Regarding outcomes in maternal functioning, maternal overreactivity did not improve significantly. Parenting stress a borderline significant improvement at post-test (small effect size). At 2-month follow-up, both parenting stress and sense of

Table 3 Parameter estimates (and standard errors) and *F* values of multilevel models¹ of treatment outcome predicted by measurement occasion (deviations from pretest), and Cohen's *d* values of comparisons between pre-test and the other measurement occasions

	Intercept			Waitlist			Post-test			2-month follow-up			8-month follow-up			
	<i>n</i>	β (SE)	<i>t</i>	β (SE)	<i>t</i>	<i>d</i>	β (SE)	<i>t</i>	<i>d</i>	β (SE)	<i>t</i>	<i>d</i>	β (SE)	<i>t</i>	<i>d</i>	
Mother-child interaction observations																
Sensitivity	14	-0.20 (0.27)	-0.72	0.00 (0.25)	0.01	-0.10	0.56 (0.22)	2.54*	0.57							
95% CI		[-0.77, 0.37]		[-0.06, 0.82]			[0.10, 1.02]									
Acceptance	14	-0.39 (0.27)	-1.47	0.24 (0.25)	0.94	0.47	0.76 (0.22)	3.41*	0.74							
95% CI		[-0.94, 0.16]		[-0.28; 0.76]			[0.30, 1.23]									
Mother report																
Child psychopathology (CBCL)	16	0.29 (0.24)	1.23	0.38 (0.22)	1.71 [†]	0.41	-0.47 (0.20)	-2.33*	0.65	-0.54 (0.21)	-2.64*	0.74	-0.51 (0.23)	-2.25*	0.54	
95% CI		[-0.19, 0.78]		[-0.06, 0.82]			[-0.87, -0.07]			[-0.96, -0.13]			[-0.96, -0.05]			
Dysregulation	16	0.27 (.24)	1.09	0.22 (.23)	0.94	0.20	-0.39 (.21)	-1.85 [†]	0.45	-0.51 (.21)	-2.37*	0.65	-0.50 (.23)	-2.12*	0.58	
95% CI		[-0.23, 0.76]		[-0.24, 0.68]			[-0.81, 0.03]			[-0.93, -0.08]			[-0.97, -0.03]			
Parental overreactivity (PS)	17	-0.00 (0.24)	-0.00	0.44 (0.23)	1.92	0.21	-0.19 (0.22)	-0.88	0.22	-0.16 (0.22)	-0.73	0.19	-0.20 (0.25)	-0.81	0.21	
95% CI		[-0.48, 0.48]		[-0.02, 0.90]			[-0.62, 0.24]			[-0.60, 0.28]			[-0.70, 0.30]			
Parenting stress (PSI)	18	0.37 (0.23)	1.60	-0.26 (0.25)	-1.02	0.29	-0.41 (0.23)	-1.76 [†]	0.42	-0.58 (0.24)	-2.47*	0.94	-0.64 (0.26)	-2.44**	0.48	
95% CI		[-0.10, 0.84]		[-0.76, 0.25]			[-0.76, 0.25]			[-1.05, -0.11]			[-1.16, -0.12]			
Sense of incompetence (PSI)	18	0.33 (0.23)	1.41	-0.08 (0.25)	-0.33	0.17	-0.33 (0.23)	-1.44	0.29	-0.67 (0.24)	-2.85**	0.94	-0.59 (0.26)	-2.23*	0.39	
95% CI		[-0.14, 0.80]		[-0.59, 0.42]			[-0.80, 0.13]			[-1.14, -0.20]			[-1.11, -0.06]			
Maternal psychopathology (ASR)																
Internalizing	16	0.40 (0.24)	1.66	0.01 (0.21)	0.03	0.09	-0.40 (0.20)	-2.01 [†]	0.87	-0.59 (0.20)	-2.93**	0.62	-0.77 (0.22)	-3.45**	0.83	
95% CI		[-0.09, 0.89]		[-0.42, 0.43]			[-0.80, -0.00]			[-1.00, -0.19]			[-1.22, -0.32]			
Externalizing	16	0.18 (0.25)	0.72	0.33 (0.22)	1.49	0.67	-0.29 (0.21)	-1.40	0.64	-0.30 (0.21)	-1.38	0.26	-0.46 (0.23)	-1.95 [†]	0.67	
95% CI		[-0.33, 0.68]		[-0.12, 0.78]			[-0.71, 0.13]			[-0.72, 0.13]			[-0.93, 0.01]			
Partner relationship (VGFO)	14	0.00 (0.26)	0.03	-0.07 (0.16)	-0.45	0.00	-0.03 (0.14)	-0.23	0.11	-0.05 (0.15)	-0.36	0.03	0.24 (0.16)	1.48	0.55	
95% CI		[-0.55, 0.56]		[-0.40, 0.25]			[-0.32, 0.26]			[-0.35, 0.24]			[-0.09, 0.58]			
Mindful parenting (IM-P)																
Listening with full attention	15	-0.11 (0.19)	-0.58	0.49 (0.16)	3.01**	0.83	0.34 (0.15)	2.30*	0.46	0.37 (0.15)	2.52*	0.57	0.45 (0.17)	2.57*	1.40	
95% CI		[-0.51, 0.28]		[0.16, 0.82]			[0.04, 0.64]			[0.45, 0.17]			[0.10, 0.79]			
Compassion for the child	15	0.28 (0.12)	2.28*	-0.39 (0.15)	-2.63*	0.36	0.21 (0.13)	1.57	0.54	-0.01 (0.13)	-0.05	0.00	0.19 (0.16)	1.19	0.56	
95% CI		[0.03, 0.53]		[-0.69, -0.09]			[-0.06, 0.48]			[-0.28, 0.26]			[-0.13, 0.50]			
Acceptance of parental functioning	15	-0.22 (0.26)	-0.83	0.07 (0.19)	0.37	0.16	0.16 (0.17)	0.94	0.16	0.54 (0.17)	3.19**	0.83	0.37 (0.20)	1.85 [†]	0.56	
95% CI		[-0.76, 0.33]		[-0.31, 0.45]			[-0.18, 0.50]			[0.20, 0.89]			[-0.03, 0.77]			
Mindfulness (FFMQ-SF)																
Awareness	18	-0.49 (0.23)	-2.16*	0.14 (0.29)	0.48	0.13	0.62 (0.26)	2.35*	0.47	0.89 (0.27)	3.30**	0.73	0.84 (0.31)	2.75**	0.74	
95% CI		[-0.94, -0.04]		[-0.43, 0.71]			[0.09, 1.15]			[0.35, 1.43]			[0.23, 1.46]			
Non-judging of inner experience	18	-0.38 (0.23)	-1.64	0.35 (0.22)	1.59	0.59	0.36 (0.20)	1.77 [†]	0.58	0.60 (0.21)	2.90**	0.54	0.67 (0.24)	2.83**	0.69	
95% CI		[-0.85, 0.09]		[-0.09, 0.79]			[-0.05, 0.77]			[0.18, 1.01]			[0.20, 1.14]			

Table 3 (continued)

	Intercept		Waitlist		Post-test		2-month follow-up		8-month follow-up						
	<i>n</i>	β (SE)	<i>t</i>	β (SE)	<i>t</i>	<i>d</i>	β (SE)	<i>t</i>	<i>d</i>	β (SE)	<i>t</i>	<i>d</i>			
Non-reactivity	18	-0.45 (0.22)	-2.07*	0.02 (0.24)	0.07	0.02	0.65 (0.23)	2.86**	0.47	1.03 (0.23)	4.47**	1.34	0.58 (0.26)	2.20*	0.90
95% CI		[-0.89, 0.01]		[-0.47, 0.51]		[0.19, 1.10]		[0.57, 1.49]		[0.57, 1.49]			[0.05, 1.11]		
Self-compassion (SCS-3)	18	-0.45 (0.23)	-1.97†	0.27 (0.22)	1.22	0.15	0.48 (0.21)	2.29*	0.51	0.75 (0.20)	3.72**	1.33	0.95 (0.23)	4.23**	1.46
95% CI		[-0.92, 0.01]		[-0.17, 0.71]		[0.06, 0.90]		[0.35, 1.16]		[0.35, 1.16]			[0.50, 1.40]		

¹ The multilevel equations that were used were at level 1: $Y_{ij} = \beta_{0j} + \beta_{1j}t_{ij} + \beta_{2j}t_{ij} + \beta_{3j}t_{ij} + \beta_{4j}t_{ij} + \beta_{5j}t_{ij} + E_{ij}$, where y is the dependent variable measured at level 1 (time) (i) nested within level 2 (individuals) (j). Regression parameters β_{0j} intercept and β_{1j} slope correspond with the level 1 predictor and e_{ij} is random error at level 1. At level 2, the beta coefficients at level 1 are treated as outcomes to be predicted: $\beta_{0j} = \gamma_{00} + U_{0j}$, where γ_{00} is the random intercept for β_{0j} and U_{0j} is the random intercept of the level 2 unit (individual)

† $p < 0.10$; * $p < 0.05$, ** $p < 0.01$, β = parameter estimate, d = Cohen's d

incompetence were improved (large effect sizes), but this effect decreased at 8-month follow-up (small to medium effect sizes). Mothers' own internalizing psychopathology showed a borderline significant improvement at post-test (medium to large effect size), and this effect was significant at 2-month and 8-month follow-up (medium to large effect sizes). A borderline significant improvement in maternal externalizing psychopathology only occurred at 8-month follow-up (medium effect size). There was no improvement in partner relationship. Regarding mindful parenting abilities, there was an improvement in Listening with full attention (small effect at all measurement occasions), no improvement in Compassion for the child, and an improvement in Non-judgmental acceptance of parental functioning at 2-month follow-up only (medium effect size). General mindfulness abilities (Acting with awareness, Non-judging of inner experience, and Non-reactivity) showed a borderline significant or significant improvements at post-test (small to medium effect sizes). At 2-month and 8-month follow-up, mindfulness abilities showed significant improvements (medium to large effect sizes). At post-test, an improvement in self-compassion (medium effect size) and further improvement in the follow-up period (large to very large effect sizes) were revealed.

We checked whether previous participation in a mindful parenting training made a difference in outcomes. We repeated the multilevel analyses excluding the five participants that had already followed a mindful parenting training, resulting in somewhat better outcomes than in the full group. Parameter estimates (β 's) differed with at least 0.15 from parameter estimates in the full group for the following outcomes: child psychopathology and dysregulation (at post-test and 2-month follow-up), parental stress (at post-test) and sense of incompetence (at post-test, and both follow-up occasions), maternal internalizing (2- and 8-month follow-up) and externalizing psychopathology (2-month follow-up), listening with full attention and compassion with the child (2- and 8-month follow-up), non-judging of inner experience (post-test), and acting with awareness (post-test and 2-month follow-up). There was one variable that showed a slightly worse outcome for the subgroup of mothers without mindful parenting experience: improvement of self-compassion was smaller and non-significant at post-test only.

Clinical Significance

To assess the clinical significance of the current study's results, the reliable change index indicating the number and percentage of significant improvement or deterioration on all mother reported outcomes was calculated and displayed in Table 4. At post-test, the average percentage of children that showed significant improvement on the two child outcomes was 16%, with a range of 13% to 19%, and the average percentage of mothers that showed significant improvement on the 13 mother outcomes

Table 4 Reliable change index indicating the number (and percentage) of mothers/children showing significant improvement and deterioration on mother reported outcomes at post-test, 2-month follow-up, and 8-month follow-up, as compared to pretest

Significant change between pretest and Outcome variable	Post-test		2-month follow-up			8-month follow-up			
	<i>n</i>	Improvement	Deterioration	<i>n</i>	Improvement	Deterioration	<i>n</i>	Improvement	Deterioration
Child psychopathology (CBCL 1.5–5)	16	2 (13%)	0 (0%)	15	2 (13%)	0 (0%)	11	1 (9%)	1 (9%)
Dysregulation	16	3 (19%)	3 (19%)	15	3 (20%)	0 (0%)	11	1 (9%)	0 (0%)
Parental overreactivity (PS)	15	5 (33%)	3 (18%)	14	5 (35%)	2 (14%)	10	5 (50%)	3 (30%)
Parenting stress (PSI)	18	6 (33%)	2 (11%)	17	9 (53%)	1 (6%)	12	6 (50%)	2 (17%)
Sense of incompetence (PSI)	18	6 (33%)	2 (0%)	17	6 (35%)	0 (0%)	12	6 (50%)	1 (8%)
Maternal internalizing psychopathology (ASR)	16	6 (38%)	1 (6%)	15	7 (47%)	2 (13%)	11	5 (45%)	0 (0%)
Maternal externalizing psychopathology (ASR)	16	5 (31%)	0 (0%)	15	6 (40%)	1 (7%)	11	5 (45%)	1 (9%)
Partner relationship (VGFO)	9	1 (11%)	0 (0%)	8	1 (13%)	1 (13%)	5	3 (60%)	0 (0%)
Mindful parenting (IM-P)									
Listening with full attention	15	5 (33%)	0 (0%)	15	5 (33%)	0 (0%)	9	5 (55%)	0 (0%)
Compassion for the child	15	7 (47%)	0 (0%)	15	2 (13%)	1 (7%)	9	2 (22%)	0 (0%)
Acceptance of parental functioning	15	2 (13%)	1 (7%)	15	5 (33%)	1 (7%)	8	3 (38%)	0 (0%)
Mindfulness (FFMQ-SF)									
Acting with awareness	18	4 (22%)	0 (0%)	17	7 (41%)	0 (0%)	11	3 (27%)	0 (0%)
Non-judging of inner experience	18	4 (22%)	1 (6%)	17	5 (29%)	1 (6%)	11	4 (36%)	1 (9%)
Non-reactivity	18	5 (28%)	2 (11%)	17	11 (65%)	0 (0%)	11	5 (45%)	0 (0%)
Self-compassion (SCS-3)	15	5 (33%)	1 (7%)	17	8 (47%)	0 (0%)	13	6 (46%)	0 (0%)

Reliable change index was calculated, on the basis of measurement occasion scores, and on standard deviations and test–retest reliability scores of norm groups (CBCL, ASR, PS, and PSI). If test–retest reliability of a norm group was not available, Cronbach’s alpha of a norm group was used (VGFO, IM-P, FFMQ, SCS-3)

was 26%, with a range of 11% to 47%. At 2-month follow-up, the average percentage of children that showed significant improvement was 17%, with a range of 13% to 20%, and the average percentage of mothers that showed significant improvement was 37%, with a range of 13% to 65%. At 8-month follow-up, the average percentage of children that showed significant improvement was 9% (9% for both outcomes), and the average percentage of mothers that showed significant improvement was 44%, with a range of 22% to 60%.

Discussion

In this study, we aimed to evaluate Mindful with your toddler, a mindful parenting training for mothers with toddlers aged 18 to 48 months with (co-)regulation problems. We hypothesized that Mindful with your toddler would be feasible and acceptable for participants, and would improve objective indicators of maternal sensitivity and acceptance of the child, as well as subjectively measured child dysregulation and psychopathology, maternal overreactivity, parenting stress, sense of incompetence in parenting, maternal internalizing and externalizing psychopathology, partner relationship, mindfulness, and self-compassion.

The results suggest that Mindful with your baby was a feasible and acceptable program for mothers and toddlers with regulation problems. Drop-out (9%) and attendance rates (84%) were acceptable. Our clinical impression was that some mothers did experience anxiety about bringing in their toddlers and were worried about problem behavior they may show in the group. This did not withhold the mothers to come to the training, but it was a topic of conversation and inquiry during the training. Participants rated the training as a whole as very important, with an average of 8.7 (scale 1–10).

Observed maternal sensitivity increased during the training (medium effect size), while it did not during the waitlist period. Other studies on the effectiveness of mindful parenting trainings showed that parents recognized changes in their parenting qualities (Bögels et al. 2014; Potharst et al. 2017). The current study confirmed this improvement with more an objective measure of maternal sensitivity, objective in the sense of measuring observed behavior by raters who were blind to measurement occasion. The effect size that was shown in the current study is comparable to the change that was seen in studies on interventions that focus exclusively on improving maternal sensitivity (i.e., interventions that also target other parenting abilities/problems typically show lower effect sizes; Bakermans-Kranenburg et al. 2003). Although

the Mindful with your toddler program did not target sensitive parenting behavior specifically, the training may have provided the mothers with attitudinal qualities and coping tools necessary to become more sensitive. That is, the program focused on training mothers' stress/self-regulation next to training their awareness of the child's signals (which is an essential component of sensitive parenting; Ainsworth et al. 1974). The focus on the child's signals was not only with the aim of reacting more sensitively but also directed at becoming aware of what effect those signals had on them, in order to postpone reactivity. It is clear from other studies that stress reduces people's ability to take another individual's (i.e., the child's) perspective (e.g., Luyten and Fonagy 2015). It may be necessary for mothers with (co-)regulation problems to receive tools for coping with their own stress in order to subsequently become able to respond to the child's signals in an attuned way. The combination of focusing on stress reduction and awareness of the child's cues and their effects could thus be beneficial and not necessarily downgrade the intervention effects on sensitivity. Future studies should address to what extent these two parental features (awareness of self, awareness of other) affect each other throughout the training, and whether the awareness of self reinforces a more functional awareness of the other and thus a better sensitivity.

Observed maternal acceptance of the child also increased during the training (medium to large effect), while it did not change in the waitlist period. The effect size of acceptance was slightly larger than the effect size of sensitivity (Cohen's d was 0.74 and 0.57, respectively). The acceptance ratings may capture mindful parenting qualities better than the sensitivity ratings: it encompasses for example patience and acceptance of both feelings (positive and negative) and initiatives of the child. Mothers also repeatedly practice not only with paying attention on purpose but also with a certain attentional quality that encompasses a sense of acceptance.

Other examples of intervention programs that aim to improve parent–child interaction child regulation and that have shown to be effective are Parent–Child Interaction Therapy (PCIT; McNeil and Hembree-Kigin 2010) and the Attachment and Biobehavioral Catch-up Intervention (ABC; Dozier et al. 2005). When Mindful with your toddler is compared to these interventions, an important similarity is the emphasis on the importance of looking at the child's signals. The main difference lies in the behavioral components of the programs. In PCIT and ABC, parents are taught to exhibit and receive feedback on certain parenting behaviors; the explicit goal is behavioral change in parents. In Mindful with your toddler, the emphasis is on awareness of the self and the child, and on acceptance of the inner experience of both the self and the child. Behavioral change is not instructed, but may arise spontaneously out of this heightened awareness and acceptance. In future research, it may be interesting to compare these

two strategies and the working mechanisms, and look at what the added value of one of the two might be to the other.

Maternal sensitivity and acceptance is found to support children's development of self-regulation (Bernier et al. 2010; Kochanska et al. 2000). In the current study, improvement of child psychopathology was observed as well as a delayed improvement of child dysregulation. Both improvements were maintained at 8 months. Statistically correcting for the age of the child did not make a difference in these effects. The difference in behavior in the children was reported by the participants of the training only, which makes it possible that merely a change in perception by the mother was measured. Although such a change in perception is also a favorable outcome, it is important to include more objective measures of child dysregulation and psychopathology in future research, such as partner or professional caregiver rating, or observation measures.

Maternal stress and sense of incompetence showed a delayed improvement, but the significant decrease at 2-month follow-up did last up to 8-month follow-up. A delayed effect on parenting stress was also seen in a study on the effectiveness of Mindful with your baby (Potharst et al. 2017). Parental overreactivity did not decrease significantly during or after the Mindful with your toddler training. Other studies have found that overreactivity in mothers increases in the toddler years (e.g., Lipscomb et al. 2011). An increase in overreactivity with age of the child may have prevented a significant improvement. There was a decrease in self-rated internalizing psychopathology over time. This was not the case for externalizing psychopathology. However, the average externalizing score was in the normal range before the training already. This was also the case for partner relationship: the average score was in the normal range before the training and no significant improvements during or after the training. The fact that the partner does not have an active role in the training may be due to this. Future research could examine the feasibility and acceptability of Mindful with your toddler for (groups of) couples and their child, or of the effects of an additional Mindful with your baby or toddler for fathers.

Of the three mindful parenting abilities that were reported in this study, Listening with full attention, Compassion for the child, and Non-judgmental acceptance of parental functioning, only Listening with full attention was improved at all three measurement occasions. Possibly, this ability is strengthened by the meditation in which mothers watch their child with full attention. The average score on Compassion for the child was already relatively high at pretest and did not improve significantly during or after the training, just as in a previous the study on Mindful with your baby (Potharst et al. 2017).

Self-compassion and non-judging of inner experience may be seen as indices for the relationship with the self (Neff 2003b). Directly after the training, these outcomes improved, and they continued to improve in the next months after the

training. So, not only did mothers become more sensitive to and accepting of their children but also to and of themselves. Probably, the fact that the training is given in a group helps, which supports the mothers to recognize common humanity. Given the fact that these mothers show sustained improvement in self-compassion and non-judging of inner experience, they do not seem to need the group in the longer term to be more kind to themselves. Long-term improvements (not only seen in the average scores of the group as a whole but also in the percentages of mothers that showed improvement in the follow-up period) are also seen on acting with awareness and non-reactivity. This means that the mothers show sustained ability to be aware of what they do, and are allowing of the experiences they have, without being carried away by them.

Limitations

The findings of the current study should be interpreted considering the following limitations. Although this study did encompass a within-person waitlist, participants were not randomized between waitlist and intervention, which limits conclusions that can be drawn about the effectiveness of the training. This study did encompass objective measures of parental qualities in the participants (observed sensitivity and acceptance), but did not include objective measures of child functioning. Future research could encompass both behavior observation and multi-informant approaches. A further recommendation is to follow-up on the change in sensitivity and acceptance on a longer term. The sample size of the current study was small. Replications with larger sample sizes are needed to confirm study outcomes. Larger sample sizes may also offer possibilities to examine working mechanisms (e.g., perform moderator effects). Another limitation is that a large proportion of participants (72% of the research participants) received other forms of psychological or pedagogic support during the training, which makes it unclear whether improvements in functioning during the Mindful with your toddler training can be attributed solely to this training. However, a similar proportion of participants received (73%) this kind of support in the waitlist period, and no significant changes were observed from the waitlist to pretest measurements. This supports the idea that Mindful with your toddler was of added value besides the other support that mothers received.

In conclusion, this study offered the Mindful with your toddler training to mothers and toddlers with (co-)regulation problems, and provided initial evidence supporting that Mindful with your toddler has the potency to improve maternal co-regulatory abilities (improved observed sensitivity and acceptance toward their toddler), maternal self-regulation (improved internalizing psychopathology, non-reactivity, non-judging of inner experience, and self-compassion), and toddler self-regulation (improved dysregulation and psychopathology). Improved (co-)regulation in the mother–toddler

dyad may have decreased maternal parenting stress and lack of confidence. Future studies should repeat the current study in a larger sample in order to examine the possible working mechanisms of the training.

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Author Contributions E.S.P.: designed the study, supervised the administration of questionnaires, analyzed the data, and wrote part of the paper. M.Z.: collaborated with the design, coordinated and supervised the (coding of the) video observations, and wrote part of the paper. S.M.B.: collaborated with the design, writing, and editing of the final manuscript.

Compliance with Ethical Standards

The study was approved by the Ethics Committee of the University of Amsterdam, and written informed consent was obtained from all mothers included in the study. Regarding conflicts of interest: S.M.B. is shareholder of the clinic where the data collection took place, E.S.P. published a book in Dutch for parents about, and with the title Mindful with your baby.

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