Mindfulness
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ORIGINAL PAPER

# Perspectives of Maternal Mindful Parenting: Development and Initial Validation of the Mindful Parenting Inventories for Parents (MPIP) and Children (MPIC)

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## Abstract

**Objectives** Mindful parenting and its association with children's socio-emotional development has garnered increasing research interest in recent years, but child perspectives are little understood. Here, we introduce the development and initial validation of parallel parent- and child-reported inventories—the Mindful Parenting Inventories for Parents (MPIP) and Children (MPIC)—that aim to measure parent and child perspectives of mindful parenting, respectively.

**Method** The inventories consist of 18 items comprising 4 mindful parenting subscales (*Self-Regulation in Parenting*, *Acceptance and Compassion towards Child*, *Being in the Moment with Child*, *Awareness of Child*). Following initial feasibility work, 135 mothers ($M_{age}$ = 44.50 years, $SD_{age}$ = 5.49 years) and 90 typically developing children ($M_{age}$ = 13.09 years, $SD_{age}$ = 1.66 years) formed a validation sample in the UK. Partial measurement invariance was supported across reporters.

**Results** There were medium-to-large correlations between MPIP and MPIC total scores and subscales, and both demonstrated excellent convergent validity (associations with mothers' dispositional mindfulness and "traditional" parenting constructs) and concurrent validity (associations with children's internalising, externalising and prosocial behaviours and mothers' psychological distress). Furthermore, incremental validity—predictions from MPIP/MPIC to children's behaviours over and above maternal dispositional mindfulness and traditional parenting—was apparent.

**Conclusions** The parallel MPIP and MPIC show promise for assessing mindful parenting from both parent and child perspectives.

**Preregistration** This study was not preregistered.

**Keywords** Mindful parenting · Child-reported · Scale development · Measurement invariance

Research demonstrating the salience of aspects of parenting for children and young people's psychological adjustment has a long history (Maccoby, 2015). One area of parenting garnering relatively new attention, especially in parenting adolescent children, is so-called mindful parenting (Duncan et al., 2009). Mindful parenting refers to the ability to be aware of and pay non-judgmental, intentional present-moment attention both to one's child and one's own parenting (Kabat-Zinn & Kabat-Zinn, 1997). Since its introduction, there has been a notable increase in empirical studies of this construct, commonly considering mindful parenting as having a multidimensional structure, including the skills of self-regulation in parenting, non-judgmental acceptance of and compassion for self and the child, listening with full attention, and emotional awareness (de Bruin et al., 2014; Duncan et al., 2009).

Practising mindful parenting is thought to promote parents' and children's mental health and well-being through parenting self-efficacy, child-behaviour management, parent-child communication and affection (Duncan et al., 2009). Mindful parenting has also been shown to be associated with higher levels of parental sense of competence (Lippold et al., 2021), child management and parent communication skills (Duncan et al., 2015) and reduced negative affect during parent-child interaction (Duncan et al., 2015; Turpyn &

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Chaplin, 2016). Moreover, although findings are somewhat mixed, mindful parenting interventions have shown promising effects on both parents' and children's psychological outcomes (for a meta-analysis, see Burgdorf et al., 2019).

Most studies examining mindful parenting rely on parents' self-report. This is an important limitation for the field, not least since parent-reported mindful parenting may explain only a small amount or no variance (e.g. Moreira & Canavarro, 2020; Moreira et al., 2018; Park et al., 2020) in child-reported outcomes. We argue that it is essential to consider children's subjective experience of mindful parenting to better understand its potential importance for the family. From a phenomenological perspective, children's subjective experience—sometimes termed the "science of experience"—is considered essential for understanding the role of the family for children's adjustment (Schaefer, 1965), beyond observer or parent perceptions (Cohen & Rice, 1997; Danese & Widom, 2020; Scott et al., 2011). Indeed, evidence suggests that children's perceptions of the parenting they receive may be better predictors of children's outcomes than the perceptions of their parents (Cohen & Rice, 1997; Danese & Widom, 2020).

Decades of research have reported low congruence between parent-child (Hou et al., 2020; Korelitz & Garber, 2016) and parent-observer (Hendriks et al., 2018) assessments of parenting behaviours, with parents tending to perceive their parenting more favourably (Hou et al., 2020; Korelitz & Garber, 2016), possibly due to social desirability biases (Bornstein et al., 2015). There is some suggestion that the agreement between child-reported and observed parenting behaviours may be higher than that between parent-reported and observed parenting, implying that child reports on parenting may be freer of such biases than are parent reports (Scott et al., 2011; Sessa et al., 2001). Moreover, low concordance between parent and child reports may indicate differing agendas for parents and children, or may index parent-child relationship problems (for a meta-analysis, see Hou et al., 2020), that are important for children's mental health (Van Heel et al., 2019; Kapetanovic & Boson, 2022). Accordingly, considering different perspectives on parenting is essential to increase the validity of measurement as well as to capture a full picture of family relationships and their association with child outcomes (Taber, 2010).

There are three parent-reported (Interpersonal Mindfulness in Parenting Scale, IM-P; Duncan, 2007; de Bruin et al. 2014; Mindfulness in Parenting Questionnaire, MIPQ; McCaffrey et al., 2017; Bangor Mindful Parenting Scale, BMPS; Jones et al., 2014) and one observational measure of mindful parenting (Mindful Parenting Observational Scales, MPOS; Geier et al. 2012), yet, to the best of our knowledge, there exists no validated measure of children's perceptions of mindful parenting. One reason for this may lie in conceptual definitions of mindfulness and mindful parenting, both of which have been seen as meta-cognitive/meta-emotional processes (Bishop, 2004; Duncan et al., 2009, 2015), hinting that they may not be observable or able to be reported by others. However, it seems paradoxical to use self-report measures to assess mindfulness concepts that, by definition, require a level of self-awareness to afford accurate reporting: "reliance on self-report may result in blind spots in the conceptualisation of mindfulness" (May & Reinhardt, 2018, p. 106). Considering inner states to be visible to others, in adults, researchers have demonstrated positive associations between self-reported and "close others"–reported (e.g. close friends, siblings, partners) mindfulness, with moderate (May & Reinhardt, 2018) to large (Whitney & Chang, 2022) effect sizes. These are promising findings for the assessment of mindful parenting beyond self-report.

Mindful parenting has been argued to include behavioural as well as meta-cognitive processes (Coatsworth et al., 2010), an aspect that further paves the way for others to be able to report this construct. In this conceptualisation, meta-cognitive aspects of mindful parenting are intrapersonal/self-oriented, including parents' values, beliefs and expectations about parenting and child, as well as awareness of how those affect parenting behaviours. On the other hand, behavioural aspects are interpersonal/interaction-oriented, such as interacting with one's child with full attention, that is paying heed to their behaviour, feelings and thoughts without distraction, as well as being non-reactive and showing compassionate acceptance towards child. Although not theoretically considered as being separable from each other in early conceptualisations of mindful parenting (Duncan et al., 2009), a potential distinction between these intra- and interpersonal aspects of mindful parenting (e.g. awareness of the parent's own emotions *versus* awareness of their child's emotions) has since been demonstrated in empirical studies (Beer et al., 2013; de Bruin et al., 2014; Lo et al., 2018; Moreira & Canavarro, 2017). Importantly, interpersonal aspects of mindful parenting have been shown to manifest in outward behaviours (Duncan et al., 2015; Geier et al., 2012) that may thus be observable and reportable by others.

If mindful parenting is observable, we argue that there is no reason to think that children cannot perceive and report on this construct once they reach a developmental stage at which their reports of parenting are considered reliable and valid (Havermans et al., 2015; Taber, 2010). To our knowledge, only three studies (i.e. Lippold et al., 2015; Liu et al., 2019, 2021) have considered children's perspectives of mindful parenting, using child reports on the IM-P. One of these studies showed that parents reported higher levels of mindful parenting on the *Emotional Awareness* subscale of the IM-P (Liu et al., 2021). However, although these studies made an important first step in this area, the IM-P has not been validated for use with children, nor has it been assessed for measurement invariance. Thus, it is not clear whether any

difference between parents' and children's reports of mindful parenting is a genuine perspective difference or is due to the differences in how parents and children interpret the scale items (Havermans et al., 2015; Russell et al., 2016). This lack of validation for child reports may bring research limitations, not only because of a reliance on children's higher-order social-cognitive abilities for reporting intrapersonal domains (i.e. first- and second-order theory of mind; Westby & Robinson, 2014) but also because of the potential for item miscomprehension.

To facilitate a better understanding of parent and child perspectives of interpersonal aspects of mindful parenting, the current study aimed to develop and validate new parallel parent and child inventories of this construct. Thus, the Mindful Parenting Inventories for Parents (MPIP) and Children (MPIC) were developed to enable the assessment of parent and child perceptions of mindful parenting. Due to the necessity of understanding the role of mindful parenting in non-clinical contexts (Kil & Antonacci, 2020) and during the adolescent period when mindful parenting may be particularly important (Duncan et al., 2009), this study focused on typically developing children aged 11–16 years and their parents.

A small feasibility study with parents and children was conducted on initial versions of the inventories (see "Measures"), based on which the inventories were revised and validated in a larger sample. The current study, first, explored whether MPIP/MPIC consists of five factors as suggested in the mindful parenting model (Duncan et al., 2009), and then tested measurement invariance and latent mean differences between mothers' and their children's perspectives of mindful parenting. Second, parent and child agreement on reports of mindful parenting was examined, anticipating small-to-moderate positive correlations between MPIP and MPIC based on the literature (Cohen & Rice 1997; Korelitz & Garber, 2016). Third, this study assessed convergent validity with measures of positive parenting, inconsistent discipline and poor supervision, hereon referred to as "traditional" parenting constructs, considering the tendency in mindful parenting literature to do so (e.g. Geurtzen et al., 2015; Pan et al., 2019). It was hypothesised that MPIP/MPIC would be positively associated with parent dispositional mindfulness and positive parenting but negatively associated with negative parenting constructs. Fourth, concurrent validity was examined, hypothesising MPIP/MPIC would be negatively correlated with mothers' psychological distress (depression, anxiety, stress) and child problem behaviours (internalising and externalising) but positively correlated with child prosocial behaviours. Finally, this study examined incremental validity, expecting MPIP/MPIC to predict child behaviours over and above parental dispositional mindfulness and traditional parenting.

## Method

### Participants

One-hundred-and seventy-four mothers were initially recruited, 39 of whom were excluded because they failed to meet the eligibility criteria ($n = 16$) or completed less than 50% of the study questionnaire ($n = 23$). Thus, the final parent sample consisted of 135 birth mothers. Mothers' ages ranged from 28 to 57 years ($M = 44.50$ years, $SD = 5.49$ years), most reported their marital status as married ($n = 115$, 85.2%), and they had between one and five children ($M = 2.12$, $SD = 0.84$). Mothers predominantly self-identified as 'white/white British' ($n = 114$, 84.4%) and had an undergraduate degree or higher ($n = 104$, 77%). Regarding subjective SES, mothers reported a mean score of 6.41 ($SD = 1.78$; ranged from 1 to 10) on the MacArthur Scale of Subjective Social Status (Adler et al., 2000). Target children's ages ranged from 11 to 16 years old ($M = 13.14$ years, $SD = 1.60$ years; 70 girls (51.9%)), 90 of whom assented to participate (67.7%). Therefore, 90 mothers and their children (aged 11 to 16 years; $M = 13.09$ years, $SD = 1.66$ years; 48 girls (53.3%)) comprised the dyadic sample. An a priori sample size calculation for our hierarchical multiple regression analysis (G* power 3.1.9.7, Faul et al., 2007) suggested 81 participants to achieve a medium effect size ($f^2 = 0.10$, $\alpha = 0.05$, 80% power) based on previous analogous research (Cheung et al., 2021).

### Procedure

Mothers and children living in the UK were recruited through targeted online social media groups (Twitter, Instagram, Facebook) between March and July 2021. To be included in the study, mothers had to have at least one child aged 11–16 years living with them full time, and mother and child had to be native or fluent in English and to have no mother-reported diagnoses of learning disability and (neuro) developmental or mental health disorder. Study information, consent and data collection used Qualtrics Survey Software. Mothers were given an information sheet about the study that they discussed with their children, providing consent for their own and their child's participation; children provided assent. Mothers with more than one child were asked to report on only one child between 11 and 16 years of age. After participation, debriefing information was provided. The UCL Institute of Education, Postgraduate Research Ethics Committee, granted ethical approval (UCL Data Protection Registration Number: Z6364106/2021/01/43 social research).

## Measures

**Demographic Information** Mothers were asked to report their age (years), sex and gender, ethnicity, marital status, the highest level of educational qualification, number of children, relationship with the target child, whether they lived with the child full time, and the child's age (years) and sex. The Macarthur Scale of Subjective Social Status (Adler et al., 2000) was used to evaluate mother-perceived socio-economic status (SES). The scale has one item for which individuals rate their perceived SES on a ladder with ten rungs scored 1 to 10; higher scores indicate higher levels of perceived SES.

**Mindful Parenting** In the feasibility study, an initial item pool was tested that included 45 items to assess dimensions of mindful parenting (Duncan et al., 2009), namely self-regulation in parenting, non-judgemental acceptance of child, being in the moment with child, awareness of child and compassion towards the child. A feasibility study, including a 2-week test-retest, was used to pilot these 45 items with 44 parents (35 birth mothers, 79.5%; eight fathers, 18.2%) and one stepfather (2.3%), aged 29 to 65 years ($M = 43.09$ years, $SD = 6.50$ years) and 33 children (22 girls. 66.7%), aged between 11 and 16 ($M = 13.25$, $SD = 1.50$). After responding to each item, parents and children evaluated how easy it was to understand on a 5-point scale from 1 (*extremely easy*) to 5 (*extremely difficult*) and were encouraged to provide open-ended feedback for each item. We dropped 20 items that reflected general negative/harsh parenting rather than specifically negative mindful parenting, were reflected to require high-level theory of mind abilities, or demonstrated no variability/poor structural agreement in both parent and child feasibility samples. Some items were revised due to a lack of clarity reported by the respondents. The remaining 25 items comprised the five subscales measuring five dimensions of mindful parenting, each with 5 items (both Cronbach's α and McDonald's $\omega = 0.70$ to 0.94) and 2-week test-retest reliability ($r$ ranging from 0.76 to 0.79) in the feasibility sample. Note that we made additional decisions about the final structure of the inventories as part of the current, larger sample validation.

The 25-item MPIP/MPIC suggested by this feasibility work was used to assess mothers' and children's perspectives of mindful parenting in the current study. Mothers and children reported on mindful parenting using a 5-point Likert scale (*never true* = 1 to *always true* = 5). Note that analyses of the structure of the inventories led to a revised 18-item version of the scales used in the subsequent validation analyses (see detail below).

**Maternal Dispositional Mindfulness** The 15-item short-form of the Five Facet Mindfulness Questionnaire (FFMQ-SF; Gu et al., 2016) was used to evaluate mothers' dispositional mindfulness. Mothers reported their mindfulness on a 5-point scale from 1 (*Never or very rarely true*) to 5 (*Very often or always true*). Seven negative items of the FFMQ-SF were reverse-scored, such that higher scores indicate higher levels of dispositional mindfulness. Example items include "Even when I'm feeling terribly upset, I can find a way to put it into words" and "I find myself doing things without paying attention". Cronbach's α was 0.79 and McDonald's $\omega$ was 0.79.

**Traditional Parenting** The 9-item short version of the Alabama Parenting Questionnaire (APQ-9; Elgar et al., 2007) was used to assess mothers' and children's perceptions of parenting practices in three dimensions, each including 3 items rated on a 5-point scale from 1 (*never*) to 5 (*always*). Example items include the following, for Positive Parenting: "You let your child know when he/she is doing a good job with something/Your mother tells you that you are doing a good job"; for Inconsistent Discipline: "You threaten to punish your child and then do not actually punish him (her)/ Your mother threatens to punish you and then does not do it"; and for Poor Supervision: "Your child fails to leave a note or to let you know where he (she) is going/You fail to leave a note or tell your mother where you are going" (mothers: both Cronbach's α and McDonald's $\omega = 0.80$, 0.80 and 0.72, for Positive Parenting, Inconsistent Discipline and Poor Supervision, respectively; children: Cronbach's α = 0.79, 0.61 and 0.63, and McDonald's $\omega = 0.80$, 0.61 and 0.67, respectively).

**Maternal Psychological Distress** The 21-item version of the Depression Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995) was used to assess mothers' depression, anxiety and stress, each with 7 items. Mothers reported their psychological distress on a 4-point scale from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much or most of the time*). Example items include "I couldn't seem to experience any positive feeling at all", "I was aware of dryness of my mouth" and "I found it hard to wind down" (both Cronbach's α and McDonald's $\omega = 0.90$, 0.87 and 0.88 for depression, anxiety and stress, respectively).

**Child Behaviours** Mothers and children report on child behaviours using the age-appropriate versions of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ's internalising behaviours (emotional symptoms + peer relationship problems) and externalising behaviours (conduct problems + hyperactivity) subscales suggested for community samples (Goodman, 2010) include 10 items, and we also included the prosocial behaviours subscale (5 items); each SDQ item is scored on a 3-point scale from 0 (*Not True*) to 2 (*Certainly True*). Example items

include the following, for internalising behaviours: "Often complains of headaches, stomach-aches or sickness/I get a lot of headaches, stomach-aches or sickness"; for externalising behaviours: "Often has temper tantrums or hot tempers/I get very angry and often lose my temper"; and for prosocial behaviours: "Considerate of other people's feelings/I am considerate of other people's feelings" (mothers: Cronbach's $\alpha = 0.85$, 0.83 and 0.76, and McDonald's $\omega = 0.85$, 0.85 and 0.76 for internalising, externalising and prosocial subscales, respectively; children: Cronbach's $\alpha = 0.83$, 0.83 and 0.69, and McDonald's $\omega = 0.85$, 0.84 and 0.69, respectively).

## Data Analyses

Statistical analyses were performed using SPSS 28.0 and AMOS 28.0. There were no items with 5% or more missing data in any sample. Missing data were completely at random (Little, 1988) in the mother ($\chi^2 = 869.49$, $df = 805$, $p = 0.06$) and child sample ($\chi^2 = 75.32$, $df = 58$, $p = 0.06$). Pairwise deletion was used to handle missing data by excluding those with missing data on more than 20% of items on a given scale (maximum of three participants pairwise were deleted from any analysis). Both mother- and child-reported poor supervision parenting scores (skewness = 1.60, kurtosis = 2.50; skewness = 1.52, kurtosis = 2.12, respectively) as well as mothers' anxiety score (skewness = 1.54, kurtosis = 1.84) deviated from normal distribution. Thus, before the analysis, log 10 transformation was carried out to render normality for these scales (skewness = 0.84, kurtosis = −0.08 for transformed mother-reported poor supervision; skewness = 0.77, kurtosis = −0.33 for transformed child-reported poor supervision; skewness = 0.96, kurtosis = −0.07 for transformed maternal anxiety).

Binary logistic regression analysis was used to determine factors that might affect children's participation in the research following maternal consent. We analysed whether sociodemographic variables (child sex, child and mother age, number of children mothers had and subjective SES) and main variables (mindfulness, depression, anxiety, stress, mother-reported positive parenting, inconsistent discipline and poor supervision as well as internalising, externalising and prosocial behaviours of children) predicted children's participation. The results showed no significant differences between mothers whose children did and did not complete our questionnaires ($\chi^2 = 23.04$, $df = 15$; Cox-Snell $R^2 = 0.17$, $p = 0.08$).

We examined the variance of each item on the parallel inventories, MPIP/MPIC. Item 20, "I am kind towards my child when she/he is going through a hard time"/"My mother is kind towards me when I am going through a hard time", was deleted due to its lack of variance in the mother sample ($\sigma^2 = 0.49$). The remaining 24 items were subjected to exploratory principal component analyses (PCA) with Promax rotation to examine the factor structure of the MPIP in the mothers' data.

Subsequently, we conducted initial confirmatory factor analyses (CFA) in both mother and child samples to establish a baseline model for mothers and their children in order to illuminate a subsequent multiple-group CFA to test the measurement invariance of the new inventories across reporters (mothers and their children) in three hierarchical steps: (1) configural invariance, (2) metric invariance and (3) scalar invariance (Putnick & Bornstein, 2016). Then, we calculated latent mean differences between the dimensions of MPIP and MPIC. Comparative fit index (CFI $\geq 0.90$), root-mean-square error of approximation (RMSEA $\leq 0.08$) and standardised root-mean-square residual (SRMR $\leq 0.09$) were used as the criteria for model fit (Hu & Bentler, 1999).

Chi-square differences were examined to test measurement equivalence. If the chi-square change is insignificant between the configural model and metric model and between the metric model and scalar model, we supposed that the scale meets the criteria for full metric and scalar invariance, respectively (Byrne, 1989; Kline, 2005). We also examined changes between the models in CFI using the cut-off criteria of −0.01 (Cheung & Rensvold, 2002). As the cut-off value is very small, we reported three decimal places of fit indices.

Pearson correlations were conducted to examine associations amongst MPIP/MPIC subscales within- as well as totals and subscales cross-rater. We also used both within- and cross-reporter correlational analyses to test MPIP/MPIC convergent validity—how well the new instruments represent the concept to be measured—using the FFMQ-SF and APQ-9, as well as concurrent validity—associations between the new instruments and expected outcomes—using the SDQ and DASS-21. Lastly, we conducted within- and cross-reporter hierarchical linear regression analyses to test the incremental validity of MPIP/MPIC in their association with child SDQ outcomes, over and above maternal dispositional mindfulness (FFMQ-SF), traditional parenting (APQ-9) and sociodemographic covariates.

# Results

## MPIP/MPIC Structure

Following PCA with 24 items from MPIP (see "Data Analyses"), we excluded 6 items (Q7, "I apologise when I have acted in some way that hurts my child's feelings"; Q8, "I listen carefully to my child's ideas, even when I do not agree with them"; Q10, "I give my child space to calm down when she/he is angry"; Q14, "I fully focus on the activities my child and I are doing together"; Q21, "I take out my frustration on my child even when it is not about her/him"; and

Q23, "I leave space for my child to speak") due to cross-loadings. A 4-component solution (KMO = 0.88, Bartlett's sphericity test $\chi^2$ (153) = 1013.51, $p < 0.001$) was revealed for the 18-item MPIP, with the principal component explaining 62.07% of the variance. All items had communalities above 0.50 and factor loadings above 0.55 (Table 1).

Because of the need to test the similarity of the factor structure of our parallel inventories for parents and children, we examined invariance between mother and child dyad reports of mindful parenting using multiple-group CFA, testing the nested model using multiple-group CFA after establishing the baseline model for each group. Following poor baseline model fit indices in the mothers' data ($\chi^2$ (129) = 203.547, $\chi^2/df$ = 1.578, CFI = 0.878, RMSEA = 0.081, SRMR = 0.080), we found that allowing error covariances between Items 6 and 15 and between Items 1 and 15 afforded improvement to model fit ($\chi^2$ (127) = 181.852, $\chi^2/df$ = 1.432, CFI = 0.910, RMSEA = 0.070, SRMR = 0.078; $\Delta\chi^2$ (2) = −21.695, $p < 0.001$, ΔCFI = 0.032). Adequate fit indices were found for the children's baseline model ($\chi^2$ (129) = 197.864, $\chi^2/df$ = 1.534, CFI = 0.905, RMSEA = 0.077, 95% CI [0.06, 0.10], SRMR = 0.075).

Multiple-group CFA showed that the unconstrained model (with the error covariances between Items 6 and 15 and between Items 1 and 15) had an acceptable fit ($\chi^2$ (254) = 377.474, $\chi^2/df$ = 1.486, CFI = 0.908, RMSEA = 0.052, SRMR = 0.078), supporting configural invariance between children and their mothers. The metric model with constrained factor loadings across groups also showed sufficient fit ($\chi^2$ (268) = 398.491, $\chi^2/df$ = 1.487, CFI = 0.902, RMSEA = 0.052, SRMR = 0.086; $\Delta\chi^2$ (14) = 21.017, $p = 0.10$, ΔCFI = −0.006). As chi-square change was insignificant and CFI did not deteriorate more than |−0.01| between the configural (unconstrained) model and metric model, we concluded that full metric invariance across the groups was supported, suggesting MPIP/MPIC factor loadings to be equal between mothers and their children. Compared to the metric model, however, the model fit was worse in the scalar model ($\chi^2$ (282) = 471.270, $\chi^2/df$ = 1.671, CFI = 0.859, RMSEA = 0.061, SRMR = 0.085, $\Delta\chi^2$ (14) = 72.779, $p < 0.001$, ΔCFI = −0.043), implying that not all item intercepts were invariant between the mothers and their children. Making sure that at least half of the items in a factor were restricted to be equal, we released a total of four intercepts in a backward approach until the model showed partial scalar invariance (Putnick & Bornstein, 2016; $\chi^2$ (278) = 414.953, $\chi^2/df$ = 1.493, CFI = 0.898, RMSEA = 0.053, SRMR = 0.086, $\Delta\chi^2$ (10) = 16.462, $p = 0.09$, ΔCFI = −0.004). Results suggested that the majority of the item intercepts were equal across the groups.

We present the final parallel inventories, MPIP/MPIC, consisting of 18 items, 8 of negative and 10 of positive valence, with a 4-dimensional structure, including subscales

**Table 1** Four-factor solution for the Mindful Parenting Inventory for Parents (MPIP)

| *N* = 135 | MPIP subscales | | | | Communalities |
|---|---|---|---|---|---|
| | SRP | ACC | BMC | AC | |
| 16. I have difficulty calming down after my child and I have argued.* | 0.83 | | | | 0.59 |
| 6. I get carried away with my own feelings when my child and I argue.* | 0.81 | | | | 0.67 |
| 1. I quickly become defensive when my child and I argue.* | 0.79 | | | | 0.60 |
| 5. My tone of voice is calm when I am giving my child a warning. | 0.79 | | | | 0.58 |
| 11. I get annoyed easily if my child interrupts me whilst I am doing something else.* | 0.78 | | | | 0.59 |
| 15. I am patient with my child. | 0.58 | | | | 0.63 |
| 13. I accept my child exactly as she/he is. | | 0.85 | | | 0.71 |
| 3. I accept that my child has opinions that are different from mine. | | 0.78 | | | 0.50 |
| 25. I am tolerant of my child's imperfections. | | 0.71 | | | 0.58 |
| 22. I understand why my child behaves the way she/he does. | | 0.60 | | | 0.52 |
| 18. I listen to my child without judging or criticising her/him | | 0.55 | | | 0.68 |
| 24. My child needs to call out to me a few times to make me notice her/him even if we are in the same room.* | | | 0.86 | | 0.69 |
| 19. I rush through activities with my child without really paying attention.* | | | 0.78 | | 0.68 |
| 9. I am easily distracted when my child and I are doing things together.* | | | 0.74 | | 0.59 |
| 4. I listen to my child with one ear because I am busy thinking about something else.* | | | 0.61 | | 0.50 |
| 2. I understand what my child is thinking, even when she/he does not tell me. | | | | 0.83 | 0.69 |
| 12. I understand how my child feels just by looking at her/him. | | | | 0.81 | 0.79 |
| 17. I notice the changes in my child's mood. | | | | 0.67 | 0.59 |

*SRP*, Self-Regulation in Parenting; *ACC*, Acceptance and Compassion towards Child; *BMC*, Being in the Moment with Child; *AC*, Awareness of Child. *Represents reverse-coded items

of *Self-regulation in Parenting*, *Acceptance and Compassion towards Child*, *Being in the Moment with Child* and *Awareness of Child* (Supplementary Table S1). MPIP explained 47% of the total variance (17.6% explained by Self-regulation in Parenting, 10.8% by Acceptance and Compassion towards Child, 9.6% by Being in the Moment with Child and 9% by Awareness of Child), and MPIC explained 50.2% of the total variance (16.3% explained by Self-regulation in Parenting, 13.7% by Acceptance and Compassion towards Child, 10.5% by Being in the Moment with Child and 9.7% by Awareness of Child).

The factor estimates of MPIC/MPIC obtained in the scalar invariant model are presented in Fig. 1. We then tested latent, rather than observed, level mean differences (i.e. using *t*-test) as we only achieved partial invariance (Steinmetz, 2013). Results showed that mothers perceived themselves as less mindful in Being in the Moment with Child ($z = -2.97$, $p < 0.01$) but more mindful in Awareness of Child ($z = 2.73$, $p = 0.01$) aspects of mindful parenting than their children did. There were no latent mean differences between mothers and children in Self-regulation in

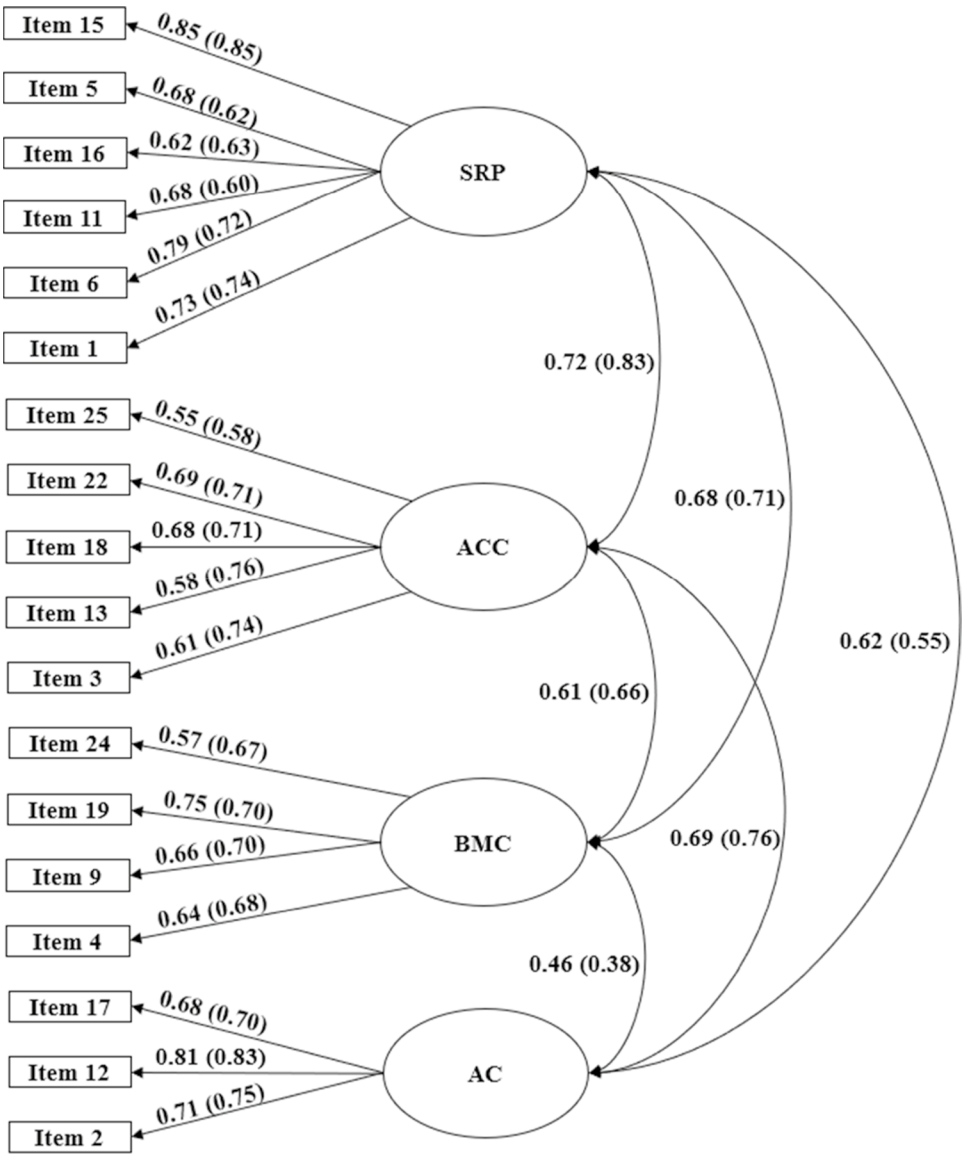


**Fig. 1** Factor loadings of Mindful Parenting Inventory for Parents (MPIP) and Children (MPIC) in the multiple-group confirmatory factor analysis. SRP, Self-Regulation in Parenting; AAC, Acceptance and Compassion towards Child; BMC, Being in the Moment with Child; AC, Awareness of Child. MPIC equivalents of MPIP factor loadings are given in brackets

*SRP* = Self-Regulation in Parenting, *AAC* = Acceptance and Compassion towards Child, *BMC* = Being in the Moment with Child, *AC* = Awareness of Child; *(MPIC equivalents of MPIP factor loadings are given in brackets)*

Parenting ($z = -1.25$, $p = 0.21$) or Acceptance and Compassion towards Child ($z = 0.67$, $p = 0.50$).

Inter-item consistency (Cronbach's $\alpha$) was 0.89 for the MPIP total and ranged from 0.75 to 0.86 for the MPIP subscales (Cronbach's $\alpha = 0.86$ for Self-Regulation in Parenting, 0.79 for Acceptance and Compassion towards Child, 0.75 for Being in the Moment with Child and 0.77 for Awareness of Child). MPIP scale reliability (McDonald's $\omega$) was 0.90 for the MPIP total and ranged from 0.76 to 0.86 for the MPIP subscales (McDonald's $\omega = 0.86$ for Self-Regulation in Parenting, 0.80 for Acceptance and Compassion towards Child, 0.76 for Being in the Moment with Child and 0.80 for Awareness of Child).

Mirroring these results, the $\alpha$ was 0.92 for the MPIC total and ranged from $\alpha = 0.78$ to 0.85 for the MPIC subscales (Cronbach's $\alpha = 0.85$ for Self-Regulation in Parenting, 0.82 for Acceptance and Compassion towards Child, 0.78 for Being in the Moment with Child and 0.81 for Awareness of Child). MPIC scale reliability (McDonald's $\omega$) was 0.92 for the MPIP total and ranged from 0.76 to 0.86 for the MPIP subscales (McDonald's $\omega = 0.85$ for Self-Regulation in Parenting, 0.82 for Acceptance and Compassion towards Child, 0.78 for Being in the Moment with Child and 0.82 for Awareness of Child).

Within-reporter correlations of subscales were medium-to-large in magnitude, as were cross-reporter correlations (Table 2). None of the sociodemographic variables (i.e. child age and sex, mother age, number of children and subjective SES) was related to total MPIP/MPIC. However, with small effect sizes, as child age and perceived SES increased, mothers reported somewhat higher Self-Regulation in Parenting ($r = 0.17$, $p = 0.04$) and Awareness of Child ($r = 0.19$, $p = 0.03$), respectively. Child reports did not mirror these findings, and no relationships were found between child-reported mindful parenting and sociodemographic variables.

## MPIP/MPIC Validation

We tested the convergent validity of MPIP/MPIC using mother and child reports of traditional parenting dimensions (APQ-9) and mothers' self-reported dispositional mindfulness (FFMQ-SF). As given in Table 3, all within-reporter and cross-reporter correlations of MPIP/MPIC total scores with mother- and child-reported subscales of APQ-9 were significant, except for the correlation between MPIP and child-reported poor supervision ($r = -0.10$, $p = 0.33$). Particularly, MPIP/MPIC total scores were positively correlated with positive parenting ($r = 0.29$ to 0.66), whilst they were negatively associated with inconsistent discipline ($r = -0.31$ to $-0.46$) and poor supervision ($r = -0.26$ to $-0.32$). Most within-reporter and cross-reporter correlations of MPIP/MPIC dimensions with mother- and child-reported positive parenting were significant ($r = 0.24$ to 0.70), except for the correlations between mother-reported Self-Regulation in Parenting and mother- and child-reported positive parenting ($r = 0.17$, $p = 0.06$; $r = 0.20$, $p = 0.06$, respectively) as well as between mother-reported Being in the Moment with Child and child-reported positive parenting ($r = -0.12$, $p = 0.26$).

Similarly, except for Awareness of Child reported by children, all MPIP/MPIC dimensions were significantly related to mother- and child-reported inconsistent discipline ($r = -0.24$ to $-0.45$). However, whilst mother-reported poor supervision was significantly related to most of the dimensions of MPIP/MPIC ($r = -0.18$ to $-0.34$)—except for mother-reported Acceptance and Compassion towards Child ($r = -0.15$, $p = 0.17$), child-reported poor supervision was significantly associated with child-reported Self-Regulation in Parenting ($r = -0.22$, $p = 0.04$) and Acceptance and Compassion towards Child ($r = -0.28$, $p = 0.008$) only.

Finally, as expected, MPIP and MPIC were positively correlated with mothers' self-reported dispositional mindfulness ($r = 0.51$, $p < 0.001$; $r = 0.38$, $p < 0.001$, respectively).

**Table 2** Within-reporter intercorrelations of Mindful Parenting Inventories for Mothers (above the diagonal) and Children (below the diagonal) and cross-reporter correlations (on the diagonal, bolded)

| $N = 135$ (90) | MPIP | SRP | ACC | BMC | AC | MPIC, mean (*SD*) | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|
| MPIC | **0.61**$^{***}$ | 0.86$^{***}$ | 0.79$^{***}$ | 0.72$^{***}$ | 0.67$^{***}$ | 3.67 (0.69) | −0.77 | 0.75 |
| SRP | 0.90$^{***}$ | **0.63**$^{***}$ | 0.55$^{***}$ | 0.50$^{***}$ | 0.39$^{***}$ | 3.41 (0.86) | −0.56 | 0.07 |
| ACC | 0.88$^{***}$ | 0.70$^{***}$ | **0.45**$^{***}$ | 0.37$^{***}$ | 0.47$^{***}$ | 4.07 (0.77) | −0.83 | 0.11 |
| BMC | 0.77$^{***}$ | 0.61$^{***}$ | 0.55$^{***}$ | **0.47**$^{***}$ | 0.40$^{***}$ | 3.63 (0.85) | −1.01 | 1.40 |
| AC | 0.69$^{***}$ | 0.47$^{***}$ | 0.62$^{***}$ | 0.32$^{**}$ | **0.39**$^{***}$ | 3.59 (0.88) | −0.78 | 0.41 |
| MPIP, mean (*SD*) | 3.62 (0.51) | 3.29 (0.71) | 3.98 (0.61) | 3.50 (0.65) | 3.84 (0.68) | | | |
| Skewness | 0.09 | 0.20 | −0.73 | 0.01 | −0.24 | | | |
| Kurtosis | −0.64 | −0.19 | 0.41 | −0.14 | −0.38 | | | |

$^{**}p < 0.01$, $^{***}p < 0.001$. *MPIP*, Mindful Parenting Inventory for Parents; *MPIC*, Mindful Parenting Inventory for Children; *SRP*, Self-Regulation in Parenting; *ACC*, Acceptance and Compassion towards Child; *BMC*, Being in the Moment with Child; *AC*, Awareness of Child

**Table 3** Correlations of Mindful Parenting Inventories for Parents (MPIP) and Children (MPIC) with traditional parenting, maternal dispositional mindfulness and psychological distress, and child behaviours

| | MPIP | MPIC | *Mother-reported child behaviours* | | | *Child self-reported behaviours* | | |
|---|---|---|---|---|---|---|---|---|
| | | | Internalising | Externalising | Prosocial | Internalising | Externalising | Prosocial |
| MPIP (MPIC) | - | - | $-0.50^{***}$ ($-0.47^{***}$) | $-0.53^{***}$ ($-0.46^{***}$) | $0.50^{***}$ ($0.57^{***}$) | $-0.41^{***}$ ($-0.56^{***}$) | $-0.55^{***}$ ($-0.64^{***}$) | $0.49^{***}$ ($0.49^{***}$) |
| PP | $0.37^{***}$ ($0.29^{**}$) | $0.36^{***}$ ($0.66^{***}$) | $-0.28^{**}$ ($-0.25^{*}$) | $-0.24^{**}$ ($-0.30^{**}$) | $0.34^{***}$ ($0.49^{***}$) | $-0.15$ ($-0.40^{***}$) | $-0.30^{**}$ ($-0.46^{***}$) | $0.27^{*}$ ($0.28^{**}$) |
| ID | $-0.46^{***}$ ($-0.44^{***}$) | $-0.31^{**}$ ($-0.32^{**}$) | $0.37^{***}$ ($0.37^{***}$) | $0.51^{***}$ ($0.38^{***}$) | $-0.32^{***}$ ($-0.28^{**}$) | $0.24^{*}$ ($0.39^{***}$) | $0.39^{***}$ ($0.47^{***}$) | $-0.27^{*}$ ($-0.30^{**}$) |
| PS | $-0.27^{**}$ ($-0.10$) | $-0.32^{**}$ ($-0.26^{*}$) | $0.25^{*}$ ($0.12$) | $0.35^{***}$ ($0.19$) | $-0.24^{**}$ ($-0.26^{*}$) | $0.04$ ($0.03$) | $0.27^{*}$ ($0.21$) | $-0.23^{*}$ ($-0.18$) |
| FFMQ | $0.51^{***}$ | $0.38^{***}$ | $-0.43^{***}$ | $-0.30^{***}$ | $0.32^{***}$ | $-0.26^{*}$ | $-0.35^{**}$ | $0.23^{*}$ |
| Depres | $-0.37^{***}$ | $-0.27^{*}$ | $0.45^{***}$ | $0.43^{***}$ | $-0.30^{**}$ | $0.30^{**}$ | $0.32^{**}$ | $-0.31^{**}$ |
| Anxiety | $-0.19^{*}$ | $-0.16$ | $0.44^{***}$ | $0.37^{***}$ | $-0.12$ | $0.18$ | $0.12$ | $-0.11$ |
| Stress | $-0.41^{***}$ | $-0.29^{**}$ | $0.43^{***}$ | $0.46^{***}$ | $-0.21^{*}$ | $0.27^{**}$ | $0.34^{**}$ | $-0.23^{*}$ |

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. *PP*, positive parenting; *ID*, inconsistent discipline; *PS*, poor supervision; *FFMQ*, Five Facet Mindfulness Questionnaire Short Form; *Depres*, depression. Correlations of child-reported traditional parenting dimensions with child behaviours are given in the brackets

Indeed, all the dimensions of MPIP/MPIC were significantly related to FFMQ-SF ($r = 0.26$ to 0.45). In the interests of space, the correlates of MPIP/MPIC subscales with APQ-9 and FFMQ-SF are given in Supplementary Table S2.

Bivariate correlations of MPIP/MPIC with mother- and child-reported child behaviours (SDQ) and mothers' self-reported psychological distress (DASS-21) to verify concurrent validity were all small-to-large in magnitude (Table 3). As expected, MPIP/MPIC total scores negatively correlated with mother- and child-reported internalising ($r = -0.41$ to $-0.56$) and externalising behaviours ($r = -0.46$ to $-0.64$), whilst they were positively correlated with children's prosocial behaviours ($r = 0.49$ to 0.57). Indeed, all the dimensions of MPIP/MPIC were significantly related to mother- and child-reported internalising ($r = -0.21$ to $-0.50$), externalising ($r = -0.30$ to $-0.58$) and prosocial behaviours ($r = 0.26$ to 0.54). The exception to this was that mother-reported Being in the Moment with Child was not significantly correlated with child-reported prosocial behaviours ($r = 0.20$, $p = 0.06$).

Both MPIP and MPIC total scores were also negatively related to maternal reports of mothers' depression ($r = -0.37$, $p < 0.001$; $r = -0.27$, $p = 0.01$, respectively) and stress ($r = -0.41$, $p < 0.001$; $r = -0.29$, $p < 0.001$, respectively), but only MPIP was related to maternal anxiety ($r = -0.19$, $p = 0.03$). Besides, correlations between MPIP dimensions and maternal distress were significant ($r = -0.23$ to $-0.34$ for depression; $r = -0.17$ to $-0.21$ for anxiety; $r = -0.21$ to $-0.43$ for stress), except for the correlation between Acceptance and Compassion towards Child and anxiety ($r = -0.03$, $p = 0.74$). Self-Regulation in Parenting and Being in the Moment with Child dimensions of MPIC only were also significantly related to maternal depression ($r = -0.30$, $p = 0.005$; $r = -0.22$, $p = 0.04$, respectively) and stress ($r = -0.37$, $p < 0.001$; $r = -0.27$, $p = 0.009$, respectively). However, none of the MPIC dimensions was associated with mothers' anxiety (Supplementary Table S2). Overall, these findings indicated that higher levels of mindful parenting as reported by both mothers and children were related to lower levels of maternal psychological distress and children's adjustment problems, providing evidence of concurrent validity for the new inventories.

Finally, we conducted a series of hierarchical regression analyses to explore the incremental validity of MPIP/MPIC in their association with child behaviours over and above mothers' dispositional mindfulness and traditional parenting concepts. Before analysis, the relationships between sociodemographic variables (child sex, child and mother age, number of children mothers had and SES) and child behaviours were examined to identify potential variables to be controlled. Results showed small, significant correlations between mother-reported internalising behaviours and maternal age ($r = -0.21$, $p = 0.02$) and SES ($r = -0.22$, $p$

= 0.01) in mother sample. In addition, small significant correlations were found between mother-reported internalising behaviours and child age ($r = -0.23$, $p = 0.03$), maternal age ($r = -0.24$, $p = 0.03$) and SES ($r = -0.23$, $p = 0.03$); between child-reported internalising behaviours and SES ($r = -0.22$, $p = 0.03$); and between child-reported prosocial behaviours and child sex ($r = -0.26$, $p = 0.01$) in the dyadic sample. Significantly related correlates were included in hierarchical regression models as appropriate.

Hierarchical regression showed that MPIP significantly explained additional variance in child behaviours after accounting for sociodemographic correlates, mothers' dispositional mindfulness and traditional parenting. MPIP negatively predicted both mother- and child-reported internalising ($\beta = -0.36$, $t = -3.85$, $SE = 0.08$, $p < 0.001$; $\beta = -0.39$, $t = -3.13$, $SE = 0.11$, $p = 0.002$, respectively) and externalising behaviours ($\beta = -0.36$, $t = -3.98$, $SE = 0.07$, $p < 0.001$; $\beta = -0.43$, $t = -3.78$, $SE = 0.10$, $p < 0.001$, respectively) and positively predicted mother- and child-reported prosocial behaviours ($\beta = 0.37$, $t = 3.77$, $SE = 0.09$, $p < 0.001$; $\beta = 0.52$, $t = 4.43$, $SE = 0.09$, $p < 0.001$, respectively).

Similarly, after accounting for sociodemographic correlates, mothers' dispositional mindfulness and traditional parenting, MPIC significantly added variance in explaining child behaviours. Specifically, MPIC negatively predicted mother- and child-reported internalising behaviours ($\beta = -0.28$, $t = -2.15$, $SE = 0.08$, $p = 0.03$; $\beta = -0.43$, $t = -3.29$, $SE = 0.08$, $p = 0.001$, respectively) and child-reported externalising behaviours ($\beta = -0.41$, $t = -3.52$, $SE = 0.07$, $p < 0.001$). Besides, increased MPIC predicted higher levels of prosocial behaviours reported by mothers ($\beta = 0.30$, $t = 2.27$, $SE = 0.09$, $p = 0.03$) and children ($\beta = 0.50$, $t = 3.57$, $SE = 0.08$, $p < 0.001$). All hierarchical regression models are provided in Supplementary Table S3. Note that we also conducted the analysis using untransformed poor supervision scores to evaluate the impact of data transformation. No significant difference in results was found (Supplementary Table S4).

## Discussion

We present the development and initial validation of new parallel inventories measuring parent (MPIP) and child (MPIC) perceptions of mindful parenting in UK mothers and their children aged between 11 and 16 years. MPIP and MPIC each consisted of 18 items establishing an overarching mindful parenting construct consisting of four dimensions, Self-Regulation in Parenting, Acceptance and Compassion towards Child, Being in the Moment with Child and Awareness of Child, with satisfactory internal consistency as well as with convergent, concurrent and incremental validity. Overall, our findings supported the newly developed parallel inventories to assess parent and child perspectives of mindful parenting with mothers and their children aged 11–16 years old.

The Self-regulation in Parenting subscale consists of items related to being (non) reactive during interaction/conflict with the child and aligns with the Emotional Non-reactivity/Self-regulation in the Parenting Relationship dimension of mindful parenting (de Bruin et al., 2014; Duncan et al., 2009). The Acceptance and Compassion towards Child subscale combines items on compassion and accepting the child in line with the Dutch-IMP's Compassion for the Child dimension (de Bruin, 2014). Being in the Moment with Child includes items related to (not) being 'here-and-now' during interaction with child, corresponding to the Listening with Full Attention dimension of mindful parenting (Duncan et al., 2009). Finally, Awareness of Child comprises items related to the ability to pay attention to and detect child's thoughts, feelings and mood and aligns with the interpersonal aspects of the Acceptance of Emotional Awareness of Self and Child dimension of mindful parenting (Duncan et al., 2009). Note that the additional theoretical dimensions of acceptance and awareness of parents towards self (suggested by Duncan et al., 2009) constituted the intrapersonal aspect of mindful parenting and were not represented in the inventories as they require higher-order theory of mind abilities from children to predict the mental states of their parents (Westby & Robinson, 2014). Therefore, these inventories were developed to assess the interpersonal aspects of mindful parenting, which are found to be distinct from the intrapersonal aspects of mindful parenting (e.g. de Bruin et al., 2014).

We anticipated small-to-moderate correlations between MPIP and MPIC based on parent-child agreement commonly found in the traditional parenting literature (Cohen & Rice, 1997; Korelitz & Garber, 2016). In contrast, we found moderate-to-high mother-child agreement on mindful parenting totals and subscales using MPIP/MPIC. One possible explanation for this is that parents and children with more open communication in their relationships were more likely to participate together, as in all studies involving parent-child dyads (Havermans et al., 2015), resulting in a higher agreement in mindful parenting. However, it is also possible that this more open communication reflects higher levels of mindful parenting in participating families (Park et al., 2020; Lippold et al., 2015). To the extent that this is the case, the greater agreement between mother and child may be because more mindful parents are better able to reflect on their mindful parenting. This speculation would be an interesting avenue to examine in future research. These findings may also be specific to the UK context since individuals have less tendency to greater levels of social desirability bias in their self-reports in less collectivistic cultures (Bernardi, 2006;

Bornstein et al., 2015), which in turn may result in a greater agreement between mothers and their children. The level of agreement may also explain the current study's observation that mother-reported mindful parenting was a strong predictor of children's subjective experiences of adjustment as child-reported mindful parenting. We emphasise that the current study is introductory, and offers only preliminary evidence of the MPIP/MPIC in a UK sample. We encourage the use of MPIP/MPIC across cultural contexts.

The significant correlations between MPIP/MPIC and traditional parenting dimensions, maternal dispositional mindfulness and child behaviours as well as maternal distress, with a few exceptions, provided convergent and concurrent validity for MPIP/MPIC (Supplementary Table S2). Moreover, we found empirical evidence for incremental validity for new inventories, showing that mindful parenting is an important predictor of child behaviours after accounting for traditional parenting dimensions and maternal dispositional mindfulness. Particularly, small-to-moderate correlations between MPIP/MPIC and various aspects of traditional parenting suggest mindful parenting to be a distinct parenting construct. We consider the small correlations between mindful parenting and poor supervision to be particularly important since it may reflect that monitoring and controlling the child are not a key component of mindful parenting, unlike traditional parenting constructs (e.g. Baumrind, 1966; Maccoby & Martin, 1983).

Importantly, our new scales significantly predicted child behaviours above and beyond traditional parenting, whilst traditional parenting generally failed to contribute uniquely to child behaviours, except for inconsistent discipline. Despite previous evidence of associations between positive parenting and supervision with youth psychopathology (Elgar et al., 2007), in our study, those constructs were barely associated with children's behaviours after accounting for mindful parenting. This suggests that mindful parenting goes beyond the mainstream definitions of parenting and that, particularly in a community sample like ours, mindful parenting might be of key importance for children's outcomes. Whether mindful parenting is more important than traditional parenting practices, as suggested here, necessitates further research with MPIP/MPIC and more detailed traditional parenting measures.

Associations between maternal dispositional mindfulness and MPIP/MPIC found here supported mindfulness as the foundation of mindful parenting. In line with the previous studies, however, these associations were small-to-moderate, suggesting that intrapersonal and interpersonal mindfulness may be related but distinct constructs (McCaffrey et al., 2017). Mindful parenting was also shown to account for a greater proportion of the variance in child- and mother-reported child behaviours than maternal dispositional mindfulness. Therefore, as foreshadowed above and supported elsewhere (Duncan, 2007), we suggest that assessing parents' intrapersonal mindfulness ability is necessary but insufficient in the context of the parent-child relationship to explain child outcomes. However, other colleagues have reported that dispositional mindfulness may be more strongly associated with child outcomes than mindful parenting, arguing that parental dispositional mindfulness is more critical for children's outcomes (Orue et al., 2020). This inconsistency of the literature may be due to differences in samples or measurement, and the promise of MPIP/MPIC demonstrated here suggests that further research considering parent and child perspectives may be fruitful in considering these questions.

Furthermore, mindful parenting showed strong negative correlations with maternal depression and stress, although its association with maternal anxiety was weaker. These findings are consistent with the literature reporting mixed results regarding the association of mindful parenting with anxiety in contrast to that with depression and stress (Corthorn & Milicic, 2016), implying that anxiety may not be as critical a determinant of mindful parenting as depression and stress. Alternatively, it may imply experiencing mindful parenting serves to reduce mothers' depression and stress but does not improve their anxiety—investigation of the direction or the reciprocity of these relationships warrants future study.

A key strength of the current study is to provide the first scales that enable a direct comparison of parent and child perceptions of mindful parenting using measures appropriately validated for both parent and child use. Importantly, this study tested measurement invariance between mother and child reports of mindful parenting that is often ignored despite its importance in family research (Havermans et al., 2015). As such, these new inventories have the potential to not only decrease measurement error but also pave the way for crucial investigations to understand whether discrepancies in parent and child perspectives on mindful parenting reflect more than an error (Havermans et al., 2015; Korelitz & Garber, 2016). We provide initial evidence for convergent, concurrent and incremental validity using cross-reporter as well as within-reporter associations to reduce same-reporter bias (Burk & Laursen, 2010). Thus, we believe the MPIC has the potential to transform research commonly confounded by parent-report bias. We also believe MPIP/MPIC has important implications for mindful parenting intervention, allowing practitioners to test whether any improvement in mindful parenting after the intervention is also perceived by children and compare parent and children's perspectives in terms of the effect of the intervention.

## Limitations and Future Directions

Despite the strengths of the current work, its limitations should be noted. First, the sample consisted of mothers only. Comparing mothers and fathers is likely an important avenue for future work, particularly since mothers have been

shown to have higher mindful parenting scores than fathers, at least from literature using self-report (e.g. Gouveia et al., 2016). It will also be of interest to consider whether child perceptions of mothers' and fathers' mindful parenting show a similar pattern. To achieve such a sample, specific recruitment efforts targeted to fathers, out of scope for the current study, are likely to be fruitful (Adamsons & Buehler, 2007).

Second, our samples were relatively small and unbalanced, which may violate the assumption of homogeneity of variance and increase the likelihood of Type I errors (Rusticus & Lovato, 2014). Further studies to replicate our findings with higher statistical power are warranted.

Third, our data were based on self-report measures within the same survey, potentially inflating the associations amongst constructs. Thus, common-method bias is likely to be a limitation of the current research owing to response styles, social desirability or item ambiguity (Podsakoff et al., 2012). Although we used multiple informants—i.e. both mother and child reports of parenting and child behaviours—to reduce this bias, a valuable avenue for future studies is to control further for method bias using independent observer reports or applying a temporal or proximal separation between the measures (Podsakoff et al., 2012).

Fourth, we used nested data (mother and their child) to confirm the similarity of the structure of the MPIP/MPIC in the same family (Adamsons & Buehler, 2007); however, further research on the structure of the MPIP/MPIC in different samples is encouraged. Fifth, although test-retest reliability was considered for the initial 25-item MPIP/MPIC, we did not conduct this for the 18-item version.

Finally, the current sample consisted of predominantly educated mothers to at least degree level, and almost 85% self-identified as 'white/white British'. Although our results showed no significant correlations between SES and MPIP/MPIC total scores, this may be due to the sample providing a small variance for education level, and we suggest caution in generalising from our results. Relatedly, since parenting and the effect of a particular parenting approach on child outcomes may vary across cultures (Bornstein, 2012), a cross-cultural examination of construct and criterion-related validity of MPIP/MPIC is another suggested avenue for future research.

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**Author Contribution** Pinar Acet: conceptualisation, design, data collection, cleaning and analyses, original draft and revisions. Bonamy R. Oliver: supervision, conceptualisation, reviewing and editing.

**Data Availability** Fully anonymised data analysed for the current study are available from the corresponding author on reasonable request.

## Declarations

**Ethics Statement** The UCL Institute of Education, Postgraduate Research Ethics Committee, granted ethical approval (UCL Data Protection Registration Number: Z6364106/2021/01/43 social research). The procedures used in this study adhere to British Psychological Society guidance and GDPR.

**Informed Consent** Informed consent was obtained from all parents, and assent was obtained from all children included in the study.

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



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