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Mindful Parenting Training in a Clinical Versus Non-Clinical Setting: An Explorative Study

Eva S. Potharst¹ · Jeanine M. D. Baartmans^{1,2} · Susan M. Bögels^{2,3}

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Abstract

Mindful parenting (MP) as a group-based training for parents of clinically referred children with psychopathology has shown to effectively reduce child and parent mental health problems. This study investigated the effects of MP as a “preventive” intervention for parents who experienced parental stress or problems in parenting (non-clinical setting) compared to MP as a “curative” intervention (clinical setting). Parents from a non-clinical setting ($n = 98$, 18% fathers) and a clinical setting ($n = 87$, 21% fathers) completed questionnaires about themselves, their partner relationship, and their child at waitlist (non-clinical setting only), pre-test, post-test, and 8-week follow-up. Before the intervention, the children of parents in the non-clinical setting, as expected, showed higher well-being and lower behavior problems, but parental stress levels, parental overreactivity, mindful parenting, partner relationship, and parental well-being were no different in the clinical and preventive group pre-intervention. No improvement was observed at waitlist, except for parental well-being, while improvement on parent and child functioning measures did occur after MP. No differences in MP effects in both settings were found in improved parental functioning (parental stress, overreactivity, mindful parenting, partner relationship, and well-being [small to medium effect size improvements]) and child functioning (well-being and behavior problems, small effect size improvements). Improvements in child functioning were associated with improved mindful parenting. Results suggest that MP training may be an effective intervention not only for families of children referred to mental health care because of child mental disorders but also for parents who experience parental stress or parenting problems as it is.

Keywords Mindful parenting · Parenting intervention · Prevention · Parental stress · Behavior problems

Introduction

In the past decades, evidence is growing about how the quality of the parent–child relationship affects the child’s developing brain and, thus, on its social, emotional, and cognitive

development (Siegel and Hartzell 2003). An important factor impacting on the parent–child relationship is parental stress (Crnic et al. 2005). Neece et al. (2012) found evidence for a transactional relationship between child behavior problems and parenting stress, which implicates that both can be targets of change for intervention. They conclude that compared to the evidence of the effectiveness of parenting behavior intervention on child behavior problems (Kaminski et al. 2008; Lundahl et al. 2006a, b), there is still little research of whether and how programs aimed at reducing parenting stress affect child behavior problems. Developing programs aimed at reducing parental stress is extra important, because child behavior problems or other difficulties are not the only factors contributing to parental stress; parent characteristics, family circumstances, and life events influence parenting stress (Leigh and Milgrom 2008; Nair et al. 2003). Regardless of the causes of parental stress in a family, a parenting stress reduction intervention may be beneficial for the child’s development, including the child’s behavior problems. A growing body of

✉ Susan M. Bögels
S.M.Bogels@uva.nl

¹ UvA Minds, Academic Outpatient (Child and Adolescent) Treatment Center of the University of Amsterdam, Amsterdam, The Netherlands

² Department of Developmental Psychology, University of Amsterdam, Nieuwe Achtergracht 127, 1018 WS Amsterdam, The Netherlands

³ Research Institute of Child Development and Education, University of Amsterdam, Nieuwe Achtergracht 129-B, 1018 WS Amsterdam, The Netherlands

research has shown that practicing mindfulness meditation reduces different forms of stress (Goyal et al. 2014).

Mindful parenting training is a novel area of application of mindfulness, which may be beneficial not only to the practicing parents but also to their developing children and the families as a whole (Bögels et al. 2014; Meppelink et al. 2016). Kabat-Zinn and Kabat-Zinn (1997) introduced the term mindful parenting and defined it as “the ongoing process of intentionally bringing moment-to-moment, non-judgmental awareness as best one can to the unfolding of one’s own lived experience, including parenting.” Duncan et al. (2009) described how this intentional, non-judgmental awareness can be practiced and take shape in a parent–child relationship, for example by listening with full attention to the child, by learning to become aware and regulate emotions that arise in interactions with the child, and by cultivating feelings of compassion and acceptance both towards oneself and the child. Bögels et al. (2010) examined possible mechanisms of change through which change in parent–child interactions is brought about. They hypothesized that mindfulness may reduce parental stress, which may in turn improve parenting skills. Other possible mechanisms of change they suggested were an improvement of parental executive functioning, an improvement of parents’ ability to take care of themselves, a reduction in parental negative bias, and an improvement in parental sensitivity.

The above-mentioned statement implies that mindful parenting could be beneficial for all parents who experience parental stress or parenting difficulties. Until now, however, research on applying mindfulness in parenting has primarily focused on the effectiveness for parents with a child suffering from behavior problems or developmental disabilities (e.g., Benn et al. 2012; Dykens et al. 2014). Studies on mindfulness training for parents with a child with behavior or developmental problems often show positive effects not only for the parents (decreased stress) but also to the children’s behavior (e.g., Neece 2014; Singh et al. 2014). Mindfulness has also been applied for parents who had mental illness themselves (recurrent depression, Bailie et al. 2012).

Bögels and Restifo (2013) adapted the mindfulness-based stress reduction (MBSR) training (Kabat-Zinn 1990) and mindfulness-based cognitive therapy (MBCT) (Segal et al. 2002, 2012) into a manualized mindful parenting training in which parents are offered mindfulness and mindful parenting techniques but do not receive parenting intervention or behavioral advice concerning parenting. In child mental health settings, this training has been shown to successfully decrease parental stress and parent and child psychopathology, and the effects were maintained or even improved after a follow-up period of 8 weeks (with moderate effects on parenting stress and parental psychopathology and small to moderate effects on child psychopathology (Bögels et al. 2014; Meppelink et al. 2016). Even though parents were given no advice on their parenting, they reported improved parenting skills (increased

autonomy encouragement and decreased overprotection and rejection, Bögels et al. 2014, and decreased parental overreactivity, Meppelink et al. 2016). Moreover, improvement in mindful parenting was found to mediate improvement of children’s psychopathology, whereas improvement in general mindfulness mediated improvement in parental psychopathology, but not in child psychopathology (Meppelink et al. 2016). These mediation results suggest that a mindful parenting course rather than a general mindfulness course is desirable for parents of children referred with psychopathology. This mindful parenting training has not been studied in a non-clinical setting yet.

Mindfulness training for parents in a non-clinical setting, aimed at reducing parental stress and parenting problems and risks for child problem behavior, has received little research attention. So far, two studies incorporated mindfulness into preventive parent intervention programs, examining the additional value of mindfulness (Coatsworth et al. 2015; Duncan et al. 2009). Duncan et al. (2009) offered a preventive behavioral intervention that was adapted by including mindfulness and mindful parenting practices (mindfulness-enhanced strengthening families program (MFSP): for parents and youth 10–14) to nine parents of five girls that were attending sixth grade. Parents described the mindfulness elements in the program as acceptable and helpful. One of the reported benefits was an improved emotion regulation of the parents. Coatsworth et al. (2015) performed a randomized controlled trial (RCT) in which they offered either the regular strengthening families program (SFP) or the mindfulness-enhanced version of the same program to 432 families. In comparison to SFP, the results of MFSP were sustained longer, especially for fathers. These studies underscore that mindfulness could be useful for parents in a non-clinical setting but have not investigated mindfulness as a separate intervention.

Parenting interventions that are not mindfulness-based are mostly behavioral interventions and are directed at parents of children with externalizing behavior (Lundahl et al. 2006a; McCart et al. 2006; Kaminski et al. 2008) and the prevention of child behavior problems (Durlak and Wells 1997) or child abuse (Lundahl et al. 2006b). Meta-analyses showed that effect sizes of most parenting interventions were small to moderate (Lundahl et al. 2006a; Lundahl et al. 2006b; McCart et al. 2006). However, parenting interventions are less effective when child problem behavior is mild (Leijten et al. 2013) and primary preventive interventions have shown to be not effective (Durlak and Wells 1997). Possibly, a focus on influencing a child’s behavior and dealing with problem behavior (which are important elements of behavioral interventions) is less appropriate in the prevention of problem behavior. Because of the finding that not only child behavior and characteristics but also parent characteristics, family circumstances, and life events influence parenting stress (Leigh and Milgrom 2008; Nair et al. 2003), and because parenting stress may have a negative effect on child behavior, a mindfulness-

based intervention aimed at reducing parenting stress may prevent children from developing behavior problems.

In the current study, the effectiveness of the mindful parenting training was examined in a preventative context. We were invited by the municipal of Haarlem to offer mindful parenting in a non-clinical setting. The municipal assumed that offering parents mindful parenting irrespective of whether their child was suffering from psychopathology could have a preventive effect and as such reduce child mental health care costs. This question resulted from a huge transformation of the mental health care system in the Netherlands, in which mental health care for children with mental disorders is no longer covered by health insurance companies, but by municipals, and an important goal of this transformation was to reduce mental health care costs by investing more in prevention and less in treatment of mental health problems in youth. Costs of delivering the mindful parenting training were covered by the municipal. In this study, we aim to evaluate the feasibility, acceptability, and effectiveness of the mindful parenting training in a non-clinical setting, compared to a clinical setting in which the feasibility, acceptability, and effectiveness have been established. A quasi-experimental design was used, so that parents who had to wait at least 5 weeks before the training started, completed waitlist assessments, and all parents completed a pre-test, 8 weeks later (after the end of the mindful parenting course) a post-test, and 8 weeks later a follow-up test. At every measurement point, assessments included parent-rated questionnaires on parental stress, parental overreactivity, parental well-being, mindful parenting, partner relationship, child well-being, and child behavior problems. Lastly, we aim to replicate previous findings regarding the association between improvement in child functioning and improvement in mindful parenting.

Method

Participants

A total of 247 parents participated in a mindful parenting training: 119 of them in a non-clinical setting and 128 in a clinical setting. Post-hoc power analyses was done to determine the power of the current sample size, given the effect size of the main outcome parental stress at post-test (power = 0.994). Of the parents participating in a non-clinical setting, 73 (61%) participated in location A, 36 (31%) in location B, 5 (4%) in location C, and 5 (4%) in location D. Training in location A and one of the three trainings in location B were covered by two different municipals, while for the other two trainings in location B and the training in locations C and D, parents had to carry the costs themselves. Of the parents participating in a clinical setting, 55 (43%) participated in location E, 43 (34%) in location F, 17 (13%) in location G, and 13

(10%) in location H. For all participants in a clinical setting, costs of the training were covered by a municipal or health insurance company. The trainings started between October 2014 and March 2017.

Inclusion criteria for the non-clinical setting were the experience of parental stress or parenting problems. Parents signed in on their own initiative or were referred to the training by the municipal general children's health clinic. A short telephone interview was held to screen for motivation and assess goals for the training and ability to participate in the training and do the homework. Exclusion criteria were a current unsafe situation for the child, suicidality or psychosis in the parent, untreated physical or sexual abuse in the parent, or an estimated parental IQ < 80. In the clinical group, participants were allowed into the mindful parenting training if their child was in treatment in an outpatient mental health clinic or when he/she had a diagnosis with which he/she could be admitted in this clinic. Parents were referred to mental health clinic by a general practitioner or (child) psychologist. The parents came to the clinic for a screening and preparation for the training. Exclusion criteria were the same as in the non-clinical setting. Parents of (young) adults were also welcome in both settings when they still experienced parental stress or parenting problems.

Ninety eight (82%) of the parents in a non-clinical setting and 89 (70%) of the parents in a clinical setting participated in the research. All participating parents signed informed consent. Of the research participants in the non-clinical setting ($M_{age} = 42.4$, $SD = 6.9$), 18 (18%) were male and 80 (82%) female, and in the clinical setting ($M_{age} = 43.8$, $SD = 6.1$), 18 (20%) were male and 71 (80%) female. Of the participants in the non-clinical setting, 88 (90%) were Dutch, three (3%) Caucasian, four (4%) non-Caucasian, and three (3%) unknown. Of the participants in the clinical setting, 77 (88%) were Dutch, five (6%) Caucasian, and six (7%) non-Caucasian. Regarding parental level of education, in the non-clinical setting, 38 (39%) participants had a Master's degree, 40 (41%) a Bachelor's degree, six (6%) an Associate's degree, seven (7%) had high school, and for seven (7%), the level of education was unknown. In the clinical setting, 19 (21%) had a Master's degree, 33 (37%) a Bachelor's degree, 15 (17%) an Associate's degree, 18 (20%) high school, and for four (5%), the level of education was unknown. Parental level of education was higher in the non-clinical setting ($\chi^2(3) = 15.52$, $p < 0.001$). Of the research participants in the non-clinical setting, 19 (19%) participated with their partner. The uneven number of 19 means that one of the participants participated in the training with a partner, but that the partner did not participate in the research. Of the research participants in the clinical setting, 26 (30%) participated with their partner. These 26 parents belong to 14 families instead of 13, because two parents participated in the training with a partner, but the partner did not participate in the research.

Regarding the family situation in the non-clinical setting, in 60 (67%) families, the family consisted of two parents and child(ren), in 17 (19%) of one parent and child(ren), in seven (8%) of a parent, a step parent, and child(ren), in one (1%) of two parents and a foster child, in one (1%) of one parent and a foster child, and in one (1%) family, the parents did have a relationship but did not live together in one house. In the clinical setting, in 41 (53%) families, the family consisted of two parents and child(ren), in 21 (27%) of one parent and child(ren), in seven (9%) of a parent, a step parent, and child(ren), and in one (1%) of two parents and a foster child. In two (2%) and seven (9%) of the participants in the non-clinical and clinical setting, respectively, the family situation is unknown. The number of children in the non-clinical and clinical setting was one in 19 (21%) and 12 (16%) families, two in 44 (49%) and 36 (47%) families, three in 20 (23%) and 19 (25%) families, four or more in two (2%) and three (4%) families, and was unknown in four (5%) and seven (9%) families, respectively. Participants from both settings did not differ significantly in social background characteristics, except for age of the child the questionnaires were completed about, which was higher in the clinical setting ($M_{\text{age}} = 8.9$, $SD = 5.4$, range 1.0–35.3 in the non-clinical setting and $M_{\text{age}} = 11.7$, $SD = 4.4$, range 2.6–25.4 in the clinical setting, ($t(154) = 3.44$, $p = 0.001$, 95% CI [1.16, 4.30], $d = 0.55$). The children in the clinical settings had the following diagnoses: 24 (31%) attention deficit and hyperactivity disorder, 18 (23%) autism spectrum disorder, eight (10%) disorder of infancy, childhood, or adolescence not otherwise specified, four (5%) anxiety disorder, three (4%) post-traumatic stress disorder, one (1%) mood disorder, one (1%) obsessive compulsive disorder, one (1%) oppositional defiant disorder, one (1%) intermittent explosive disorder, and for 16 children (21%), diagnosis was unknown. Diagnoses of the children were obtained by clinical assessment and confirmed by a multidisciplinary clinical staff.

Procedure

Design 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 mindful parenting training. The mean waiting time for those who had to wait was 7.0 weeks ($SD = 1.1$). Pre-test assessment was administered in the week before the start of the training. Post-test and follow-up assessments were administered directly after and 8 weeks after the training, respectively. Of the 98 research participants in the non-clinical setting, 18 (18%) completed the waitlist, 91 (93%) pre-test, 73 (74%) post-test, and 70 (71%) follow-up measurement. Of the 88 research participants in the clinical setting, 79 (90%) completed the pre-test, 56 (64%) post-test, and 48 (55%) follow-up measurement. Waitlist assessments of participants in the clinical setting were not included in the

current study, because of the low response rate of 4 (5%) participants and thus insufficient power for inclusion in the analyses, and because differences between waitlist and pre-test in the clinical setting have already been studied (Bögels et al. 2014). Questionnaires were completed at home via the Internet by the participating parent(s) (duration approximately 30 min per assessment moment). When completing the questionnaires for the first time, parents were asked to answer the questions with one of their children in mind (when they had more than one) and choose the child they experienced most difficulties with. In the following measurement occasions, parents were asked to keep that same child in mind when completing the questionnaires.

Interventions The mindful parenting training that was offered in the clinical settings has been described extensively in Bögels and Restifo (2013). This training is based upon MBSR and MBCT but adapted to the themes and needs that arise for parents that experience stress in parenting. The course existed of eight weekly 3-h sessions and a 3-h follow-up session 8 weeks after the last session of the training. Location E adjusted the length of the sessions of one group ($n = 12$) to 2.5 h. The preventive mindful parenting training was based upon the original mindful parenting training (Bögels and Restifo 2013) but was adapted somewhat for the non-clinical setting. The sessions were shorter (2 h), and no follow-up session was offered. However, location D ($n = 5$) offered sessions of 3 h, location B ($n = 36$) offered sessions of 2.5 h, and locations B and D ($n = 5$) did offer a follow-up session. Because of time constraints, some exercises were omitted, some were shortened, and some were offered as home practice only. Parents were offered the possibility to use shorter meditation audios for homework practice (10 to 20 min, rather than 15 to 45 min in the clinical setting). Trainers in both settings were mental health professionals, experienced in working with parents. Before running their own mindful parenting trainings, they had received basic training in mindfulness and completed an 8-day advanced teacher training in mindful parenting led by Susan Bögels and Joke Hellemans.

Measures

Parental Stress Parental stress was measured via the Dutch questionnaire Opvoedingsbelastingvragenlijst (OBVL; parental stress questionnaire; Veerman et al. 2014). The OBVL consists of 35 items rated on a 4-point Likert scale, ranging from 1 (does not apply) to 4 (applies completely). Parental stress is regarded as clinical and subclinical when T scores exceed 59 and 63, respectively. The OBVL consists of the following five subscales: problems in the parent–child relationship, problems with parenting, depressed mood, restriction of roles, and health complaints. Examples of items of each of the subscales are the following: “I feel happy with my child,” “My child listens to me,”

“I often have a bad mood,” “Because of my child, I have little contact with other people,” and “My stomach is upset.” Subscales are regarded as clinical and subclinical when they exceed 64 and 69, respectively. The OBVL showed satisfactory reliability and validity (Veerman et al. 2014). The current study showed an internal consistency (Cronbach’s alpha) of the total score of 0.92 at pre-test, and Cronbach’s alphas for the subscales were 0.91, 0.87, 0.86, 0.89, and 0.87, respectively. Internal consistency at post-test was 0.93 for the full scale and 0.91, 0.86, 0.88, 0.88, and 0.81 for the subscales, respectively. At follow-up, it was 0.94 for the full scale and 0.91, 0.85, 0.90, 0.90, and 0.86 for the subscales, respectively.

Parental Overreactivity The Dutch version of the subscale overreactivity of the parenting scale (Arnold et al. 1993) was used to measure parental overreactivity. This subscale consists of 10 items that are rated on a 7-point Likert scale presented between two counterparts. An example of an item (with both counterparts) is “When my child misbehaves,” “I raise my voice and yell,” and “I speak to my child calmly.” The parenting scale shows adequate reliability and validity (Arnold et al. 1993). The current study showed an internal consistency of 0.82 at pre-test, 0.82 at post-test, and 0.87 at follow-up.

Mindful Parenting To measure mindful parenting, the short form of the Dutch version (De Bruin et al. 2014) of the interpersonal mindfulness in parenting scale (IM-P; Duncan 2007) was used. Of the original 31-item self-report questionnaire, 10 items from four subscales (Listening with full attention, Compassion for the child, Non-judgmental acceptance of parental functioning, and Emotional non-reactivity in parenting) of the IM-P were administered. Subscales are not presented separately. The items were scored on a 5-point Likert scale, ranging from 1 (never true) to 5 (always true). An example of an item is “I am aware of how my moods affect the way I treat my child.” A Dutch validation study showed satisfactory reliability and validity of the full scale (De Bruin et al. 2014). In this study, internal consistency was 0.62 at pre-test, 0.60 at post-test, and 0.61 at follow-up.

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. The subscale Partner relationship consists of 5 items that are rated on a 4-point Likert scale, ranging from 1 (does not apply) to 4 (applies completely). An example of an item is “I feel supported by my partner in taking care of the children.” Subscales are regarded as clinical and subclinical when they exceed 64 and 69, respectively. In the current study, internal consistency was 0.93 at pre-test, 0.92 at post-test, and 0.89 at follow-up.

Parental Well-Being Parental well-being was measured using the Dutch version of the Well-Being Index WHO-5 (Hajos et al. 2013; World Health Organization 1998). The WHO-5 consists of 5 items that are rated on a 6-point Likert scale, ranging from 0 (totally not) to 5 (constantly). Scores are summated and multiplied by 4, to transform to a percentage (0–100) scale. A score of 50 or below and 28 or below is regarded as a subclinical (low mood) and clinical score (depression), respectively. An item example is “Over the last two weeks, I have felt calm and relaxed.” A recent systematic review of the literature on the WHO-5 showed that the WHO-5 has high clinimetric validity, can be used as an outcome measure in studies evaluating interventions, can be applied across study fields, and is a sensitive and specific screening tool for depression (Topp et al. 2015). In the current study, the internal consistency was 0.86 at pre-test, 0.89 at post-test, and 0.87 at follow-up.

Child Well-Being Child well-being was measured using an adapted version of the Dutch version of the Well-Being Index WHO-5 (Hajos et al. 2013; World Health Organization 1998), so that the items did not apply to the experience of the parent self, but to experience of the child, as observed by the parent. In the current study, the internal consistency (Cronbach’s alpha) was 0.86 at pre-test, 0.88 at post-test, and 0.88 at follow-up.

Child Behavior Child behavior was measured using the Dutch version (Van Widenfelt et al. 2003) of the Strengths and Difficulties Questionnaire for parents of children between ages 2 and 4 or between ages 4 and 17 (SDQ P2-4 and P4-17; Goodman 1997). The SDQ consists of 25 items about positive and negative behaviors of the child that are rated on a 3-point Likert scale, ranging from 1 (not true) to 3 (certainly true), and an impact supplement of 8 questions. Total problem score is based on four subscales: Emotional symptoms, Conduct problems, Hyperactivity/inattention, and Peer relationship problems. A score between 14 and 17 is regarded as subclinical, and a score above 17 is regarded as a clinical score. Internal consistence and validity were shown to be acceptable and good, respectively, in a Dutch community sample (Van Widenfelt et al. 2003). In the current study, the internal consistence of the total problem score was 0.77 at pre-test, 0.81 at post-test, and 0.81 at follow-up.

Data Analyses

The clinical and non-clinical groups were compared regarding sociodemographic variables and evaluation ratings, using independent *t* tests and chi-square tests. Dropouts (of the training and of the research) and other participants were compared regarding sociodemographic variables and outcomes at pre-test, using *t* tests and chi-square tests. Differences between

waitlist and pre-test were only analyzed in the non-clinical group, due to a low sample size ($n = 4$) in the clinical group; paired t tests were used for these analyses. Differences in odds for a (sub)clinical score over time and between the settings were analyzed using generalized estimating equations. Inspection of outcome distributions (of difference scores post-test minus pre-test) indicated sufficient normality; skewness and kurtosis of all variables were $< |3.5|$, except for OBVL and subscale health complaints of the OBVL. Of these (sub)scales, two and three outliers ($> 3.29 SD$ or $< -3.29 SD$) were replaced by the next most extreme value at the end of the distribution of the difference scores. Differences between the clinical and non-clinical setting on the outcome measures (main effect of setting), difference between the measurement occasions pre-test and post-test and pre-test and follow-up (main effect of time using dummy codes), and differences in improvements over time between settings (interaction effect of setting \times time) were tested using multilevel regression models that are known to accommodate missing data (Bagiella et al. 2000; Krueger and Tian 2004). The structure of the multilevel models for both parent and child outcomes consisted of the repeated measurements of these outcomes across 3 measurement points (pre-test, post-test, and follow-up), the variable setting, and an interaction variable (setting \times time [measurement occasion]), nested within parent–child dyads. The intercept was a fixed effect, along with other predictors. Because outcomes of the non-clinical setting were of primary interest in this study, we used the non-clinical setting as a reference, so that parameter estimates of measurement occasions could be interpreted as effect size for this setting. For variables that were significantly different between the settings (age of the children and level of parental education) and for variables that could be expected to influence the results of the training (training location and costs of the training paid for by the parents themselves), we checked whether these were of influence in the outcome of the training. We did this by adding interaction terms (time [measurement occasion] \times child age/level of parental education [dichotomized variable with Master’s and Bachelor’s degrees coded as “high” and all other levels as “low to medium”] / location of training/training paid for by the parents themselves) as control variables besides the other independent variables to the multilevel analyses. Of these four control variables (interaction terms child age/level of parental education \times measurement occasion), only significant effects were retained in the models. Scores on all outcomes were standardized across assessments, which makes it possible to interpret parameter estimates as an effect size. For all main effects, a Cohen’s d was calculated additionally. In order to include all research participants into these calculations of Cohen’s d , we used multiple imputation. When parents of the same child(ren) both participated in a training, the questionnaires they filled in about themselves were included for both parents. Of the questionnaires they

completed about the child, either the score of the parent that completed most of the measurement points was used or when both parents completed the same measurement points, an average score of both parents was calculated and included into the analyses. This was done, after it was checked whether sex of the parents was of influence, either as a main effect or in interaction with measurement occasion; this was not the case for both child outcomes. The last hypothesis (whether improvements in children are associated with improvements in mindful parenting) was tested by adding an interaction term (difference scores of mindful parenting [post-test minus pre-test] \times time) as a fixed effect in the multilevel models predicting the development of child functioning. Effects were regarded as significant when $p < 0.05$.

Results

In the non-clinical setting, 18 (15%) parents dropped out of the training (that is, missing 3 or more of the 8 weekly sessions), and in the clinical setting 15 (12%). This difference was non-significant ($n = 247$, $\chi^2(1) = 0.43$, $p = 0.619$). Only one participant that dropped out of the training still completed questionnaires at post-test and/or follow-up. Regarding social background characteristics, there was no difference between dropouts and participants that finished the training, except for level of parental education (parents with a low/medium level of education dropping out more often than parents with a high level of education ($n = 247$, $\chi^2(1) = 14.62$, $p < 0.001$). Regarding outcome measures at pre-test, no differences between dropouts and other participants were revealed.

Dropout rates of the research participants, defined as finishing the training but missing both post-test and follow-up, were 3 (4%) in the non-clinical and 21 (25%) in the clinical setting. This difference was significant ($n = 170$, $\chi^2(1) = 16.22$, $p < 0.001$). Among participants that finished the training, there were no differences in sociodemographic characteristics between research drop-outs and participants that did complete post-test and/or follow-up. Regarding outcome measures at pre-test, research dropouts had lower scores than participants that did complete post-test and/or follow-up on problems with parenting ($n = 156$, $t(153) = -3.07$, $p = 0.003$, 95% CI $[-4.53, -0.98]$, $d = 0.73$) and overreactivity ($n = 157$, $t(155) = -2.67$, $p = 0.008$, 95% CI $[-9.84, -1.46]$, $d = 0.63$), and higher scores on mindful parenting ($n = 157$, $t(155) = 2.07$, $p = 0.040$, 95% CI $[0.08, 3.28]$, $d = 0.51$).

Acceptability of the program was high, which was shown by the results of the evaluation questionnaire administered at post-test (see Table 1). The training was evaluated with a mean score of 8.1 in the non-clinical setting and 7.9 in the clinical setting (scale 1–10). There were no significant differences in the evaluation between the settings, except for a difference in experienced helpfulness of a visualization exercise about

Table 1 Questions about need for support at pre-test and post-test, evaluation of the training at the post-test, and questions about time spent on meditating at post-test and follow-up measurement by setting

	Non-clinical setting				Clinical setting				t/χ^2
	$n = 65$	$n = 68-69$	$n = 51$	$n = 57-58$	$n = 51$	$n = 57-58$	$n = 51$	$n = 57-58$	
<i>Need for support at posttest</i>									
Do you feel a need for further support? (open-ended question, answers were coded according to four categories)	33 (51%)	7 (11%)	20 (39%)	14 (24%)	7 (11%)	20 (39%)	12 (24%)	5 (10%)	7.38†
<i>Evaluation at posttest</i>									
How helpful was for you the ...									
Sitting meditation	1 (2%)	3 (4%)	0 (0%)	A little	Do not know	0 (0%)	A little	Very	Do not know
Body scan	2 (3%)	3 (4%)	0 (0%)	14 (21%)	3 (4%)	0 (0%)	10 (18%)	46 (81%)	1 (2%)
3-min breathing space	1 (1%)	4 (6%)	0 (0%)	21 (31%)	3 (4%)	1 (2%)	18 (31%)	38 (66%)	1 (2%)
Walking meditation	14 (21%)	34 (50%)	11 (19%)	4 (6%)	2 (3%)	0 (0%)	5 (9%)	52 (90%)	1 (2%)
Yoga	10 (15%)	23 (33%)	4 (7%)	34 (50%)	6 (9%)	11 (19%)	21 (36%)	22 (38%)	4 (7%)
Self-compassion meditation	3 (4%)	15 (22%)	3 (4%)	23 (33%)	4 (6%)	4 (7%)	21 (36%)	27 (47%)	6 (10%)
Visualization about stress	5 (7%)	16 (23%)	3 (4%)	15 (22%)	3 (4%)	3 (5%)	14 (24%)	37 (64%)	4 (7%)
Visualization about conflict	5 (7%)	12 (17%)	2 (3%)	16 (23%)	14 (20%)	1 (2%)	26 (46%)	19 (33%)	11 (19%)
Visualization about boundaries	5 (7%)	12 (17%)	2 (3%)	12 (17%)	11 (16%)	2 (3%)	7 (12%)	41 (70%)	8 (14%)
Do you use what you have learned in daily living?	5 (7%)	12 (17%)	1 (2%)	12 (17%)	10 (15%)	1 (2%)	14 (24%)	33 (57%)	10 (17%)
	<i>Likert scale 1 (not at all)–7 (very much), M (SD)</i>								
	5.5 (1.2)								
Would you recommend the training to friends or family?	6.4 (.8)								
What grade would you give ...	8.1 (.9)								
The training as a whole	8.3 (1.0)								
<i>Time spent on meditating at post-test</i>									
How often did you on average meditate at home during training?	0 times	> 4 times	0 times	1–2 times	> 4 times	0 times	1–2 times	3–4 times	> 4 times
	3 (4%)	18 (26%)	4 (7%)	28 (41%)	18 (26%)	4 (7%)	18 (31%)	23 (40%)	13 (22%)
How many hours a week did you on average spend on meditating?	<i>M (SD)</i>		<i>M (SD)</i>			<i>M (SD)</i>			
	2.0 (2.0)		2.0 (2.0)			1.9 (1.8)			
<i>Time spent on meditating at follow-up</i>									
How often did you on average meditate at home during training?	0 times	> 4 times	0 times	1–2 times	> 4 times	0 times	1–2 times	3–4 times	> 4 times
	16 (22%)	12 (17%)	7 (14%)	34 (47%)	12 (17%)	7 (14%)	24 (49%)	9 (18%)	9 (18%)
How many hours a week do you on average spend on meditating?	<i>M (SD)</i>		<i>M (SD)</i>			<i>M (SD)</i>			
	1.3 (1.6)		1.3 (1.3)			1.3 (1.3)			

Data are presented as n (%) or as M (SD). Differences in mean scores and proportions between the groups are analyzed using t tests or χ^2 tests

* $p < 0.05$

** $p < 0.01$

† $p < 0.10$

dealing with stress (most often rated as very helpful in the non-clinical setting and as a little helpful in the clinical setting ($n = 126$, $\chi^2(3) = 8.58$, $p = 0.035$)) and a difference between the extent to which participants used what they learned in daily living (mean scores of 5.4 in the non-clinical setting and 4.9 in the clinical setting on a scale 1–7, ($n = 126$, $t(124) = -2.71$, $p = 0.008$, 95% CI $[-0.96, -0.15]$, $d = 0.49$). In both groups, around 80% was still practicing formal meditation at follow-up.

Means and standard deviations of all measures at the different measurement occasions for the clinical and non-clinical setting are presented in Table 2. Differences between waitlist and pre-test were analyzed for the non-clinical setting only. No significant differences were found between the waitlist and pre-test, except for an improvement in parental well-being (WHO-5; $n = 16$, $t(15) = -2.50$, $p = 0.025$, 95% CI $[-3.36, -0.27]$, $d = 0.62$).

In Table 3, the results of the multilevel models of treatment outcome predicted by measurement occasion, setting, interaction terms setting \times time, and control variables (time \times child age/level of parental education/location/costs; only when significant) are presented. Parameter estimates β can be interpreted as effect sizes of the predictors, corrected for the effects of the other predictors. Additional Cohen's d s, representing effect sizes of main effects, uncorrected for the effects of the other predictors, will be presented in the subsequent text. There was no difference between the groups at pre-test, except for a difference in child well-being ($d = 0.48$) and child behavior problems ($d = 0.86$).

No differences in improvement between the settings on any of the outcomes occurred. Directly after the mindful parenting training, at post-test, there was an improvement in parental stress (OBVL, $d = 0.37$, small effect size) and in subscales problems in the parent–child relationship ($d = 0.36$, small effect size), problems with parenting ($d = 0.52$, medium effect size), and depressed mood ($d = 0.24$, small effect size). This improvement was maintained 8 weeks after the training, at follow-up (d values 0.67, 0.54, 0.60, and 0.39, respectively, small to medium effects). Health complaints showed a significant improvement at follow-up as well ($d = 0.38$, small effect size). Restriction of roles only seemed to change for older children: no main effect of measurement occasion occurred, but there was an interaction between age and measurement occasion. Over time, improvement in parental stress (total scale OBVL) was better in parents with a high level of education than in parents with a low to medium level of education. Age of the child was predictive of improvement on problems in the parent–child relationship and problems with parenting (larger improvement for parents with younger children) and restriction of roles (smaller improvements for parents with younger children). Directly after the training, parents showed improvement in their parental overreactivity (PS, $d = 0.58$, medium effect size). Multilevel analysis showed a remaining

effect at follow-up, but Cohen's was small ($d = 0.21$). Mindful parenting improved both at post-test and at follow-up (IM-P, $d = 0.72$ and $d = 0.63$, respectively, medium effect sizes). Improvement was larger for parents with a high level of education than in parents with a low to medium level of education. There was a small improvement in partner relationship at post-test ($d = 0.19$) and a further improvement at follow-up (VGFO, $d = 0.50$, medium effect). Improvement over time was larger for parents of smaller children). Parents improved in their well-being at post-test and follow-up (WHO-5, $d = 0.53$ and $d = 0.62$, respectively, medium effect sizes). Children showed an improvement in well-being at post-test ($d = 0.30$, small effect size). Multilevel analyses showed a remaining effect at follow-up, but Cohen's d was very small ($d = 0.11$). Multilevel analysis showed a significant interaction effect of child's age and time on well-being (larger effectiveness over time for smaller children). Possibly, at follow-up, only small children showed a continued improvement at follow-up. Child behavior was improved both at post-test ($d = 0.61$, medium effect size) and follow-up ($d = 0.41$, small effect size). Improvement over time in child behavior was larger for children from parents with a high level of education, compared to children from parents with a low to medium level of education.

We hypothesized that improvement in child well-being and child behavior problems would be associated with improvement in parental mindful parenting. When an interaction term (difference score of mindful parenting post-test minus pre-test \times time) was added to the multilevel models presented in Table 3, the effect of the interaction term was significantly associated with improvement in child well-being ($n = 111$, $B(SE) = 0.17(0.06)$, $t(99) = 2.82$, $p = 0.006$, 95% CI $[0.05, 0.28]$) and child behavior problems ($n = 112$, $B(SE) = -0.17(0.06)$, $t(98) = -2.59$, $p = 0.011$, 95% CI $[-0.30, -0.04]$). These analyses were repeated for both settings separately. In the non-clinical setting, the effect of the interaction term was only borderline significantly associated with improvement in child well-being ($n = 64$, $B(SE) = 0.13(0.08)$, $t(60) = 1.71$, $p = 0.093$, 95% CI $[-0.02, 0.29]$), and it was significantly associated with improvement in child behavior problems ($n = 65$, $B(SE) = -0.24(0.08)$, $t(55) = -2.98$, $p = 0.004$, 95% CI $[-0.40, -0.08]$). In the clinical setting, the effect of the interaction term was significantly associated with improvement in child well-being ($n = 47$, $B(SE) = 0.16(0.08)$, $t(39) = 2.06$, $p = 0.046$, 95% CI $[-0.00, 0.33]$), and it was not significantly associated with improvement in child behavior problems.

Number and percentages of participants having a (sub)clinical score are presented in Table 2. At pre-test, around 80% of the parents in the clinical and non-clinical setting had a clinical score on the main outcome parental stress (see Table 2). At follow-up, this percentage had decreased to around 60 to 65 and at follow-up to 55 to 60. The numbers

Table 2 Means and standard deviations and number and percentage of (sub)clinical scores of all measures at waitlist for the non-clinical setting and pre-test, post-test, and follow-up for both settings

	Non-clinical setting				Clinical setting			
	<i>n</i>	<i>M (SD)</i>	Clinical score	Subclinical score	<i>n</i>	<i>M (SD)</i>	Clinical score	Subclinical score
Parental stress (OBVL total score)								
Waitlist	18	69.56 (10.40)	16 (88.9%)	0 (0.0%)	–	–	–	–
Pretest	91	68.84 (8.70)	72 (79.1%)	3 (3.3%)	79	69.91 (7.63)	64 (81.0%)	6 (7.6%)
Posttest	73	64.99 (10.07)	44 (60.3%)	8 (11.0%)	56	65.98 (9.00)	37 (66.1%)	5 (8.9%)
Follow-up	70	63.19 (10.53)	39 (55.7%)	9 (12.9%)	48	64.54 (9.75)	28 (58.3%)	5 (10.4%)
Problems parent–child relationship (OBVL)								
Waitlist	18	65.61 (10.52)	7 (38.9%)	5 (27.8%)	–	–	–	–
Pretest	91	64.68 (10.37)	33 (36.3%)	20 (22.0%)	79	66.11 (10.17)	33 (41.8%)	14 (17.7%)
Posttest	73	61.27 (10.60)	18 (24.7%)	16 (21.9%)	56	62.32 (10.41)	16 (28.6%)	7 (12.5%)
Follow-up	70	60.16 (9.99)	15 (21.4%)	9 (12.9%)	48	62.15 (11.64)	13 (27.1%)	13 (27.1%)
Problems with parenting (OBVL)								
Waitlist	18	66.94 (9.91)	9 (50.0%)	3 (16.7%)	–	–	–	–
Pretest	91	65.62 (9.87)	31 (34.1%)	29 (31.9%)	79	65.58 (10.05)	26 (32.9%)	21 (26.6%)
Posttest	73	61.11 (9.59)	12 (16.4%)	15 (20.5%)	56	61.29 (10.24)	11 (19.6%)	11 (19.6%)
Follow-up	70	60.01 (9.92)	9 (12.9%)	18 (25.7%)	48	60.01 (9.92)	7 (14.6%)	12 (25.0%)
Depressed mood (OBVL)								
Waitlist	17	67.12 (7.74)	8 (47.1%)	5 (29.4%)	–	–	–	–
Pretest	91	64.03 (9.05)	26 (28.6%)	26 (28.6%)	79	66.32 (8.20)	28 (35.4%)	28 (35.4%)
Posttest	73	61.07 (10.05)	19 (26.0%)	13 (17.8%)	56	63.80 (9.46)	17 (30.4%)	11 (19.6%)
Follow-up	70	60.57 (9.82)	14 (20.0%)	11 (15.7%)	48	62.38 (9.62)	11 (22.9%)	13 (27.1%)
Restriction of roles (OBVL)								
Waitlist	17	71.29 (8.62)	12 (70.6%)	1 (5.9%)	–	–	–	–
Pretest	91	66.88 (9.65)	43 (47.3%)	13 (14.3%)	79	67.04 (9.54)	32 (40.5%)	20 (25.3%)
Posttest	73	64.97 (9.63)	32 (43.8%)	10 (13.7%)	56	64.43 (8.51)	15 (26.8%)	15 (26.8%)
Follow-up	70	63.47 (10.74)	25 (35.7%)	11 (15.7%)	48	62.65 (9.48)	15 (31.3%)	8 (16.7%)
Health complaints (OBVL)								
Waitlist	17	64.41 (7.37)	3 (17.6%)	6 (35.3%)	–	–	–	–
Pretest	91	65.37 (7.72)	28 (30.8%)	22 (24.2%)	79	65.58 (7.69)	24 (30.4%)	16 (20.3%)
Posttest	73	63.56 (8.48)	20 (27.4%)	15 (20.5%)	56	63.00 (7.73)	11 (19.6%)	8 (14.3%)
Follow-up	70	61.94 (8.00)	12 (17.1%)	10 (14.3%)	39	63.61 (7.77)	9 (18.8%)	11 (22.9%)
Parental overreactivity (PS)^a								
Waitlist	17	35.71 (8.30)	–	–	–	–	–	–
Pretest	91	36.23 (9.07)	–	–	80	36.76 (9.39)	–	–
Posttest	74	30.03 (9.16)	–	–	57	30.30 (8.76)	–	–
Follow-up	71	29.89 (9.27)	–	–	48	29.75 (8.81)	–	–
Mindful parenting (IM-P)^a								
Waitlist	17	32.71 (3.12)	–	–	–	–	–	–
Pretest	92	33.32 (3.32)	–	–	80	32.83 (3.81)	–	–
Posttest	74	36.05 (3.07)	–	–	57	36.00 (3.51)	–	–
Follow-up	71	36.56 (3.29)	–	–	49	36.39 (3.43)	–	–
Partner relationship (VGFO)								
Waitlist	18	45.56 (13.90)	2 (11.1%)	5 (27.8%)	–	–	–	–
Pre-test	82	45.07 (12.75)	11 (13.4%)	9 (11.0%)	65	41.05 (12.94)	15 (23.1%)	6 (9.2%)
Post-test	65	48.69 (11.73)	4 (6.2%)	4 (6.2%)	46	42.52 (13.36)	9 (19.6%)	5 (10.9%)
Follow-up	62	46.18 (11.14)	5 (8.1%)	6 (9.7%)	38	45.24 (11.41)	5 (13.2%)	0 (0%)
Parental well-being (WHO-5)								
Waitlist	17	42.59 (21.49)	5 (29.4%)	6 (35.3%)	–	–	–	–
Pretest	91	51.30 (17.94)	11 (12.1%)	31 (34.1%)	79	47.24 (19.68)	16 (20.3%)	25 (31.6%)
Posttest	73	60.49 (18.18)	6 (8.2%)	15 (20.5%)	57	56.71 (17.58)	4 (7.1%)	18 (31.6%)
Follow-up	70	58.51 (15.72)	2 (2.9%)	17 (24.3%)	48	54.92 (19.36)	7 (14.6%)	10 (20.8%)

Table 2 (continued)

	Non-clinical setting				Clinical setting			
	<i>n</i>	<i>M</i> (<i>SD</i>)	Clinical score	Subclinical score	<i>n</i>	<i>M</i> (<i>SD</i>)	Clinical score	Subclinical score
Child well-being (WHO-5) ^{a,b}								
Waitlist	16	64.75 (17.66)	–	–	–	–	–	–
Pretest	84	62.64 (17.11)	–	–	69	54.17 (16.46)	–	–
Posttest	68	68.15 (17.36)	–	–	51	59.37 (17.39)	–	–
Follow-up	64	69.81 (17.68)	–	–	43	62.61 (14.24)	–	–
Child behavior problems (SDQ) ^b								
Waitlist	17	13.76 (5.29)	5 (29.4%)	4 (23.5%)	–	–	–	–
Pretest	83	12.27 (5.67)	16 (19.3%)	16 (19.3%)	69	16.64 (5.04)	32 (46.4%)	15 (21.7%)
Posttest	67	10.30 (5.95)	9 (13.4%)	6 (9.0%)	51	14.26 (5.62)	18 (35.3%)	7 (13.7%)
Follow-up	65	10.16 (6.39)	10 (15.6%)	4 (6.3%)	43	14.16 (5.32)	15 (34.9%)	8 (18.6%)

^a Because of the unavailability of norms, the number and percentage of (sub)clinical scores could not be calculated for the PS, IM-P, and WHO-5 (child version)

^b The number of questionnaires about child functioning is less than the number of questionnaires about parental functioning, because when both parents participated in the training and the research, the scores of both parents were averaged to one score per child per measurement occasion

OBVL and VGFO are *T* scores, WHO are percentage scores, and all other scores are sum scores

and percentages of participants scoring in the (sub)clinical range on the outcome measures of which norms were available were also presented in Table 2. Differences in percentages of participants scoring in the subclinical or clinical range over time, and differences between the groups were analyzed. On all outcome measures, the odds for a (sub)clinical score decreased over time. The only outcome on which a main effect of setting was found was for child behavior, children in the clinical setting having higher odds for an SDQ score in the (sub)clinical range. There was a significant interaction effect for two outcomes. The odds for a (sub)clinical score on subscale health complaints decreased more over time for the non-clinical group, and the odds for a (sub)clinical on partner relationship problems decreased more at post-test for the non-clinical group but decreased more at follow-up for the clinical group.

Discussion

In this study, we aimed to evaluate the feasibility, acceptability, and effectiveness of the mindful parenting training in a non-clinical versus a clinical setting. Positive evaluations of participants in both settings and acceptable dropout rates that were comparable between both settings suggest that the mindful parenting training is a feasible and acceptable training, also in a non-clinical setting. There were no differences between the settings in parental stress and other measures of parental functioning, but children did show fewer problems in their functioning (higher well-being and lower behavior problems) in the non-clinical setting compared to the clinical setting. The only sociodemographic differences between the settings were

a higher level of parental education and a lower child age in the non-clinical setting. This study showed that mindful parenting training is as effective in a non-clinical context as it is in a clinical context. Participants improved on parental stress, overreactivity, mindful parenting, well-being, and partner relationship (small to medium effect sizes). Positive changes were generally maintained until 8 weeks after the training. The children, who were not present during the sessions, improved in behavior problems and well-being (small to medium effect sizes). Improvements in child functioning was associated with improvements in mindful parenting.

The results suggest that mindful parenting is a feasible and acceptable training for parents also in a non-clinical setting. The opportunity of following a mindfulness training covered by the municipal was received with enthusiasm, the groups filled up fast, and parents wanted to share their gratitude with the policy-making staff, for example by writing a blog about the training. Dropout rates (15% in the non-clinical and 12% in the clinical setting) were acceptable. The training was evaluated highly, with a mean score of 8.1 in the non-clinical and 7.9 in the clinical settings (scale 1–10). The acceptability of mindfulness as a parenting intervention is underscored by the substantial percentage of parents that wished to receive further support in the form of mindfulness.

Regarding the differences in participants between the settings, parents in the non-clinical setting more often had a high level of education. This might be explained by the fact that in the preventive setting many parents participated on their own initiative, because they did not need a referral by a professional. Parents with a high level of education may look more active for mindfulness-based or parenting interventions. The relatively high dropout rate for parents with a low to medium

Table 3 Parameter estimates (and standard errors) and *t* values of multilevel models of treatment outcome predicted by measurement occasion (post-test and follow-up, deviations from pre-test), setting, interactions between measurement occasion (time) and setting, and control variables (interactions between measurement occasion and child age/low parental level of education [PLE]/location of the training/costs of the training paid for by the parents themselves)

	Intercept		Post-test		Follow-up		Setting (non-clinical)		Interaction		Location × Time		Costs × Time	
	β (SE)		β (SE)		β (SE)		β (SE)		t		t		t	
	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>
<i>n</i> = 182														
Parental stress (OBVL)	0.30 (0.11)	2.75**	-0.49 (0.08)	-6.36**	-0.66 (0.11)	-6.15**	-0.09 (0.18)	-0.53	0.27				2.78**	-
95% CI	[0.08, 0.52]		[-0.64, -0.34]		[-0.87, -0.45]		[-0.44, 0.25]							
Problems parent-child relationship	0.41 (0.12)	3.42**	-0.55 (0.09)	-6.13**	-0.78 (0.15)	-5.32**	-0.16 (0.19)	-0.85	0.83					2.90**
95% CI	[0.17, 0.64]		[-0.73, -0.37]		[-1.07, -0.49]		[-0.53, 0.21]							
Problems with parenting	0.42 (0.12)	3.43**	-0.65 (0.10)	-6.72**	-0.84 (0.16)	-5.31**	0.01 (0.19)	0.06	-0.20					2.38*
95% CI	[0.18, 0.66]		[-0.83, -0.46]		[-1.16, -0.53]		[-0.36, 0.39]							
Depressed mood	0.27 (0.11)	2.54**	-0.33 (0.08)	-3.96**	-0.48 (0.11)	-4.38**	-0.30 (0.17)	-1.75†	1.15					2.25*
95% CI	[0.06, 0.39]		[-0.48, -0.16]		[-0.70, -0.26]		[-0.64, 0.04]							
Restriction of roles	0.05 (0.12)	0.41	-0.08 (0.09)	-0.91	-0.08 (0.16)	-0.54	-0.04 (0.20)	-0.19	-0.05					-3.03**
95% CI	[-0.19, 0.29]		[-0.27, 0.10]		[-0.39, 0.22]		[-0.44, 0.36]							
Health complaints	0.15 (0.12)	1.26	-0.22 (0.08)	-2.79**	-0.24 (0.12)	-2.05*	0.18 (0.21)	0.84	-1.13					-
95% CI	[-0.08, 0.38]		[-0.38, -0.07]		[-0.47, -0.01]		[-0.24, 0.59]							
Parental overreactivity (PS)	0.43 (0.10)	4.11**	-0.68 (0.10)	-7.15**	-0.71 (0.14)	-5.28**	-0.05 (0.20)	-0.24	0.07					-
95% CI	[0.22, 0.63]		[-0.87, -0.49]		[-0.98, -0.45]		[-0.44, 0.35]							
Mindful parenting (IM-P SF, <i>n</i> = 184)	-0.47 (0.11)	-4.46**	0.88 (0.10)	8.81**	1.10 (0.14)	7.69**	0.12 (0.20)	0.60	-0.84					-4.22**
95% CI	[-0.68, -0.26]		[0.68, 1.08]		[0.82, 1.38]		[-0.28, 0.52]							
Partner relationship (VGFO, <i>n</i> = 148)	-0.48 (0.14)	-3.41**	0.32 (0.09)	3.59**	0.46 (0.16)	2.98**	0.36 (0.22)	1.62	-0.48					-2.32*
95% CI	[-0.76, -0.20]		[0.14, 0.49]		[0.16, 0.77]		[-0.08, 0.80]							
Parental well-being (WHO-5)	-0.32 (0.11)	-2.84**	0.54 (0.08)	6.58**	0.47 (0.11)	4.19**	0.17 (0.18)	0.93	-0.35					-2.31*
95% CI	[-0.53, -0.10]		[0.38, 0.70]		[0.25, 0.69]		[-0.19, 0.53]							
Child well-being (WHO-5, <i>n</i> = 161)	-0.58 (0.12)	-4.87**	0.46 (0.09)	4.92**	0.71 (0.16)	4.54**	0.55 (0.19)	2.97**	-0.63					-2.06*
95% CI	[-0.82, -0.35]		[0.28, 0.65]		[0.40, 1.02]		[0.19, 0.93]							
Child behavior problems (SDQ, <i>n</i> = 161)	0.55 (0.10)	5.20**	-0.41 (0.07)	-5.84**	-0.40 (0.11)	-3.46*	-0.71 (0.17)	-4.23**	0.73					3.41**
95% CI	[0.34, 0.75]		[-0.54, -0.27]		[-0.62, -0.17]		[-1.04, -0.38]							

† *p* < 0.10

**p* < 0.05

***p* < 0.01

β , parameter estimate; can be interpreted as effect size of change, corrected for the effects of the other predictors

Control variables (interactions between measurement occasion [time] and child age/low-middle parental level of education [PLE]/location of the training/costs of the training paid for by the parents themselves) were only retained in the models when significant (fixed effects)

level of education (in combination with the result that they profit less from the training on some outcomes compared to parents with a high level of education) suggests that the training or training context may need adjustments for parents with a lower level of education. A meta-analysis on the effects of socio-economic status on the effectiveness of parenting interventions concluded that more maintained support may be needed for families with a lower SES (Leijten et al. 2013). Adding more and more frequent follow-up meetings may be one possible adjustment for parents with a lower level of education.

Another difference between the non-clinical and the clinical setting was the age of the child the parents completed the questionnaires about. Parental stress or parenting problems, which was the inclusion criterion for following a mindful parenting training, is not exclusive to certain developmental stages of the child, but clinical intervention of child mental health disorders is often suspended until the child reaches school age. Child age had a significant effect on several outcomes of the training, not only on child outcomes (younger children showed greater improvement in well-being) but also on parental outcomes (parents of younger children showed greater improvements in the parent–child relationship, problems with parenting, and partner relationship). Possibly, relational and communicative problems are more susceptible to change when they exist shorter. Parents of older children showed larger improvement in the restriction that the parental role put to their freedom. It might be that the space for parental freedom grows when children grow older and that mindful parenting helped parents to trust their older children and allow themselves that freedom. The results of the current study suggest that mindful parenting can be used as an intervention to improve parent–child relationship and that early intervention is important. Improving parent–child relation may serve to prevent child mental health problems.

Children of parents who participated in a non-clinical setting had less behavior problems on average, lower odds for a clinical or subclinical behavior problem score, and a higher level of well-being than children of parents in a clinical setting. The parents themselves did not report lower parental stress, well-being, overreactivity, better partner relationship, or higher mindful parenting than parents in a clinical setting. In general, parents of clinically referred children have more parental stress and psychopathology than control parents (Telman et al. 2017; Theule et al. 2013). The lack of differences in parental functioning in the current study, plus the very high proportion of parents with (sub)clinical levels of parental stress also in the non-clinical group, underscores that even though no diagnosis or referral was needed for participation in a non-clinical setting, self-selection and selection by the municipal general children's health clinic worked well. It also implies that there is a real need for mindful parenting training in this preventive context, that is, in parents in the community who experience parenting stress or parenting problems.

Mindful parenting training can indeed be as effective in a non-clinical setting compared to a clinical setting. The effect on the main outcome parental stress did not differ between the settings and had a similar effect as found in Bögels et al. (2014). Clinical significance of the decrease in parental stress was underscored by the decreased odds for a (sub)clinical score over time. Parental well-being improved after the training and the odds for a subclinical or clinical score on well-being decreased over time. However, parents participating in the non-clinical setting that completed the waitlist measurement showed improvement in well-being between waitlist measurement and pre-test. This implies that the improvement on this specific outcome during the training should possibly be (partly) attributed to non-specific factors. Parental overreactivity improved after the training, and improvements were maintained at follow-up. Improved parental overreactivity was also shown in two studies in which a mindful parenting training was offered to parents of children and adolescents with ADHD while their children and adolescents were also offered mindfulness training (Van der Oord et al. 2012; Van de Weijer-Bergsma et al. 2012). In these studies, it remained unclear whether the combination of the parent and child training was needed to obtain the positive results or that one of both was sufficient. The current study suggests that parents are able to decrease overreactivity, also when children do not work on improving their reactivity. Partner relationship improved at post-test and follow-up. Bögels et al. (2014) did not find an effect of mindful parenting training on marital satisfaction in their study, but they did find an effect on co-parenting, which is more similar to the way partner relationship was measured in this study (three of the five items in the subscale used in the current study referred to feeling supported in parenting or working together as parents). Mindful parenting also improved after the training and improvement maintained at follow-up. Shorter session length and the option to practice at home with shorter meditations in the non-clinical setting did not diminish the effect on mindful parenting, nor on the time spend meditating during the training or in the follow-up period. More generally, shorter session length and the lack of a follow-up session also did not seem to decrease effectiveness in the non-clinical setting. The similar effect of the training in the non-clinical setting implies that it is possible to reduce parental stress, also when it is unrelated to clinical child behavior problems.

Child behavior also improved similarly to the study of Meppelink et al. (2016). In the current study, an additional effect on child well-being was shown. Even though children in the non-clinical setting had less problematic behavior and higher well-being than children in the clinical setting, effectiveness of the training on these outcomes was similar for both settings. This is interesting, given outcomes of meta-analyses showing more limited effects of parent management interventions in groups of children with mild behavior problems (Leijten et al.

2013) and in primary prevention contexts (Durlak and Wells 1997). Meppelink et al. (2016) showed that in a clinical setting, an improvement in child behavior problems was predicted by an increase in mindful parenting. Surprisingly enough, the current study revealed a significant association between improvement in mindful parenting and child behavior problems in the non-clinical setting only. On the other hand, a significant association between improvement in mindful parenting and child well-being was found in the clinical setting, and only a borderline significant association in the non-clinical setting. Children in both settings seem to benefit from their parents becoming more mindful in parenting, but each in a different way.

This study adds to the applicability of the mindful parenting training in other groups of parents than it was originally developed for, namely parents that do experience parental stress or parenting problems, while they do not have a child with a diagnosed mental health disorder. Strengths of this study were the relatively large sample sizes in both settings and the inclusion of different locations and trainers in both settings, which implies that positive results of the training may be generalizable to different settings, centers, and trainers. The lack of significant differences in improvement between the different locations, and between parents that paid for their training in the non-clinical setting, and parents for whom the costs of the training were covered by the municipal underscores the generalizability of the training.

Limitations and Future Research

This study has limitations that need to be mentioned. The distinction between the two groups in this study was the setting the parents participated in, not a certain characteristic of the child or parent. Parents in the clinical setting were only allowed in the training when their child met criteria for a DSM-IV diagnosis, but in the non-clinical setting, all parents with parental stress or parenting problems were allowed, also when their child did have a diagnosis. So, the preventive aim of the training in the non-clinical setting in this study was not necessarily to prevent mental health disorders in children (as some of them may already have them) but reducing child behavior problems, preventing increase in child behavior problems, preventing the child behavior problems to negatively affect parental functioning, and preventing referral for treatment in mental health care. Concerning the comparison between the two settings, level of parental education and age of the children differed. We controlled for these factors in the statistical analyses, but more research is needed to study the moderating effects of these and possibly other factors on the effects of mindful parenting training. Questionnaires about the child were completed by the participating parent, which is not sufficient to obtain an objective view on the improvement in functioning of the child. An alternative explanation of improvement of child well-being or behavior scores is that the perception of the parent changed, which

is of course also an important improvement but a different one. Furthermore, in order to investigate the association between parental improvement in mindful parenting and child functioning, difference scores of mindful parenting at pre-test and post-test were used. Although difference scores have been frequently used in the past, nowadays, it is questioned whether the use of difference scores is a valid method (Laird and De los Reyes 2012). Lastly, research dropouts may have biased the results. Possibly, participants that drop out of the research are less content with the training.

In order to assess the added value of the mindful parenting training as a preventive intervention, in future research a comparison should be made between mindful parenting and another established preventive parenting intervention in a non-clinical setting. Such a study could shed light on the question whether Mindful parenting in a non-clinical setting has preventative effect in reducing the number of children that develop mental health disorders and need treatment in a clinical setting. Participants would then need to be randomly assigned to mindful parenting training or another preventive intervention, such as a parent management intervention. Also, long-term follow-ups are needed. And, possibly, moderators of the effectiveness of both kinds of parenting training (mindful parenting and parent management training) can be tested, for example child behavior problems. Another question that can be asked is whether mindful parenting training in a non-clinical setting can be made more (cost) efficient. In the current study, the training was shortened with one session (the follow-up session), and every session was shortened to 1 h in the non-clinical setting, while results were the same as in the clinical setting. Possibly, the number of sessions can be limited even further, as was done in a study on the effects of a mindfulness training for people with burn out (6 sessions; De Bruin et al. 2016), or the length of the training could be personalized, on the basis of characteristics of the parents or the children. Note, however, that the similar effect size of the shorter training in the non-clinical setting can also be the result of different characteristics of the non-clinical group. That is, this study cannot answer the question whether a shorter mindful parenting training would also be similarly effective in a clinical setting. One of the results of the current study was that for some outcomes, parents with lower level of parental education had more difficulties retaining the positive results than parents with a higher level of education. Further research is needed to answer the question what kind of extra support parents with a lower level of education would need to benefit from mindful parenting tools. Lastly, more objective measures of both parent and child behavior and parent–child interaction are needed. Not only existing observation instruments could be used for this but also a new observation instrument measuring mindful parenting could be developed.

The results of this study imply that it is not only important to treat parental stress (Crnic et al. 2005; Siegel and Hartzell 2003) because of the transactional relationship between

parental stress and child behavior (Neece et al. 2012), but it is also possible to do so. Earlier research had already shown the effectiveness of mindful parenting training in clinical settings (Bögels et al. 2014; Meppelink et al. 2016). This study adds to this that also when parental stress is not caused per se by child or parent psychopathology, it is possible to target it with mindful parenting training. From a viewpoint of prevention, mindful parenting training could be a suitable addition to the range of treatment interventions that is offered in non-clinical settings.

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Author Contributions EP designed the study, supervised the data collection, analyzed the data, and wrote the paper. JB executed the study, coordinated the data collection, prepared the dataset, and collaborated with the design and writing of the study. SB 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.

Conflict of Interest Susan Bögels is a shareholder of one of the clinics where the data collection took place. The other authors declare that they have no conflict of interest.

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