



# Enhancing Mindfulness, Emotional Well-being and Strengths in Parenting via an Eight-week Flourishing Families Intervention

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## Abstract

Being a parent influences both parent's and children's well-being in many ways; therefore, developing interventions that support parents in their important role as a parent is vital. The current study evaluated the effect of an eight-week Flourishing Families parental intervention on interpersonal mindfulness, emotions and strengths in parenting in Finland. Randomly allocated to intervention and wait-list control groups were 63 parents. In addition to questionnaires, parents completed 5-day mobile Experience Sampling Method (ESM) assessments, both at pre- and post-intervention. The questionnaires were repeated at a follow-up 3 months after the intervention. Data analysis involved two datasets: randomized and pooled. The findings of this study suggest that participation in the Flourishing Families program can improve interpersonal mindfulness in parenting, shift emotional balance towards more positive emotions and less negative emotions, and enhance awareness and usage of own strengths. The results were more evident in the pooled data. With these preliminary findings, we hope to inspire both further positive psychology intervention (PPI) studies in the parenting context and the use of repeated momentary assessments.

**Keywords** Positive psychology intervention · Mindful parenting · Emotions · Strengths · ESM

## Highlights

- Positive psychology interventions (PPIs) have rarely been used in the context of families and parents.
- The study examined the effect of the Flourishing Families intervention on mindfulness, emotions and strengths in parenting.
- Data collection consisted of questionnaires and Experience Sampling Method (ESM) assessments.
- Participation in the intervention was positively associated with mindfulness, emotional well-being and strengths in parenting.

The family environment is one of the most essential contributors to and predictors of children's subjective well-being and life satisfaction. A good family environment is characterized by mutuality, stability and closeness as well as

parental care, warmth and emotional support (Stafford et al., 2015; Suldo & Fefer, 2013; Uusitalo-Malmivaara & Lehto, 2013). Supportive and affectionate parent-child relationships, while allowing an appropriate level of child autonomy, are

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likely to promote positive mental well-being from adolescence to 60–64 years (Stafford et al., 2015). Being a parent, however, is simultaneously both demanding and rewarding, which influences parental well-being. The parental well-being model by Nelson et al. (2014) describes psychological mechanisms that mediate the relationship between parenthood and well-being. In the model, parents' greater well-being is associated with experiencing positive emotions, satisfaction with their basic psychological needs (i.e., autonomy, competence and connectedness) and greater meaning in life, as well as feeling fulfilled in their social roles. In contrast, parents' lower well-being is associated with experiencing greater negative emotions, financial strain, sleep disturbance and fatigue, and strained partner relationships (Nelson-Coffey & Stewart, 2019; Nelson et al., 2014).

In Finland, although most families and children are doing well, increasing polarization and inequality in well-being in terms of poverty in families with children and inter-generational transmission of poverty has become a key socio-political concern (Finnish Government, 2022; Smith et al., 2023; Virtanen et al., 2023). The deficits in well-being and adverse consequences tend to accumulate among the minority in society that are in a weaker position and doing poorly. Virtanen et al. (2023) have summarized the primary straining factors on Finnish families as follows: changes in family composition, long-term income support, parents' low level of education, and psychiatric diagnoses of parents. These straining factors, often cumulative in nature, affect the well-being of children as well. For example, the findings of the Finnish 1997 birth cohort study ( $N = 57,152$ ) indicated that almost half of the children grew up in a family setting where at least one straining factor was present. The accumulation of two straining factors affected one in ten children, and the accumulation of three or four straining factors affected approximately seven percent of the children. Those children who grew up in families faced with simultaneous daily stress factors had poorer health and school performance.

In order to increase the well-being of parents and, consequently, the well-being of their children, it is important to develop programs that support parents in their parenting role. Theories and evidence-based methods stemming from positive psychology could be a valuable addition to the child and family well-being research. The science of positive psychology focuses on building strengths, and fostering flourishing and optimal functioning in individuals, groups, and institutions (Gable & Haidt, 2004; Peterson & Seligman, 2004; Seligman & Csikszentmihalyi, 2000). Positive psychology interventions (PPIs) are defined as "treatment methods or intentional activities that aim to cultivate positive feelings, behaviors, or cognitions" (Sin & Lyubomirsky, 2009, p. 468). In a broader definition of PPIs, the goal of well-being enhancement is achieved through

pathways consistent with Seligman's (2011) PERMA theory (Carr et al., 2020). The PERMA theory of well-being includes five elements – positive emotions, engagement, relationships, meaning and accomplishments – that facilitate flourishing (Seligman, 2011).

PPIs have rarely been used in the context of families (Waters, 2020) and parents (Waters & Sun, 2016), although Seligman and Csikszentmihalyi (2000) encouraged researchers to develop PPIs that encompass families. Indeed, a literature search from PsycINFO, Google Scholar and the Journal of Positive Psychology conducted by the first author showed that few studies exist in a parenting context (Pentti et al., 2019; Waters & Sun, 2016), some of which are targeted at parents of children with a specific diagnosis or illness (Damreihani et al., 2018; Jones et al., 2017). This is rather surprising, as within the past 20 years or so a growing number of PPIs have been developed and tested, and the results are promising. Meta-analyses of randomized and quasi-experimental PPI studies have reported that, it is generally possible to enhance well-being (Bolier et al., 2013; Carr et al., 2020; Hendriks et al., 2020; Sin & Lyubomirsky, 2009; White et al., 2019), positive emotions (Moskowitz et al., 2021), quality of life and strengths (Carr et al., 2020). Additionally possible is the alleviation of anxiety, stress (Carr et al., 2020) and depressive symptoms (Bolier et al., 2013; Carr et al., 2020; Hendriks et al., 2020; Sin & Lyubomirsky, 2009; White et al., 2019). Regarding the moderating effects of the intervention impact, Carr et al. (2020) reported achieving greater increases in well-being and greater reductions in depressive symptoms and stress with multi-component programs (i.e., two or more PPIs, range = 2–15) than with single element programs, and with longer programs than shorter programs (duration of the meta-analysis program  $M = 6.35$  weeks,  $SD = 6.11$ ). Moreover, longer PPI programs led to greater increases in strengths. The current study addresses the above-mentioned research gap by examining the impact of an eight-week multi-component PPI (MPPI) on parents' mindfulness in parenting, positive and negative emotions, strengths awareness and strengths use.

## Mindful Parenting

In mindful parenting, the concept and practices of mindfulness are extended from the intra-personal to the inter-personal interactions of parent-child relationships (Duncan et al., 2009; Kabat-Zinn & Kabat-Zinn, 1997). Mindfulness in the parenting context has been used to enhance parenting in terms of more effective use of parenting skills, increased ability to cope with stress, and improved parental emotion regulation and parent-child interactions, for example through improved affective quality (Coatsworth et al., 2010, 2015; Duncan et al., 2015). According to

Duncan et al. (2009), mindful parenting encompasses five core aspects: (1) listening with full attention, (2) non-judgmental acceptance of self and child, (3) emotional awareness of self and child, (4) self-regulation in the parenting relationship and (5) compassion for self and child. Previous findings support the benefits of mindful parenting by showing positive influences on parenting, the quality of the parent-child relationship, and promoting healthy psychosocial development of the child (Coatsworth et al., 2010, 2015; Duncan et al., 2015). However, as stated in the reviews by Kil and Antonacci (2020) and Townshend et al. (2016), previous studies have limitations that should be addressed in future studies. The limitations are mostly related to the methodology, such as small sample size, limited power, lack of blinding (Townshend et al., 2016) and lack of multi-informant research (Kil & Antonacci, 2020). Townshend et al. (2016) investigated the effectiveness of mindful parenting programs with an RCT-design on the well-being of children, adolescents and parents. The authors concluded that mindful parenting programs may help in reducing both parental stress and children's symptoms associated with externalizing disorders, as well as increasing parents' emotional awareness of their children. More methodologically rigorous studies are needed to confirm the positive associations between mindful parenting and the well-being of parents and children. A similar call for more research was raised in a qualitative review of mindful parenting programs in non-clinical contexts by Kil and Antonacci (2020). The results of six studies suggested a promising but limited effect of mindful parenting programs, which involved children's decreased problem behavior and increased psychosocial functioning. Nevertheless, both reviews recognize the potential of mindful parenting in enhancing family members' well-being.

## Emotions in Parenting

Parenthood evokes a broad variety of emotions. Parents' emotions are vital to parental competence and effective parenting. They are also linked to the quality and health of the parent-child relationship. Positive, empathic and responsive parenting promotes harmonious relationships that are characterized by prioritizing child concerns, which in turn leads to positive developmental outcomes for children (Dix et al., 2004; Leerkes & Augustine, 2019). Social bonds and connections within family are vital resources gained through emotions generated by shared, positive experiences. In building and maintaining the well-being of parents and the whole family, positive emotions, such as joy, pride, amusement, gratitude and love, play an important role. One way to improve the quality of relationships is through enhanced positivity

ratios, that is, to experience a higher ratio of positive than negative emotions and encounters (Fredrickson, 2013b). In families with a low positivity versus very high negativity interparental interaction ratio, children report more internalizing problems (e.g., unhappiness, depression and nervousness) than in families with a healthier ratio of positive to negative interparental interactions. However, parent-child conflict predicted greater initial internalizing and externalizing problems than parents' positivity-negativity ratio (Zemp et al., 2019).

According to the broaden-and-build theory by Fredrickson (2001), relative to negative emotions and neutral states, positive emotions momentarily broaden the scope of awareness and lead to a wider array of thoughts, actions, perceptions and social relations. This, in turn, builds enduring psychological, physical and social resources that promote resilience and health over time (Conway et al., 2013; Fredrickson, 2013a). Likewise, the Positive Pathways to Health theoretical model by Moskowitz et al. (2019, 2021) recognizes the importance of increased positive emotions gained through engaging in the positive activities of PPIs. The proximal effects (e.g., the broaden and build elements, time out from stress) of increased positive emotions lead to reduced stress, which in turn predicts better physiological functioning and greater engagement in health behaviors. In turn, this leads to improved physical and psychological well-being. Overall, the benefits gained from PPI's focus on parents' positive emotions extend beyond parents' own well-being to include the well-being of their children (Suldo & Fefer, 2013; Waters & Sun, 2016).

Emotions have been commonly measured both retrospectively and momentarily (Moskowitz et al., 2021). Parents' positive emotions have been studied in context by using daily diary studies, such as the Day Reconstruction Method (DRM) or the Experience Sampling Method (ESM). DRM studies have indicated that parents experience more positive emotions and a stronger sense of meaning in life when they are caring for their children than in other daily activities (Nelson et al., 2014). Additionally, parents report more happiness and meaning and less sadness in the presence of their children, especially during leisure time (Negraia & Augustine, 2020). A recent study by Shoshani and Yaari (2021) showed that parents reported more positive emotions when playing and engaging in activities with their children than in leisure personal activities, working or socializing. Further, childcare-activities were characterized by less positive emotions and more negative emotions than playful activities with children. However, higher levels of positive emotions and lower levels of negative emotions were reported in interactions with close friends than in other company, including children.

## Strengths in Parenting

One of the main research areas in positive psychology is character strengths and virtues (Peterson & Seligman, 2004). Character strengths are defined as an individual's capacity for goodness that impacts thinking, feeling and behaving in a way that benefits oneself and others (Niemiec, 2014; Peterson & Seligman, 2004). More broadly, strengths are defined as “a preexisting capacity for a particular way of behaving, thinking, or feeling that is authentic and energizing to the user, and enables optimal functioning, development and performance” (Linley et al., 2009, p. 22). For some years, the strength-based approach has been applied to the parenting context. Strength-based parenting (SBP) is defined as an approach to parenting that is characterized by identifying and cultivating children's strengths (i.e., positive states, processes, and qualities) as well as deploying parents own strengths in parenting (Waters, 2015; Waters & Sun, 2016).

By shifting the focus from weaknesses to strengths, resources and good qualities, parents can increase both their children's as well as their own well-being through various factors. Research on SBP has shown positive findings in children and adolescents in terms of life satisfaction, positive affect, self-efficacy and subjective well-being, academic achievement and lower levels of distress (Loton & Waters, 2017; Waters et al., 2019). To the best of our knowledge, to date, only Waters and Sun (2016) have investigated the effect of SBP intervention on parental well-being. The findings showed that a three-week SBP intervention improved parental self-efficacy and positive emotions when parents think about their children. The content of the three-week SBP intervention for parents was mainly built around the VIA Character Strengths Framework. The VIA Character Strengths framework was also utilized in the Flourishing Families program.

## The Current Study

An overview of previous studies shows that PPIs in the parenting context are scarce and clearly lacking are studies using daily diary methods to assess intervention effectiveness. To the best of our knowledge, our Flourishing Families program is the first peer-reviewed and published MPPI that focuses on enhancing parental well-being and, consequently, the well-being of their children (Pentti et al., 2019). Furthermore, as far as we know, our study is the first one to use repeated momentary assessment (i.e., ESM) to evaluate intervention effectiveness. The Flourishing Families program combines the strengths-based approach and mindfulness with other themes from positive psychology and cognitive behavioral therapy (CBT). The present

study examined the impact of the eight-week Flourishing Families intervention program on parents' mindfulness in parenting, positive and negative emotions, strengths awareness, and use of strengths via a wait-list control design. In addition to quantitative questionnaires, we used ESM in the daily lives of the parents to assess emotions in real time both with and without the social context. We were especially interested in daily emotions when parents were alone with their child/children, alone with a partner and with immediate family. We used ESM evening questionnaires to assess daily mindful parenting, strengths awareness and use. All measurements were conducted before and after the intervention. Based on the literature and previous research, our hypotheses were as follows:

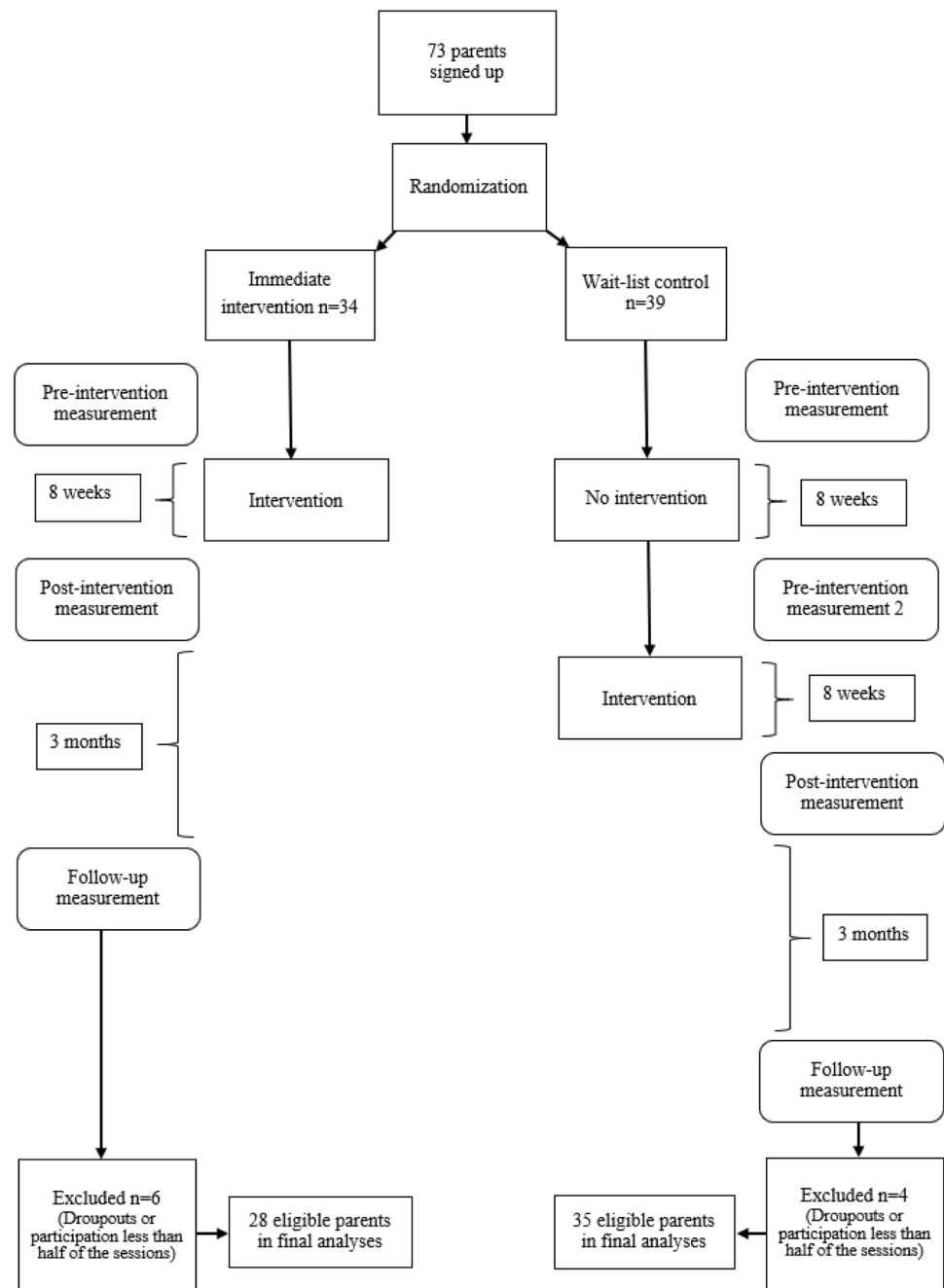
1. Participation in the Flourishing Families intervention improves parents' ability to be mindfully present in their parenting both measured retrospectively and in their daily life.
2. Due to the intervention, parents experience increases in positive emotions and decreases in negative emotions, both measured retrospectively and in the flow of daily life.
3. We expect that the social context moderates the changes in emotions, such that most positive effects would be experienced during the time spent with immediate family members.
4. The intervention helps parents in their daily awareness and use of strengths.

## Methods

### Participants and Study Design

This study recruited Swedish-speaking parents in Finland who experienced challenges in parenthood, had at least one child aged 7–13, and lived in Southern Finland either in the Helsinki or Turku regions. Helsinki region is the largest and Turku region the third largest urbanized region in the Finland. In both regions Swedish speakers are a minority. By using a wait-list control design, 73 parents were divided by region and after that randomly assigned to either the immediate intervention ( $n = 34$ ) or wait-list control ( $n = 39$ ) group. Parents in the wait-list control group received the intervention after an 8-week wait-list period. Participants described parenthood challenges due to their child's behavioral problems, neuropsychiatric difficulties or somatic illness, being single parent or finding parenting demanding due to having several children. Parents were recruited via social media, the Home & School Association and three Swedish-speaking schools. Participation was voluntary and

Fig. 1 Study flow diagram



an informed consent was signed prior to participation in the study.

From the final sample, 10 participants were removed due to dropouts ( $n = 7$ ) or participation in less than half of the intervention sessions ( $n = 3$ ). The analytic sample comprised 63 parents (age 25–52,  $M = 40.26$ ,  $SD = 4.99$ ). Of these, 28 parents belonged to the immediate intervention group and 35 to the wait-list control group (see Fig. 1). The majority (90.5%) of the participants were female ( $n = 57$ ). Demographic data was available from 62 participants. Participants were predominantly married (72.6%); the rest

of the participants were either cohabiting/unmarried (19.3%) or divorced (8.1%). More than half of the participants (59.7%) reported high SES (at least Master's degree from a university), 33.9% medium SES (Bachelor's degree from a university or a university of applied sciences), and 6.4% low SES (an occupational course, on-the-job training or vocational qualification). Over two-thirds (67.7%) were working full-time and 11.3% part-time. The number of children in the family varied from one to six ( $M = 2.32$ ,  $SD = 0.79$ ). Most of the participants (83.6%) did not regularly practice any form of meditation.

**Table 1** Outline of the Flourishing Families program

Session themes	Outline of session content
Session 1: Mindfulness/Mindful parenting	Introduction to the Flourishing Families program Mindful presence with my child/children
Session 2: Character strengths and virtues	Introduction to positive psychology, strengths and virtues Self-compassion
Session 3: Positive emotions	Enhancing and savoring positive emotions Gratitude
Session 4: Positive encounters and relationships	Positive encounters, positivity resonance Bucket filling
Session 5: Positive communication	Active constructive responding Emotion coaching
Session 6: Resilience	Facing challenges and bouncing back from difficulties Attitude on stress, dealing with stress
Session 7: Hope	To strengthen (realistic) hopefulness Mindset – how do you see yourself
Session 8: Ongoing process	Values Ensuring sustainable change

All participants were later pooled as a single group, since the wait-list control participants received the intervention as well and the sample sizes in the comparison (i.e., immediate intervention vs. wait-list control) data were small. From this sample, five additional participants were excluded (two dropouts after the pre-intervention 2 measurement and three participated in the parental group less than half of the intervention sessions). Therefore, the pooled data included 58 parents who were regarded as eligible participants. Detailed information on the demographic data has been published elsewhere (Pentti et al., 2019).

## Procedure

In the immediate intervention groups, data was collected at three time points: before (pre-intervention), immediately after (post-intervention), and three months after (follow-up) the intervention. The wait-list control group data was collected at four time points; before (pre-intervention), immediately after immediate intervention group's parental group (pre-intervention2), immediately after wait-list control group's parental group (post-intervention), and three months after post-intervention measurement (follow-up). Data was collected from six parental groups between 2016 and 2018. For more detailed information on the procedure and scheduling of data collection, see Pentti et al. (2019). The University of Helsinki Ethical Review Board in the Humanities and Social and Behavioral Sciences approved the study.

## The Flourishing Families Program

The Flourishing Families program is based on the MBSP program that combines the strengths-based approach of

positive psychology and mindfulness (Niemiec, 2014). The program was adapted for parents, and broadened to include various themes and practical tools in positive psychology and CBT with the aim of strengthening well-being in families by positively influencing family dynamics. The intervention focuses on enhancing parents' awareness of their own and their children's strengths and resources, and determining how to use these strengths. Another aim is to foster parents' ability to focus attention and be present (mindfulness) in the relationship with their children, and to pay attention to both their own and their children's needs. Other themes within the program include strengthening positive emotions, positive relationships, positive communication, resilience and hope, and ensuring sustainable change. The Flourishing Families program consists of eight 2-hour weekly sessions. The groups were led by the research team members who had completed the MBSP training program. For details of the implementation, see Pentti et al. (2019). Table 1 provides a summary of the program.

## Measures

Quantitative data were collected using web-based questionnaires and an ESM phone application, which included day and evening questionnaires. Participants completed web-based questionnaires at each time point. Momentary assessments over five days were collected at pre-intervention and post-intervention.

## Interpersonal Mindfulness in Parenting

Mindful parenting was measured using the Interpersonal Mindfulness in Parenting scale (Duncan, 2007;

Duncan et al., 2009). The IM-P measure consists of 31 items capturing five dimensions of mindful parenting relevant to the parent–child relationship: listening with full attention, non-judgmental acceptance of self and child, emotional awareness of self and child, self-regulation in the parenting relationship, and compassion for self and child. Items are rated on a 5-point Likert scale from 1 (never true) to 5 (always true) with higher scores reflecting more mindfulness in parenting. To the best of our knowledge, the psychometric properties of the 31-item English IM-P scale have not been published (Coatsworth et al., 2015). In the current study, Cronbach's  $\alpha$  for the total IM-P scale was 0.91 at pre-intervention and 0.93 at post-intervention. Alpha coefficients for the subscales ranged from 0.56 to 0.83 at pre-intervention and from 0.58 to 0.87 at post-intervention.

### Positive and Negative Emotions

Measurement of positive and negative emotions involved two different measures (i.e., the PERMA-Profilier and PANAS scale). The 23-item PERMA-Profilier was developed to assess (a) flourishing in terms of positive emotions, engagement, relationships, meaning and accomplishment and (b) overall well-being, negative emotion, loneliness and physical health (Butler & Kern, 2016). The current study reports the subscales of positive emotions and negative emotions. Three positive emotion items measure general tendencies toward feeling positive, content and joyful, while three negative items measure tendencies toward feeling anxious, angry and sad. Items are scored on a 10-point scale ranging from 0 to 10 (five items 0 = never, 10 = always; one item 0 = not at all, 10 = completely). In both subscales, higher scores reflect more positive/negative emotions. The PERMA-Profilier has shown acceptable psychometric properties across a large, diverse, international sample (Butler & Kern, 2016). In the current study, the Cronbach's  $\alpha$  for positive emotions was 0.85 at pre-intervention and 0.88 at post-intervention, and for negative emotions 0.67 at pre-intervention and 0.66 at post-intervention.

The Positive and Negative Affect Scale (Watson et al., 1988) is a 20-item measure comprising 10 positive affect (PA) and 10 negative affect (NA) adjectives. Parents were asked to rate the extent to which they had experienced each feeling and emotion during the past week on a 5-point scale that ranged from 1 (very slightly or not at all) to 5 (extremely). Higher scores on PA indicate more positive emotions and higher scores on NA indicate more negative emotions. PANAS has a good internal consistency and re-test reliability scores, and construct validity (Watson et al., 1988). In this study, the Cronbach's  $\alpha$  for PA was 0.91 at pre-intervention and 0.88 at post-intervention, and for NA 0.85 at pre-intervention and 0.81 at post-intervention. The positivity ratio score was calculated by dividing the sum score

for PA by the sum score for NA (Orkibi et al., 2018) with a higher ratio indicating a greater quantity of PA than NA (Fredrickson, 2013b).

### ESM Day Questionnaire: Daily Positive and Negative Emotions

A smartphone-based ESM application, PsyMate, was programmed to beep ten times a day, between 07:30 a.m. and 10:30 p.m. at semi-random intervals in eight 90-minute time blocks. At each beep, the app presented questions about current emotions, social context, location and activity. To ensure real-time assessment, the day questionnaire was available for 15 min. Data were collected over a period of five days.

In the day questionnaire, parents assessed their current emotions by answering the question "Right now I feel..." and rating emotion adjectives on a 7-point Likert scale from 1 (very slightly) to 7 (extremely). Positive affect (PA) adjectives were joyful, calm and content, and negative affect (NA) adjectives were annoyed/angry, worried/anxious, sad, lonely, and nervous. The ESM PA Cronbach's  $\alpha$  for pre-intervention and post-intervention were 0.84 to 0.86, respectively, and for ESM NA 0.80 and 0.83, respectively. The ESM positivity ratio score was computed from the PA and NA factors by dividing the mean score for PA by the mean score for NA (Orkibi et al., 2018). Social context was assessed with a multiple-choice format question "Who are you with right now?". The 11 response alternatives were coded into five categories: alone with a child/children; alone with a partner; with immediate family (child/children and partner); other than immediate family (child/children or partner can be present); alone. The content of the questionnaire was guided by previous ESM studies (Komulainen et al., 2014; Vella-Brodrick et al., 2014) and the PANAS questionnaire (Watson et al., 1988).

### ESM Evening Questionnaire: Daily Mindful Parenting, Strengths Awareness and Strengths Use

The evening questionnaire was open between 9:00 p.m. and 4:00 a.m. The questionnaire asked parents questions concerning mindful parenting, strengths and home atmosphere on a 7-point Likert scale from 1 (not at all true) to 7 (completely true). Mindful parenting questions concerned the time a parent had spent with her/his child/children during the current day. The questions were "Today have I really listened to my child.", "...paid attention to my child's needs/feelings.", "...not really been present when with my child." and "...reacted too quickly to what my child said/did." The strengths questions were the following: "Today have I noticed my own strengths.", "...used my strengths.", "...noticed my child's strengths." and "...helped my child

to express his/her strengths.” The research team developed these questions for the purpose of this study.

## Overview of Data Analysis

The data were analyzed with IBM SPSS software (version 25.0). To study the effect of the Flourishing Families program on outcome variables, we used linear mixed model with restricted maximum likelihood (REML) estimation method (Field, 2013). All models included as fixed effect time (pre-intervention, post-intervention and, regarding the IM-P and PERMA measures, follow-up in the pooled data), region (Helsinki and Turku regions) and gender. When analyzing the ESM data, we added replication as a random effect. In our main analysis, all models included group variable (immediate intervention and wait-list control) and interaction between time and group as fixed effects to enable the measurement of over-time change from pre-intervention to post-intervention in outcome variables between groups. All participants were later pooled as a single group and the same analyses were run without a group variable and interaction term. In all models, we performed multiple comparisons with Bonferroni correction to assess within and between group differences in estimated marginal means. A significance level of 0.05 was employed for all analyses. We are reported in the result section and tables the estimated marginal means, in this case adjusted for district and gender. Likewise, the reported within and between group mean differences have adjusted mean differences. When reporting between group differences, the wait-list control group is regarded as a reference group.

We analyzed the ESM emotion items both separately and as PA and NA factors. Further analysis was performed with a social context variable, which we coded into five categories. In this model, we examined a three-way interaction between time, group and social context. In the pooled data, we evaluated a two-way interaction between time and social context. In order to ensure that single emotion items could be reduced to PA and NA factors, we began by conducting a principal component factor analysis. We used Varimax with Kaiser Normalization as a rotation method. In the preliminary analysis, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett’s sphericity test were assessed to evaluate the validity of the factor analysis, accepting values over 0.70 and  $p < 0.05$  (Field, 2013).

Within and between group intervention effect sizes were calculated using Cohen’s  $d$ . In the main analysis we divided the adjusted mean difference within or between groups by the pooled standard deviation at pre-intervention (Cohen, 1988; Cumming, 2013; Feingold, 2015). In the pooled data, we divided the adjusted within group mean difference by the pre-intervention standard deviation. The effect sizes were interpreted according to Cohen (1988): small 0.2, medium 0.5, and large 0.8.

## Results

This chapter initially presents all results concerning immediate intervention vs. wait-list control data (i.e., comparison between immediate intervention and control groups) followed by the results concerning pooled data.

### Results from the Immediate Intervention vs. Wait-list Control Data

#### Descriptives

Of the 63 eligible participants, 62 answered the web-questionnaire at pre-intervention, 60 at post-intervention and 28 at the 3-month follow-up. The questionnaire data contained no missing values because answering all items was mandatory to proceed in the questionnaire. The 5-day ESM assessments were available from 61 parents at pre-intervention and from 62 parents at post-intervention. At pre-intervention, a total of 1782 beeps were recorded, of which 13.5% (240 beeps) were excluded, resulting in 1542 valid records. At post-intervention, altogether 1437 beeps were completed. Of these, 6.8% (97 beeps) were excluded, resulting in 1340 valid records. The reasons for excluding beeps were that the time interval for answering was more than five days, or a parent had participated in the intervention less than half of the sessions. At pre-intervention, participants completed on average 14 out of 50 beeps (28.0%,  $SD = 8.8$ ) and at post-intervention, on average 13 out of 50 beeps (26.0%,  $SD = 7.9$ ). Time spent on completing the questionnaire varied from less than one minute to 15 min; 53.6% of the beeps were answered in less than one minute, 38.6% within 1–2 min and 7.7% within 3–15 min. The ESM evening questionnaire was answered by 56 parents at pre-intervention and by 58 parents at post-intervention. At pre-intervention, a total of 293 beeps were recorded, of which 13.3% (39 beeps) were excluded, resulting in 254 valid records. At post-intervention, 236 beeps were completed, of which 7.2% (17 beeps) were excluded, resulting in 219 valid records. Beeps were excluded because the time interval for answering was more than five days.

### The Effect of the Intervention on Mindful Parenting Measured With the Web-questionnaire

Results from the immediate intervention and control groups showed an interaction effect between the group and time factors in the subscale Self-Regulation in the Parenting Relationship (SRPR) ( $F(1,58) = 4.93$ ,  $p = 0.030$ ). Multiple comparisons revealed a slight increase in SRPR over time (mean difference  $MD = 1.3$ ,  $SE = 0.4$ ,  $p = 0.003$ ,  $d = 0.33$ , pre-intervention  $M = 17.9$ ) in the immediate intervention group, whereas in the control group there was no change ( $p = 0.978$ ). At post-intervention, parents in the immediate intervention



**Table 2** Estimated results and mixed model analysis results for the interaction time\*group in the questionnaire data

Variable	Immediate intervention				Wait-list control				Mixed model analysis Time*Group <i>F</i> ( <i>p</i> )
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
IM-P Total	105.83	3.06	109.61**	3.07	100.77	3.46	101.47	3.48	2.417 (0.125)
IM-P LFA	16.07	0.64	16.79	0.66	16.23	0.72	15.78	0.74	3.121 (0.083)
IM-P EASC	22.11	0.56	22.36	0.56	21.29	0.63	21.45	0.63	0.034 (0.855)
IM-P SRPR	17.87	0.88	19.12**	0.89	17.25	1.00	17.26	1.01	4.926 (0.030)
IM-P NJASC	25.90	0.73	26.37	0.78	23.52	0.83	23.96	0.87	0.001 (0.981)
IM-P CSC	23.73	0.94	24.84*	0.88	22.28	1.04	22.83	1.01	0.576 (0.451)
PERMA Pos	6.93	0.36	7.03	0.39	6.5	0.41	6.66	0.44	0.034 (0.855)
PERMA Neg	5.43	0.40	4.76*	0.43	6.07	0.46	5.85	0.48	1.273 (0.264)
PANAS Pos	33.69	1.68	32.65	1.58	31.16	1.86	31.89	1.79	1.220 (0.274)
PANAS Neg	32.23	1.50	31.16	1.41	29.79	1.66	30.20	1.60	1.081 (0.303)
Positivity ratio	1.04	0.01	1.05	0.01	1.05	0.01	1.06	0.01	0.056 (0.813)

Note.  $n = 62$ . IM-P Total (scale 31–155); LFA Listening with Full Attention (5–25); EASC Emotional Awareness of Self and Child (6–30); SRPR Self-Regulation in the Parenting Relationship (6–30); NJASC Non-judgmental Acceptance of Self and Child (7–35); CSC Compassion for Self and Child (7–35); PERMA Positive emotions (0–10); PERMA Negative emotions (0–10); PANAS Positive affect (10–50); PANAS Negative affect (10–50); Positivity ratio (score range 1–5). *M* = Estimated marginal mean; *SE* = Standard Error.

Significant within group changes are marked with \*\* $p < 0.01$ ; \* $p < 0.05$ .

group reported higher scores in SRPR ( $MD = 1.9$ ,  $p = 0.069$ ,  $d = 0.50$ ) than parents in the control group. No interaction effects were found for the total mindful parenting (IM-P) score or other subscales. Main effects for time existed for the total IM-P ( $p = 0.027$ ) score and for the Compassion for Self and Child (CSC) ( $p = 0.029$ ), and the main effect for group approached significant ( $p = 0.052$ ) for the total IM-P. Multiple comparisons showed that parents in the immediate intervention group experienced slight increases over time in total IM-P score ( $MD = 3.8$ ,  $SE = 1.5$ ,  $p = 0.011$ ,  $d = 0.29$ ) and in CSC score ( $MD = 1.1$ ,  $SE = 0.5$ ,  $p = 0.045$ ,  $d = 0.28$ ). Additionally, at post-intervention, parents in the immediate intervention group scored higher in both measures compared to the control group (IM-P  $MD = 8.1$ ,  $p = 0.023$ ,  $d = 0.62$ ; CSC  $MD = 2.0$ ,  $p = 0.048$ ,  $d = 0.50$ ). Table 2 presents the estimated results and mixed model analysis results.

### The Effect of the Intervention on Positive and Negative Emotions, and the Positivity Ratio Measured with the Web-questionnaire

In the analysis, interaction effects between time and group were neither found for positive and negative emotions measured with the PERMA-Profiler's subscales of positive and negative emotions nor for PANAS and positivity ratio. For the PERMA-Profiler's negative emotions score a main effect for time ( $p = 0.029$ ) was found and the main effect for group approached significant ( $p = 0.052$ ). Within and between group comparisons revealed that the immediate intervention group exhibited a slight decrease in the PERMA-Profiler's negative

emotions score from pre-intervention to post-intervention ( $MD = -0.7$ ,  $SE = 0.3$ ,  $p = 0.025$ ,  $d = 0.40$ ). Additionally, the immediate intervention group scored slightly lower at post-intervention than the control group ( $MD = -1.1$ ,  $p = 0.034$ ,  $d = 0.64$ ). See Table 2 for results.

### The Effect of the Intervention on Daily Positive and Negative Emotions Measured with the ESM Day Questionnaires

Table 3 shows the results of the mixed model analyses for the ESM emotion variables. An interaction effect was found for the emotions joyful ( $F(1,922) = 5.25$ ,  $p = 0.022$ , time  $p = 0.003$ ), sad ( $F(1,993) = 5.84$ ,  $p = 0.016$ ) and nervous ( $F(1,843) = 4.25$ ,  $p = 0.039$ ). Multiple comparisons revealed that daily joyfulness increased in the control group from pre-intervention to post-intervention ( $p < 0.001$ ,  $d = 0.17$ ), while participants in the immediate intervention group experienced no change. No significant within group changes occurred regarding feeling sad and nervous. In both groups, slight upward trends over time occurred for PA (intervention  $p = 0.017$ ,  $d = 0.12$ ; control  $p < 0.001$ ,  $d = 0.20$ ; main effect for time  $p < 0.001$ ), positivity ratio (intervention  $p = 0.013$ ,  $d = 0.11$ ; control  $p < 0.001$ ,  $d = 0.15$ ; main effect for time  $p < 0.001$ ), and for feeling calm (intervention  $p < 0.001$ ,  $d = 0.17$ ; control  $p < 0.001$ ,  $d = 0.20$ ; main effect for time  $p < 0.001$ ) and content (intervention  $p < 0.035$ ,  $d = 0.10$ ; control  $p < 0.001$ ,  $d = 0.16$ ; main effect for time  $p < 0.001$ ).

Additional analyses were conducted for the ESM emotion items based on the social context (Table 4). Due to extensive

**Table 3** Estimated results and mixed model analysis results for the interaction time\*group in the ESM day questionnaire data

Variable	Immediate intervention				Wait-list control				Mixed model analysis Time*Group <i>F</i> ( <i>p</i> )
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
PA	4.57	0.15	4.71**	0.15	4.41	0.17	4.66***	0.17	1.775 (0.183)
NA	1.94	0.15	1.91	0.16	1.98	0.18	1.94	0.18	0.094 (0.759)
Joyful	4.66	0.15	4.69	0.16	4.37	0.18	4.59***	0.18	5.246 (0.022)
Calm	4.34	0.17	4.59***	0.17	4.45	0.19	4.74***	0.19	0.182 (0.670)
Content	4.72	0.15	4.87*	0.16	4.46	0.18	4.68***	0.18	0.586 (0.444)
Annoyed	2.26	0.15	2.12	0.16	2.10	0.17	2.08	0.18	1.288 (0.257)
Worried	1.88	0.20	1.91	0.2	2.02	0.23	1.94	0.23	1.545 (0.214)
Sad	1.87	0.16	1.97	0.16	1.93	0.17	1.82	0.18	5.840 (0.016)
Lonely	1.66	0.17	1.67	0.17	1.84	0.19	1.78	0.19	0.699 (0.403)
Nervous	1.98	0.20	1.86	0.20	1.98	0.22	2.04	0.22	4.254 (0.039)
Pos. ratio	2.97	0.29	3.19**	0.29	2.84	0.33	3.13***	0.33	0.388 (0.533)

Note. *N* = 63. *M* = Estimated marginal mean; *SE* = Standard Error. Scale range 0–7; Positivity ratio score range 1–5. Significant within group changes are marked with \**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.

analysis, the ESM results of variables assessed with the social context are limited; consequently, results were reported only when a significant three-way interaction effect existed between time, group and social context factors and/or significant within group change. A three-way interaction effect was found for the emotion worried ( $F(12,2485) = 1.88$ ,  $p = 0.033$ ; time  $p = 0.054$ ; social company  $p = 0.013$ ). When alone with a **partner**, parents in the immediate intervention group felt more worried over time ( $p = 0.018$ ,  $d = 0.32$ ), in contrast to an opposite trend in the control group ( $p = 0.154$ ,  $d = 0.33$ ) which, in turn, resulted in a group difference at post-intervention ( $p = 0.023$ ,  $d = 0.56$ ). Within the control group, feeling worried decreased also when a parent was alone with their **child/children** ( $p = 0.014$ ,  $d = 0.22$ ) and with **immediate family** ( $p = 0.002$ ,  $d = 0.40$ ), while the immediate intervention group experienced no change. A three-way interaction effect was also found for the positivity ratio ( $F(12,2757) = 2.34$ ,  $p = 0.006$ ; time  $p < 0.001$ ; social company  $p < 0.001$ ). When with **immediate family**, both groups exhibited improvements in the positivity ratio (intervention  $p = 0.037$ ,  $d = 0.22$ ; control,  $p < 0.001$ ,  $d = 0.37$ ). Further, the control group demonstrated a higher ratio over time when parents were with **other than immediate family** ( $p = 0.032$ ,  $d = 0.18$ ). A three-way interaction effect was also found for NA ( $F(12,2776) = 2.05$ ,  $p = 0.017$ ; social company  $p = 0.013$ ) with no significant within or between group changes.

Within group changes from pre-intervention to post-intervention occurred for several emotions in different contexts. When control group parents were alone with their **child/children**, they experienced a slight increase in joyfulness ( $p = 0.034$ ,  $d = 0.19$ ) and a slight decrease in nervousness ( $p = 0.042$ ,  $d = 0.22$ ), and when alone with a **partner**, a slight

increase in calmness ( $p = 0.034$ ,  $d = 0.42$ ), whereas no change was seen in the immediate intervention group. When with **immediate family**, within group changes were seen only in the control group as parents in the control group felt more PA ( $p = 0.037$ ,  $d = 0.23$ ) and content ( $p = 0.028$ ,  $d = 0.24$ ), and less sad ( $p = 0.003$ ,  $d = 0.38$ ) and nervous ( $p < 0.001$ ,  $d = 0.42$ ) at post-intervention than at pre-intervention. In the context of **other than immediate family**, both groups exhibited a slight upward trend in feeling calm (intervention  $p = 0.032$ ,  $d = 0.21$ ; control,  $p < 0.001$ ,  $d = 0.35$ ). Within the control group, slight upward trends also occurred for PA ( $p < 0.001$ ,  $d = 0.30$ ), and feeling joyful ( $p = 0.048$ ,  $d = 0.20$ ) and content ( $p = 0.017$ ,  $d = 0.26$ ).

When parents were **alone**, changes in the immediate intervention group concerned PA and feeling content, whereas in the control group changes concerned feeling annoyed and lonely. Parents in the immediate intervention group felt slightly more PA ( $p = 0.033$ ,  $d = 0.19$ ) and content ( $p = 0.006$ ,  $d = 0.25$ ) at post-intervention than pre-intervention. At post-intervention, a group difference was found in feeling content ( $p = 0.030$ ,  $d = 0.32$ ), as immediate intervention group parents felt more content than parents in the control group. In the control group, downward trends were seen in feeling annoyed ( $p = 0.048$ ,  $d = 0.20$ ) and lonely ( $p = 0.007$ ,  $d = 0.20$ ).

### The Effect of the Intervention on Daily Mindful Parenting, and Strengths Awareness and Use Measured with the ESM Evening Questionnaires

Results from the evening questionnaire indicated no significant interaction effect between time and group factors

**Table 4** Estimated results for the ESM day questionnaire emotion variables with social context, when within group significance from pre-intervention to post-intervention < 0.05

Variable	Immediate intervention				Wait-list control			
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention	
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>
Context: Alone with a child/children, beep <i>n</i> = 613								
Joyful	4.65	0.18	4.72	0.18	4.50	0.19	4.76*	0.19
Worried	1.81	0.20	1.86	0.21	2.05	0.23	1.74*	0.23
Nervous	1.85	0.21	1.77	0.22	2.18	0.24	1.90*	0.24
Context: Alone with a partner, beep <i>n</i> = 193								
Calm	4.59	0.23	4.35	0.24	4.36	0.27	5.04*	0.31
Worried	1.83	0.22	2.29*	0.23	1.96	0.30	1.50	0.32
Context: Immediate family, beep <i>n</i> = 501								
PA	4.68	0.17	4.87	0.17	4.42	0.19	4.70*	0.19
Content	4.74	0.19	4.99	0.19	4.41	0.21	4.76*	0.20
Worried	1.86	0.21	1.89	0.21	2.03	0.24	1.53**	0.25
Sad	1.88	0.18	1.92	0.18	2.08	0.21	1.59**	0.22
Nervous	2.03	0.21	1.76	0.21	2.07	0.24	1.48***	0.26
Pos. ratio	3.09	0.31	3.49*	0.31	2.71	0.35	3.39***	0.35
Context: Other than immediate family, beep <i>n</i> = 729								
PA	4.65	0.16	4.84	0.17	4.55	0.18	4.91***	0.18
Joyful	4.88	0.17	4.96	0.18	4.71	0.19	4.93*	0.19
Calm	4.15	0.18	4.47*	0.20	4.33	0.2	4.87***	0.21
Content	4.92	0.17	5.09	0.19	4.67	0.19	4.98*	0.20
Pos. ratio	3.06	0.30	3.31	0.31	3.10	0.34	3.43*	0.34
Context: Alone, beep <i>n</i> = 829								
PA	4.36	0.16	4.59*	0.16	4.15	0.18	4.31	0.18
Content	4.38	0.17	4.74**	0.18	4.15	0.19	4.28	0.19
Annoyed	2.22	0.17	2.01	0.17	2.13	0.19	1.85*	0.20
Lonely	1.94	0.19	1.90	0.19	2.24	0.22	1.96**	0.22

Note. *N* = 63. *M* = Estimated marginal mean; *SE* = Standard Error. Scale range 0–7; Positivity ratio score range 1–5. Significant within group changes are marked with \**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.

for items concerning either mindful parenting or awareness and use of strengths. However, a slight downward trend occurred in the control group in reacting too quickly to what their child said/did ( $p = 0.002$ ,  $d = 0.37$ ) in contrast to a non-significant change in the immediate intervention group. Presented in Table 5 are the estimated results and mixed model analysis results.

## Results from the Pooled Data

### Descriptives

The pooled questionnaire data involved 57 parents, the ESM day data involved 58 parents and the ESM evening data involved 57 parents. The ESM day data comprised 1419 valid beeps at pre-intervention and 1167 valid beeps at post-intervention assessment. Valid beeps for the ESM

evening data were 227 at pre-intervention, and 197 at post-intervention.

### The Effect of the Intervention on Mindful Parenting Measured with the Web-questionnaire

The analysis showed a slight increase over time from pre-intervention to follow-up for the total mindful parenting score ( $p < 0.001$ ,  $d = 0.39$ ), and for the subscales Self-Regulation in the Parenting Relationship ( $p < 0.001$ ,  $d = 0.57$ ) and Non-judgmental Acceptance of Self and Child (NJASC) ( $p = 0.009$ ,  $d = 0.31$ ). For the subscale Compassion for Self and Child, the increase over time was significant only from pre-intervention to post-intervention ( $p = 0.023$ ,  $d = 0.28$ ). The estimated results and mixed model analysis results in the pooled data are presented in Appendix 1.

**Table 5** Estimated results and mixed model analysis results for the interaction time\*group in the ESM evening questionnaire data

Variable	Immediate intervention				Wait-list control				Mixed model analysis Time*Group F (p)
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention		
	M	SE	M	SE	M	SE	M	SE	
Mindful parenting: Today have I...									
really listened to my child.	5.15	0.20	5.13	0.20	5.07	0.23	4.90	0.23	0.624 (0.431)
paid attention to my child's needs/feelings.	5.07	0.18	5.03	0.18	4.85	0.21	4.78	0.21	0.020 (0.888)
not really been present when with my child.	3.04	0.21	3.19	0.23	3.30	0.25	3.10	0.25	1.749 (0.188)
reacted too quickly to what my child said/did.	3.06	0.24	2.81	0.25	3.57	0.28	2.95**	0.28	1.878 (0.173)
Strengths: Today have I...									
noticed my own strengths.	4.18	0.23	4.39	0.24	3.82	0.27	3.84	0.27	0.675 (0.412)
used my strengths.	4.45	0.23	4.69	0.24	4.11	0.27	4.22	0.26	0.346 (0.557)
noticed my child's strengths.	4.79	0.21	4.66	0.21	4.71	0.24	4.52	0.24	0.071 (0.791)
helped my child to express his/her strengths.	3.99	0.24	3.98	0.24	3.85	0.28	4.06	0.28	0.904 (0.343)

Note.  $n = 62$ . Beep baseline  $n = 254$ , post-intervention  $n = 219$ .  $M$  = Estimated marginal mean;  $SE$  = Standard Error. Scale range 0–7. Significant within group changes is marked with \*\* $p < 0.01$ .

### The Effect of the Intervention on Positive and Negative Emotions, and the Positivity Ratio Measured with the Web-questionnaire

No significant changes over time occurred for the positivity ratio, positive emotions measured with PERMA and PANAS, or negative emotions measured with PANAS. In contrast, the PERMA-Profiler's subscale of negative emotions revealed a significant effect for time ( $p = 0.002$ ). Multiple comparisons between different timepoints showed that the decrease over time was significant only from pre-intervention to post-intervention ( $p = 0.003$ ,  $d = 0.38$ ) (see Appendix 1).

### The Effect of the Intervention on Daily Positive and Negative Emotions Measured with ESM Day Questionnaires

A slight increase over time occurred for PA ( $p = 0.015$ ,  $d = 0.09$ ) and the positivity ratio ( $p < 0.001$ ,  $d = 0.12$ ) in contrast to a slight decrease for NA ( $p = 0.005$ ,  $d = 0.10$ ). Regarding distinct emotions, parents experienced a slight improvement in feeling calm ( $p = 0.012$ ,  $d = 0.09$ ) and content ( $p = 0.015$ ,  $d = 0.09$ ), whereas a slight drop occurred for the emotions annoyed ( $p = 0.006$ ,  $d = 0.10$ ), and nervous ( $p < 0.001$ ,  $d = 0.16$ ). No changes were observed for the emotions joyful, worried, sad and lonely (see Appendix 2).

When parents were alone with their **child/children**, a slight increase occurred in feeling calm ( $p = 0.023$ ,  $d = 0.17$ ) and the positivity ratio ( $p = 0.032$ ,  $d = 0.14$ ). In the context of the **immediate family**, parents experienced slightly more PA ( $p = 0.030$ ,  $d = 0.17$ ) and less NA ( $p = 0.006$ ,  $d = 0.21$ ), and consequently, an increased positivity ratio ( $p = 0.001$ ,  $d = 0.23$ ). In terms of separate

emotions, when with **immediate family**, over time, parents felt slightly more content ( $p = 0.028$ ,  $d = 0.18$ ) and less nervous ( $p < 0.001$ ,  $d = 0.29$ ). When parents were **alone**, slight changes were seen in PA, NA, the positivity ratio and for the emotions content, annoyed, lonely and nervous. Results demonstrated that over time, parents experienced slight improvements in PA ( $p = 0.026$ ,  $d = 0.15$ ) and the positivity ratio ( $p = 0.006$ ,  $d = 0.18$ ), and a slight drop in NA ( $p = 0.016$ ,  $d = 0.15$ ). Additionally, parents felt slightly more content ( $p = 0.006$ ,  $d = 0.19$ ) and less annoyed ( $p = 0.014$ ,  $d = 0.20$ ), lonely ( $p = 0.028$ ,  $d = 0.12$ ) and nervous ( $p = 0.034$ ,  $d = 0.14$ ) at post-intervention than at pre-intervention. No significant changes occurred in the contexts of alone with the **partner** and **someone else than child/children or partner** (see Appendix 2).

### The Effect of the Intervention on Daily Mindful Parenting, and Strengths Awareness and Use Measured with the ESM Evening Questionnaires

The pooled analysis showed that the tendency to react too quickly to what a child says or does in a day decreased over time ( $p = 0.031$ ,  $d = 0.21$ ). Furthermore, increases occurred in noticing own strengths ( $p = 0.006$ ,  $d = 0.22$ ) and using strengths during the current day ( $p = 0.006$ ,  $d = 0.27$ ). No changes were observed for other mindful parenting and strengths use variables (see Appendix 3).

## Discussion

In the current study we examined the effects of the novel eight-week MPPI, Flourishing Families, on parents'

mindfulness in parenting, positive and negative emotions, strengths awareness and strengths use. By combining essential elements from positive psychology with mindfulness and CBT, the Flourishing Families program aims to strengthen the well-being of parents and their children.

Regarding mindful parenting, results from the immediate intervention vs. wait-list control data suggest that parents in the immediate intervention group benefited from the program in terms of becoming more mindful in parenting, especially regarding self-regulation in the parenting relationship and in displaying more compassion both for themselves and their child/children. Findings from the pooled data supported this interpretation; increases occurred in overall mindful parenting as well as in self-regulation in the parenting relationship, non-judgmental acceptance of self and child, and compassion for self and child. For daily mindful parenting measured with ESM, a positive effect was only seen in the pooled data. At post-intervention, parents reported that reacting too quickly to what their child said or did had diminished compared to the pre-intervention measurement. The results suggest that having mindfulness (i.e., paying attention on the purpose, in the present moment, and non-judgmentally) (Kabat-Zinn, 1990; Kabat-Zinn & Kabat-Zinn, 1997) in parenting as an overarching theme in the Flourishing Families program produced the desired effects with respect to certain aspects of mindful parenting. Therefore, it appears that hypothesis 1: participation in the Flourishing Families intervention improves parents' ability to be mindfully present in their parenting, was partly supported. Most of the effects were seen in the questionnaire data and not in the practice of daily mindful parenting. In the context of prior research (Kil & Antonacci, 2020; Townshend et al., 2016), however, our results are promising, particularly considering our small sample size. Our results suggest that the Flourishing Families program may have helped parents to transfer the theory and the guided activities (e.g., mindfulness meditations and mindful parenting homework activities) to their parenting practice and become more mindful in the presence of the child. Similar positive effects have been reported in the intervention studies by Coatsworth et al. (2010, 2015) in which mindfulness training was integrated into a family-based preventive intervention. Becoming more mindful in parenting is an important step towards more affectionate and improved parent–child interactions (Coatsworth et al., 2010, 2015; Duncan et al., 2015), which, in turn can have far-reaching effects on children's positive mental health (Stafford et al., 2015).

Regarding emotions, findings from the immediate intervention vs. wait-list control and pooled data showed that the intervention had a beneficial impact on experiencing fewer negative emotions, that is, feeling less

anxious, angry and sad. Regarding daily emotions, the immediate intervention vs. wait-list control data indicates that parents in the immediate intervention and control groups showed similar slight upward trends in PA, positivity ratio, and feeling calm and content. Similar trends were found in the pooled data, along with a slight downward trend for NA and feeling annoyed and nervous. It is difficult to say why in the group comparison data there was not a stronger increase in positive emotions in the intervention group, because parenting is affected by many aspects of life simultaneously (see e.g., Nelson et al., 2014). It may be that stronger differences between groups would occur after a longer period of time. Sustainable change requires time and repetition, in this case active use of the methods learned during the parental group. It may also be that the Flourishing Families program included too much material and activities, thus making it challenging for parents to focus on certain element of well-being. These results indicate that hypothesis 2, which proposes that increases in positive emotions and decreases in negative emotions result from the intervention, was mostly supported, although mainly in the pooled sample. Considering the short and long-term benefits of positive emotions (Fredrickson, 2013a; Moskowitz et al., 2021), even these small increases in positive emotions and the increased positivity ratio induced through Flourishing Families program might trigger upward spiral processes and, over time, help parents to strengthen their own well-being and the well-being of their family.

Hypothesis 3 claimed that the most positive effects in emotions would be shown during the time spent with family members; however, findings from the immediate intervention vs. wait-list control data did not support our hypothesis. Among the immediate intervention group parents, the only positive effect in the context of family members concerned an enhanced positivity ratio when with immediate family; however, a similar increase also occurred in the control group. Surprisingly, parents in the immediate intervention group felt slightly more worried over time when alone with a partner, in contrast to the wait-list control group parents who felt slightly less worried. Control group parents felt less worried over time also when alone with the child/children. Increased worry among the intervention group parents may be explained by the fact that very few parents participated in the Flourishing Families program together with their spouse. Therefore, it may be speculated that when only one parent learned about new methods of increasing well-being this may have created a sense of mismatched parenting behaviors and styles. It might also be the case that parents in the intervention group felt more pressure related to parenting as a result of increased knowledge. The absence

of positive changes may also be due to more critical examination of one's own feelings after the intervention. Nevertheless, findings from the pooled data suggest that participation in the parental group might have helped parents to achieve better balance between positive and negative emotions when alone with their child/children or with immediate family. Further, a positive impact was also seen in feeling slightly more content and less nervous when with immediate family.

Surprisingly, most of the changes in emotions in the pooled sample occurred in the context of being alone. After participating in the parental group, parents experienced slight increases in PA, positivity ratio and feeling content, and slight decreases in NA and feeling annoyed, lonely and nervous when by themselves. Our findings are mostly contrary to other daily diary studies in which parents reported more positive emotions in the presence of their children than in other daily activities (Nelson et al., 2014; Shoshani & Yaari, 2021) or in interactions with close friends (Shoshani & Yaari, 2021). One speculation regarding our study concerns the length of the intervention – it was not long enough to reach more changes in the context of family members. Consistent with the process framework - *Learn it, Live it, Teach it and Embed it* - often used in positive education (Hoare et al., 2017), it might be easier to start the process of change within oneself by learning new theories and tools (*Learn it*) and enacting them in daily life (*Live it*), before starting to spread (*Teach it*) and establish (*Embed it*) learnt things and tools in interaction with others. A longer intervention would give parents more time to test and use different methods, as no change will happen without their active use. Parents might also benefit from having more variation in the content of the activities, and thereby their engagement in doing the activities could be increased by better person-activity fit (Lyubomirsky & Layous, 2013). Further, by having less homework activities, parents would have more time to integrate and experience a possible change. Feedback from the parents ( $n = 37$ ) regarding homework showed that 51.4% of the participants thought that there were too many homework activities. Despite this, the Flourishing Families group was mostly liked, since on a scale of 1 (worst) to 5 (best), 37.8% chose alternative 5, while 48.7% chose alternative 4, and the rest chose alternative 3. Regarding the length of the intervention, 56.8% considered eight sessions to be a suitable length and 35.1% considered it too short.

Regarding our hypothesis 4 that the intervention would help parents in their daily awareness and use of strengths was supported regarding enhanced awareness and usage of their own strengths. No changes occurred in noticing a child's strengths or helping a child to express his/her strengths. Similar to hypothesis 3, the reason for this

limited finding might be the short duration of the parental group. Further, due to the characteristics of the Flourishing Families as a multi-component program, for example in contrast to the SBP program (Waters, 2015; Waters & Sun, 2016), some sessions focused on strengths. In order to achieve positive results regarding noticing child's strengths and helping children to use their strengths, the content of the program needs revision, for example more homework activities that focus on spotting strengths in others.

### Limitations and Future Directions

The findings of this pilot study should be interpreted in light of several limitations. First, the sample size was small and therefore, the results should be interpreted with caution. Second, due to the small sample size and the nature of the pilot study to test ESM as an intervention assessment tool, we did not set any cut-off point for ESM beeps to assure stronger reliability. Third, the gender distribution was biased, because only six fathers participated in the study. Future studies are needed with larger and more diverse samples to confirm our study's findings. Finally, it would be important to replicate the study with an RCT design in order to avoid the limitations of a wait-list control design. For example, in the group comparison data, analyses were not conducted between groups at 3-month follow-up, because the follow-up measurement among the immediate intervention group did not have any corresponding measurement among the wait-list control group (see Fig. 1). Whereas in the pooled data, the 3-month follow-up data lacked a control group, thus decreasing the reliability of the findings. One disadvantage of the wait-list control design is higher drop-out rates among wait-list control participants (e.g., Cohn & Fredrickson, 2010), although this was not a problem in the current study. The effects were more prominent in the pooled data. Findings regarding daily emotions in particular raise the question of whether the group leaders gained more experience over time in implementing the novel parental group and, for example, more time was reserved for joint discussions between group leaders and parents. This might have impacted the results. On the whole, as this study tested a new PPI in the parenting context and, to the best of our knowledge, was first study to use ESM in this context, our study contributes to filling the gap in existing research.

A meta-analysis of PPIs concluded that programs were more effective when they contained multiple PPIs and more sessions (on average 10 sessions), lasted longer (on average 6 weeks) and occurred face-to-face (Carr et al., 2020). In light of these findings, the Flourishing Families program meets these criteria. However, based on

participant feedback and more thorough consideration of the program elements and themes, the content of the program could be partly developed and the amount of homework activities could be reduced. The achievement of sustained positive change is challenging, and more for some people than others for various reasons. Rusk et al. (2017) propose a Synergistic Change Model (SCM) to better understand how lasting change occurs. In this model, biological/physiological and environmental factors together with five major domains of psycho-social functioning – (1) attention and awareness, (2) comprehension and coping, (3) emotions, (4) goals and habits, and (5) relationships and virtues – represent the major parts of a complex dynamic system of psycho-social functioning. Within this system, lasting change and sustainable well-being will be more likely when mutual reinforcement occurs within and between many domains of psycho-social functioning. Due to the complexity of the system, new stable patterns of behaviors can vary between individuals and groups (Rusk et al., 2017); therefore, the one-size-fits-all approach does not apply. The Flourishing Families program's elements and themes could be reconsidered, based on the SCM to ensure that the chosen themes capture as many domains as possible. Additionally, we tried to create practices and habits that are easily integrated into parents' daily lives; some of these activities could be delivered through smartphones, and more alternatives in activities could be provided from which parents could choose the most fitting. Finally, based on previous research, which indicates that intervention effects decrease over time (Carr et al., 2020; Hendriks et al., 2020), future studies could assess the effect of Flourishing Families booster sessions on sustaining intervention effects. Positive effects could be feasibly maintained through smartphone activities or the development of a shorter mobile-enabled ecological momentary intervention (mEMI) that is delivered in real time and in natural settings (Shim et al., 2021).

Families encounter numerous challenges. The spectrum of challenges faced by families with children is wide, ranging from small everyday troubles to more serious challenges such as mental health problems, inequality, inter-generational problems and child poverty (OECD, 2011; Virtanen et al., 2023). Families need a variety of support, which can be preventive, promotive or remedial in nature. By supporting vulnerable families and children effectively as early as possible, policy is likely to avoid costly negative outcomes in future (OECD, 2011). New approaches and collaboration between different actors are needed to help families with children. In addition to practitioners, researchers, professionals, economists and especially politicians play an important role (Virtanen et al., 2023). Interventions based on positive psychology and CBT would be an important addition

to the field both nationally and internationally. By implementing evidence-based MPPIs such as the Flourishing Families program, we could strengthen parents' resources, well-being and resilience, and thereby also enhance the well-being of their children.

## Conclusion

Overall, given the importance of parental well-being for children's positive mental health and flourishing, our findings are encouraging. The findings of this pilot study suggest that an eight-week parental MPPI can improve interpersonal mindfulness in parenting, shift emotional balance towards more positive emotions and less negative emotions, as well as enhance awareness and usage of parents' own strengths. With this study, we hope to both inspire researchers to conduct more MPPI studies using multiple methods in the parenting context and encourage practitioners to use the evidence-based methods of positive psychology when working with parents and families. Furthermore, we hope that the importance of MPPIs would be seen at the political level and that systematic work on well-being would be made possible.

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## Compliance with ethical standards

**Conflict of interest** The authors declare no competing interests.

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## Appendix

Appendix 1 Estimated results and mixed model analysis results for time in the questionnaire data computed from the pooled data

Variable (Scale range)	Intervention						Mixed model analysis
	Pre- intervention		Post-intervention		Follow-up		Time
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>F</i> ( <i>p</i> )
IM-P Total (31–155)	103.65	2.71	108.43	2.61	109.00	2.76	9.89 (0.000)
IM-P LFA (5–25)	15.86	0.58	16.54	0.57	16.71	0.61	2.51 (0.095)
IM-P EASC (6–30)	22.23	0.46	22.54	0.46	22.71	0.46	1.48 (0.241)
IM-P SRPR (6–30)	17.64	0.76	19.15	0.76	19.7	0.83	16.96 (0.000)
IM-P NJASC (7–35)	24.91	0.69	26.00	0.66	26.03	0.73	5.44 (0.009)
IM-P CSC (7–35)	23.36	0.77	24.52	0.69	24.35	0.75	3.84 (0.029)
PERMA Pos (0–10)	6.84	0.35	7.06	0.35	7.13	0.35	1.26 (0.294)
PERMA Neg (0–10)	5.42	0.38	4.69	0.38	5.10	0.40	6.95 (0.002)
PANAS Pos (10–50)	32.74	1.47	32.6	1.41			0.02 (0.878)
PANAS Neg (10–50)	31.29	1.29	30.98	1.28			0.17 (0.683)
Positivity ratio (1–5)	1.05	0.01	1.06	0.01			1.38 (0.245)

Note. *n* = 57. LFA Listening with Full Attention, EASC Emotional Awareness of Self and Child, SRPR Self-Regulation in the Parenting Relationship, NJASC Non-judgmental Acceptance of Self and Child, CSC Compassion for Self and Child. *M* = Estimated marginal mean; *SE* = Standard Error.

Appendix 2 Estimated results and mixed model analysis results for time in the ESM day questionnaire data

Variable	Intervention				Mixed model analysis
	Pre-intervention		Post-intervention		Time
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>F</i> ( <i>p</i> )
PA	4.60	0.12	4.71*	0.13	5.93 (0.015)
NA	1.98	0.14	1.88**	0.14	7.98 (0.005)
Joyful	4.63	0.13	4.68	0.13	1.27 (0.260)
Calm	4.50	0.14	4.63*	0.14	6.40 (0.012)
Content	4.68	0.13	4.81*	0.13	5.95 (0.015)
Annoyed	2.22	0.14	2.07**	0.14	7.68 (0.006)
Worried	1.97	0.17	1.88	0.17	3.72 (0.054)
Sad	1.88	0.14	1.87	0.14	0.07 (0.787)
Lonely	1.76	0.16	1.71	0.16	1.28 (0.259)
Nervous	2.07	0.17	1.87***	0.17	16.71 (0.000)
Pos. ratio	2.99	0.26	3.22***	0.26	14.13 (0.000)
Context: Alone with a child/children, beep <i>n</i> = 556					<i>p</i>
Calm	4.53	0.15	4.79*	0.16	0.023
Positivity ratio	3.04	0.27	3.32*	0.27	0.032
Context: Immediate family, beep <i>n</i> = 435					<i>p</i>



**Table** (continued)

Variable	Intervention				Mixed model analysis
	Pre-intervention		Post-intervention		Time
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>F</i> ( <i>p</i> )
PA	4.66	0.14	4.88*	0.14	0.03
NA	1.99	0.15	1.78**	0.15	0.006
Content	4.70	0.15	4.96*	0.16	0.028
Nervous	2.04	0.18	1.65***	0.19	0
Positivity ratio	3.11	0.27	3.57**	0.28	0.001
Context: Alone, beep <i>n</i> = 724					<i>p</i>
PA	4.38	0.13	4.55*	0.13	0.026
NA	2.10	0.14	1.95*	0.14	0.016
Content	4.38	0.14	4.64**	0.14	0.006
Annoyed	2.20	0.15	1.96*	0.15	0.014
Lonely	2.07	0.17	1.91*	0.17	0.028
Nervous	2.16	0.18	1.98*	0.18	0.034
Positivity ratio	2.63	0.27	2.93**	0.27	0.006

Note. *n* = 58. Beep pre-intervention *n* = 1,419, post-intervention *n* = 1,167. *M* = Estimated marginal mean; *SE* = Standard Error. Scale range 0–7; Positivity ratio score range 1–5. Significant within group changes are marked with \**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.

Results for the emotion variables by context are reported only when significance *p* < 0.05

#### Appendix 3 Estimated results and mixed model analysis results for time in the ESM evening questionnaire data

Variable	Intervention				Mixed model analysis
	Pre-intervention		Post-intervention		Time
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>F</i> ( <i>p</i> )
Mindful parenting: Today have I...					
really listened to my child.	5.19	0.18	5.15	0.18	0.20 (0.658)
paid attention to my child's needs/feelings.	5.02	0.18	4.97	0.18	0.20 (0.657)
not really been present when with my child.	3.10	0.17	3.11	0.18	0.00 (0.985)
reacted too quickly to what my child said/did.	3.13	0.20	2.81*	0.21	4.78 (0.031)
Strengths: Today have I...					
noticed my own strengths.	3.99	0.2	4.33**	0.21	7.78 (0.006)
used my strengths.	4.35	0.19	4.74**	0.19	8.06 (0.006)
noticed my child's strengths.	4.69	0.21	4.49	0.21	3.05 (0.083)
helped my child to express his/her strengths.	4.09	0.21	4.01	0.22	0.35 (0.555)

Note: *n* = 57. Beep baseline *n* = 227, post-intervention *n* = 197. *M* = Estimated marginal mean; *SE* = Standard Error. Scale range 0–7. Significant within group changes are marked with \**p* < 0.05; \*\**p* < 0.01.

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