



Mindfulness and Parenting: A Meta-analysis and an Exploratory Meta-mediation

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Accepted: 31 July 2021

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Abstract

Objectives There has been increasing interest in recent years on the links between parents' mindfulness and their parenting. The present meta-analysis systematically synthesized the research on the associations between mindfulness and mindful, positive, and negative parenting. The mediating role of mindful parenting in the indirect link between mindfulness and child outcomes was also explored using meta-structural equation modeling (meta-SEM).

Methods A systematic search was conducted for relevant literature published up to August 2020 in five databases. A total of 30 studies were identified and data were extracted. Random-effects models were used to investigate the pooled correlations. Validity of pooled correlations was analyzed by examining outliers, publication bias with trim-and-fill analyses, between-study heterogeneity, and subgroup analyses.

Results Pooled correlations were significantly positive between mindfulness and both mindful parenting ($r_p = .468$) and positive parenting ($r_p = .237$), and significantly negative for negative parenting ($r_p = -.167$). Exploratory meta-SEM results indicated positive, moderate effects between mindfulness and mindful parenting, and negative, small effects between mindfulness and children's internalizing and externalizing difficulties. However, mindful parenting did not significantly mediate the link between mindfulness and children's difficulties.

Conclusions Given the increasing attention on mindfulness in family settings, we discuss the results in relation to existing models of mindful parenting. Directions for future research are presented, including the use of observational or child-reported parenting measures and father samples.

Meta-analysis Pre-registration osf.io/dut8a

Keywords Mindfulness · Mindful parenting · Parenting · Meta-analysis; Meta-SEM

Parents have a lasting impact on children's social and emotional competence (Broderick, 1993). Parenting socialization theories and supporting research emphasize the importance of parenting behaviors on children's outcomes in both cross-sectional and longitudinal pathways (see reviews by Darling & Steinberg, 1993; Eisenberg et al., 1998; Grusec & Davidov, 2010). In particular, positive parenting practices such as warmth, responsiveness, sensitivity,

and supportiveness have been highlighted as a key antecedent of children's positive outcomes, such as resilience and social problem-solving, as well as fewer externalizing problems (Boeldt et al., 2012; Bowers et al., 2014; Leidy et al., 2010). On the other hand, negative parenting practices such as inconsistent discipline, hostility, harsh parenting, and overly controlling behavior have been associated with children's reduced capacity for self-regulation as well as heightened internalizing issues such as depression and anxiety (Johnson & Greenberg, 2013; Taylor et al., 2012) and internalizing and externalizing difficulties (Pinquart, 2017; Taylor et al., 2012).

One recently conceptualized form of parenting is mindful parenting, marked by awareness of oneself and the child and parental self-regulation during childrearing interactions (Bogels et al., 2010; Goodman et al., 2012). The construct of mindful parenting stems from mindfulness, which can be

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defined as present-oriented, accepting, and open awareness and attention (Brown & Ryan, 2003). According to some models of mindfulness, it also incorporates nonjudgmental and nonreactive orientation to internal experiences (Baer et al., 2006). As a quality of cognition and consciousness, mindfulness underlies the regulation of emotional and attentional reactions to stress and other negative stimuli (Garland et al., 2015; Roemer et al., 2015). For example, young adults with high levels of mindfulness have been found to report lower self-reported stress as well as lower cortisol levels (Zimmaro et al., 2016). Relatedly, a recent review has highlighted the psychological health benefits of mindfulness, including less depressive and ruminative thinking, and better emotional processing and regulation (Tomlinson et al., 2018). Perhaps as a result of elevated self-regulation capacity, individuals who are high in mindfulness have also been shown to be more empathetic and prosocial (e.g., Berry et al., 2018; de la Fuente-Anuncibay et al., 2020; also see review by Donald et al., 2019). Additionally, for adults who are parents, high levels of mindfulness have been linked to less stress and to greater confidence about parenting skills (Burke et al., 2020; Gouveia et al., 2016; Kil & Grusec, 2020).

In line with these findings, parents who are high in mindfulness invoke mindful and positive behaviors in their daily parenting practices, and ultimately impact their children's positive social and emotional development. According to Duncan et al.'s (2009) mindful parenting model, there are five facets that describe mindful parenting: attentive listening to the child, self-regulation, and nonjudgmental acceptance of, emotional awareness of, and compassion for oneself and the child. Mindful parenting models vary in the

mechanism by which parent mindfulness can impact child outcomes. Duncan et al. (2009) posited that mindfulness applied in parenting settings results in parents' more positive parenting cognitions and well-being, which indirectly benefit the child through parenting and parent affection. Parent et al. (2016a, b) further posited that in addition to and perhaps as a result of mindful parenting, parents who are high in mindfulness tend to show more positive (warmth, responsive) and less negative (hostile, inconsistent) parenting, facilitating their children's fewer internalizing and externalizing problems. Dumas (2005) additionally suggested that mindful parenting involves nonjudgmental attention to inner experience, distancing from automatic emotions and habitual ways of coping, and motivated action plans for parenting, which together can be targeted to facilitate family harmony. Cross-cutting these mindful parenting models is the assertion that parents who are mindful are better able to demonstrate more positive parenting, including mindful parenting, and less negative parenting, which in turn result in children's optimal outcomes. In Fig. 1, we have synthesized these three models of mindfulness, and present a Consolidated Model of Mindful Parenting.

Many studies to date have investigated the positive association between parental mindfulness and parenting in both clinical and community samples. In tests of their mindful parenting model, Parent and colleagues (Han et al., 2021; Parent et al., 2021, 2016b) have demonstrated cross-sectional and longitudinal links between mindfulness in parents and their mindful parenting, as well as more positive and less negative parenting. Additionally, in a large sample of mothers and fathers of school-aged children, mindfulness has been associated with more authoritative

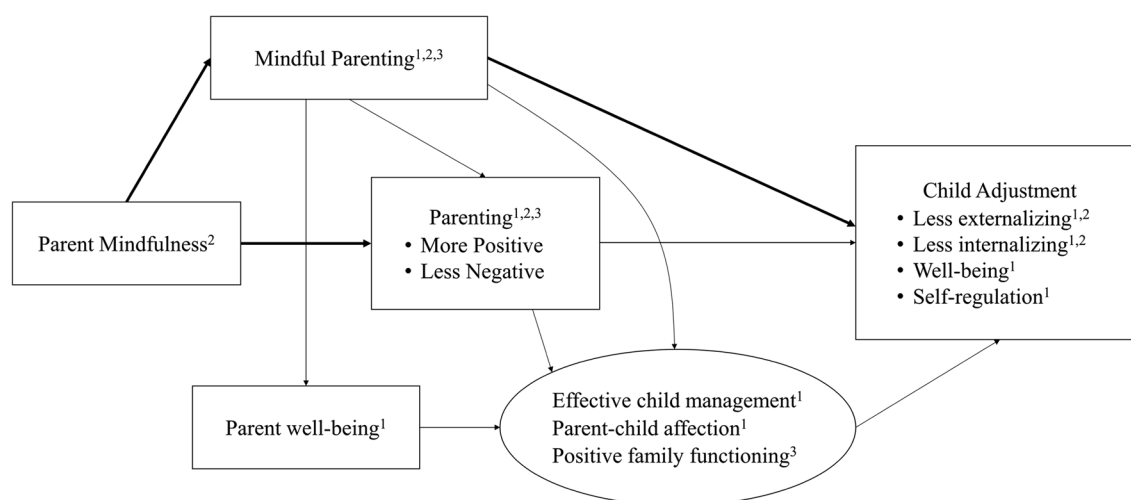


Fig. 1 Consolidated model of mindful parenting. *Notes.* Superscript numbers represent constructs identified in one of three models: 1=Duncan et al. (2009) model; 2=Parent et al., (2016b) model;

3=Dumas (2005) model. Arrows reflect associations described in one or more of the three models. Only bolded paths are tested in the present meta-analysis

parenting, with more mindful parenting mediating this link for authoritative parenting (Gouveia et al., 2016). Pan et al. (2019), Zhang et al. (2019), and de Bruin et al. (2014) have additionally reported that high mindfulness correlates with more mindful parenting in Chinese and Dutch parents.

At the other end of the consolidated model in Fig. 1, children's outcomes of more positive and less negative parenting are well-established, as evidenced in the first paragraph of this introduction and in other literature (Gadsden et al., 2016; Mounts & Allen, 2019; Rose et al., 2018; Ruiz-Hernández et al., 2019). With regard to mindful parenting, a wealth of studies on clinical and community samples have demonstrated its links to children's own mindfulness (Kil et al., 2021; Moreira et al., 2018), and to positive child adjustment outcomes, including fewer internalizing problems (e.g., Geurtzen et al., 2015), fewer externalizing problems (e.g., Turpyn & Chaplin, 2016), positive self-evaluations such as self-esteem and self-compassion (Liu et al., 2019; Moreira et al., 2018), better social skills or social adjustment (Wong et al., 2019), better emotion regulation (Evans et al., 2020; Moreira & Canavarro, 2020; Zhang et al., 2019), and overall well-being (Medeiros et al., 2016; Moreira et al., 2018).

However, despite the wealth of research in support of various models of mindful parenting, extant studies have largely explored the links between mindfulness and parenting separately for mindful parenting, positive parenting, and negative parenting. A recent meta-analysis by Daks and Rogge (2020) has thoroughly synthesized the literature on psychological flexibility, including present moment awareness, acceptance, and other elements related to mindfulness, in relation to parenting behaviors. The authors found that greater psychological flexibility was linked to more adaptive and less lax, harsh parenting strategies, as well as fewer child internalizing and externalizing symptoms, with all effect sizes being moderate in size, $r = -0.335$ to 0.419 . However, while this meta-analysis provides important data on the links between mindful flexibility and parenting, the different strengths of associations between mindfulness and mindful, positive, and negative parenting have yet to be tested, particularly in a meta-analysis. Examining these different effect sizes would provide insight on the link between heightened or increased parent mindfulness and specific forms of parenting. Further, although multiple mindful parenting models have been proposed, only a handful of studies have examined whether the association between parent mindfulness and child outcomes is mediated by mindful parenting.

Understanding the specific correlational mechanisms by which mindfulness in parents may be related to children's outcomes can have important implications for research and clinical practice. There is evidence that general mindfulness training programs for adults who are parents can have spillover effects (i.e., emotional, behavioral, or cognitive transfer from one context to another; Almeida et al., 1999) on their

parenting and, ultimately, on child outcomes. For instance, targeting mindfulness in parents may help them to model mindfulness for their children and as a result address self-regulation issues in children such as internalizing and externalizing behaviors. Accordingly, a case example by Brody et al. (2018) examined the integration of mindfulness into family therapies and found that when parents were taught to increase mindful traits such as present-awareness and emotion regulations, their children modeled these behaviors in their daily life as well. Further, a recent meta-analysis has also evidenced that youth whose parents participate in mindfulness-based programs show positive changes in their social and cognitive functioning, as well as internalizing and externalizing difficulties, at modest effect sizes (Burgdorf et al., 2019). Thus, parents who have or attain high levels of mindfulness may reflect their mindful tendencies via their parenting, modeling positive behaviors for their children.

Given these perspectives and the existing literature on mindfulness and parenting, the present meta-analysis aimed to test (1) the strengths of associations between mindfulness and mindful, positive, and negative parenting, and (2) the mediating role of mindful parenting in the indirect link between mindfulness and child outcomes. With regard to aim (1), we further examined the different strengths of associations for clinic-referred or clinical samples versus community samples, since parenting cognitions and behaviors have been shown to differ in parents of children with clinically elevated mental health difficulties (Chen et al., 2009; Johnston et al., 2009); different measures of mindfulness, since various measures may target potentially unique aspects of mindfulness (Baer, 2019; Baer et al., 2019); and different informants of parenting, with consideration for self-report bias in survey-based parenting research (De Los Reyes & Ohannessian, 2016; Parent et al., 2014). With regard to aim (2), we focused on internalizing and externalizing behavior, which can be considered some of the key child adjustment domains, as defined by van Dijk et al. (2020). Although we had planned to examine four child outcomes, and preregistered as such, we identified no studies focusing on mindfulness and parenting in relation to self-esteem and social skills. Further, few studies were identified that focused on internalizing and externalizing behavior. We caution readers that the presented meta-mediation models are therefore preliminary and exploratory in nature.

Methods

Search Strategy

The original protocol for this meta-analysis was preregistered with the *Open Science Framework* (osf.io/dut8a). Searches were conducted on the PsycINFO, MedLINE,

EMBASE, CINAHL, and Social Work Abstracts databases, and included studies published up to the last week of August 2020. Search terms were selected for relevance to mindfulness and to parenting, such as *mindful**, *parent**, *famil**, *mother**, *father**, *behav**, and *practice**. The full PsycINFO search strategy is depicted in the [Supplementary Materials](#).

Studies were selected based on the following inclusion criteria: (1) parent sample; (2) parents of children between 0 and 18 years of age; (3) peer-reviewed journal articles; (4) quantitative measures of mindfulness; (5) quantitative or observational measures of mindful, positive, or negative parenting style, practice, behavior, or skill; (6) quantitative results reported; (7) studies in English. Exclusion criteria were (1) parents were expecting, prenatal, or only parents of children older than 18 years of age; (2) sample is not parents; (3) only qualitative results reported; (4) observational measures of mindfulness; (5) reviews, chapters, commentaries, and conference abstracts; and (6) interventions. Studies that included a mixed sample of parents with children below and above 18 years of age were included so long as the remaining inclusion criteria were met. Studies that fit exclusion criterion (6) were examined for whether inclusion criteria could be fully met at the pre-intervention stage, with all measurements of interest taken at pre-test or pre-treatment. For these studies, we only considered the pre-test scores and methodology in our analyses.

Figure 2 depicts the flow diagram for study selection. Duplicates were first removed from the search results. Title and abstract screening were then conducted by the third and fourth authors, with excellent inter-rater reliability for published studies, $K=0.87$, and dissertations, $K=0.82$. Full text screening was conducted by the first two authors, with good inter-rater reliability for published studies, $K=0.78$, and dissertations, $K=0.73$. Discrepancies were resolved through discussion and consensus.

For a substantial number of studies, particularly intervention studies, study authors had to be contacted for statistical information to support the meta-analysis. Many of these studies did not report the necessary correlations or were intervention studies for which data were presented as pre-to-post intervention comparisons rather than single time-point data such as those from the pre-treatment measurement sessions. In total, authors of 23 studies were contacted, of which 11 authors responded. Of these, three authors responded that data were not readily available for this meta-analysis, and eight authors provided correlations by email. For four (Bunker-Murdock, 2017; Corthorn & Milicic, 2016; de Bruin et al., 2014; Pan et al., 2019) of the 22 studies, only some data were missing; as such, data available from these studies were included in the meta-analysis even if authors did not respond to the request for information. These four studies appear in the PRISMA flow chart in Fig. 2 as being included in the final sample of studies.

Quality Assessments

Quality assessments were conducted using the Joanna Briggs Critical Appraisal Tool, adapted for use in observational studies (e.g., Colasanto et al., 2020). Cross-sectional studies were assessed on seven items, while longitudinal studies were assessed on eight items. Each item was coded as yes, no, or not applicable (e.g., “Were the study subjects and the setting described in detail?” rating: yes, no, N/A). Total quality assessment scores were calculated by summing the coding (Yes = 1 and No = 0) for all items that were applicable to the study. For published studies, the first and second authors equally divided the studies for independent initial assessments of quality, after which the third author conducted a secondary assessment of all studies. The secondary assessment resulted in excellent agreement with the initial rating, with good inter-rater reliability, $K=0.74$. In case of discrepancy between the initial and double-check assessments, the final decision was reached by consensus. For dissertations, the first and second authors each independently assessed the quality of dissertations, which resulted in good inter-rater reliability, $K=0.77$. Discrepancies were similarly settled by consensus.

Data Analysis

Data required for the meta-analysis and meta-SEM were extracted by the first and second authors for published studies (equally divided between the two authors), and by the first author for dissertations. After initial extraction, the third author (for dissertations) or fourth author (for published studies) conducted a double check of all data extracted to ensure accuracy. For published studies, the fourth author did not identify any inaccuracies. For dissertations, the third author identified one inaccuracy in the proportion of girls included in one study, which was corrected.

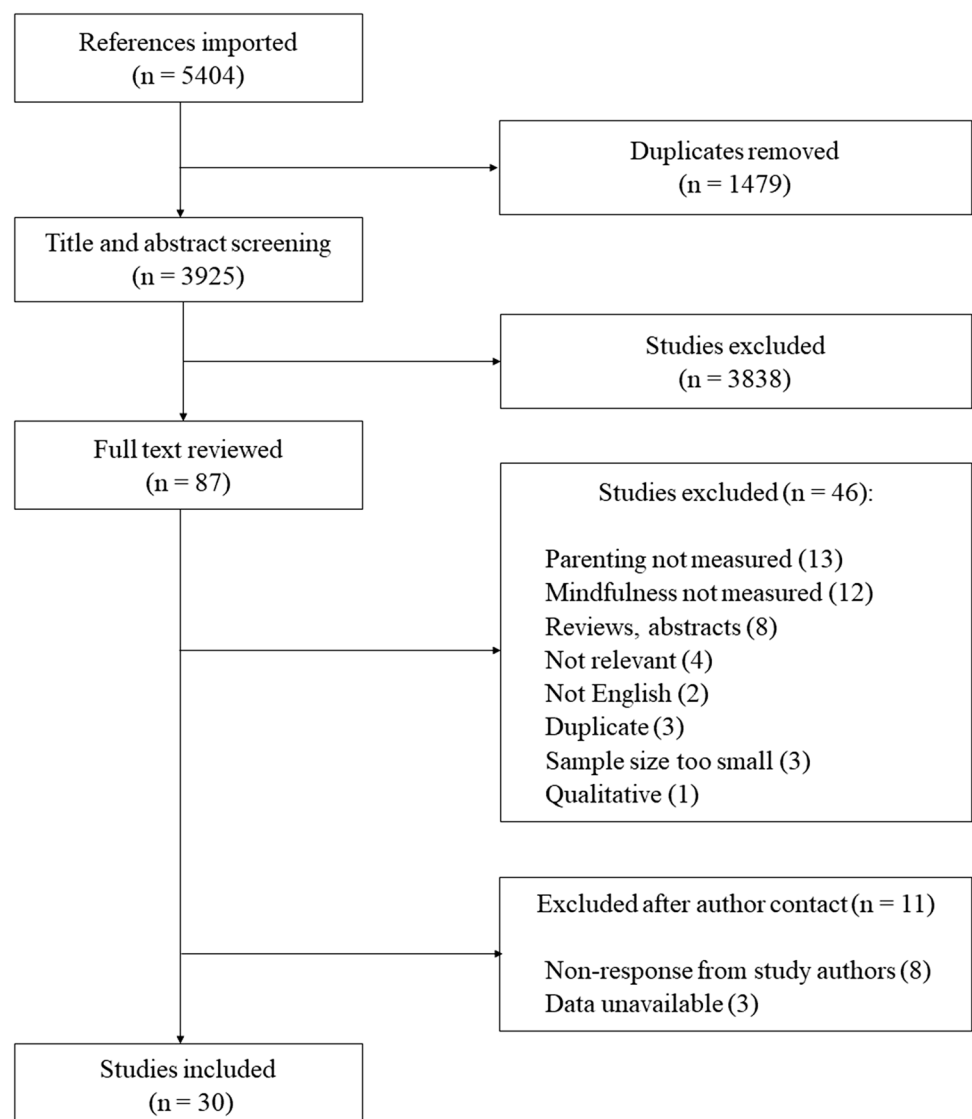
Meta-analyses and meta-structural equation modeling (meta-SEM) were conducted in R statistical software, packages *metafor*, *meta*, and *metaSEM*, and followed guidelines and recommendations by Harrer et al. (2019). Corresponding with the aims of this meta-analysis, effect sizes of correlations (r) were collected from each study. In one study (Chaplin et al., 2021), an adjusted effect size was used, as there was substantial skew in one the variables. For studies that separately analyzed effect sizes for mothers and fathers (e.g., Zhang et al., 2020b), the intervention sample at baseline and the waitlist at baseline (e.g., Potharst et al., 2021), or self-report and child-report (e.g., Orue et al., 2020), separate samples from the same study were identified by designating in the forest plots as *a* and *b outside brackets*. While we included separate mother and father effect sizes from such studies for the meta-analysis

of the correlation between mindfulness and parenting, these studies were dropped from meta-mediation analyses due to potential within-family effects that may have biased the results. Following the example of Van Dijk et al. (2020), if a correlation was only reported as nonsignificant, 0 was inputted as the effect size. Outliers were identified for sensitivity and a pooled effect size was calculated with 0% weight for the outlier effect sizes.

Random pooled effect sizes were reported for all effects. Publication bias was examined using Egger's test, which assesses funnel plot asymmetry. When Egger's test was significant, trim and fill analyses (Duval & Tweedie, 2000) were conducted to examine the pooled effects when accounting for studies to be added for funnel plot symmetry. Heterogeneity amongst effect sizes was calculated using the

I^2 , Q , and τ^2 statistics. The I^2 represents the percentage of variability across studies not caused by sampling error (Higgins et al., 2003). The Q statistic represents the usual test statistic and is computed as the sum of squared deviations of each study's estimate, with each study weighted as in the meta-analysis. A p -value of the Q statistic greater than 0.05 can be considered not significantly heterogeneous. τ^2 represents between-study variability, and was calculated with the Sidik-Jonkman estimator and the Hartung-Knapp method in the present meta-analysis, as this method provides robust variance estimates even in cases of substantial variability amongst studies (Int'Hout et al., 2014). Subgroup analyses were conducted for the meta-analyses to examine the differential pooled effect sizes depending on the clinical status of the sample (clinical, community, mixed), mindfulness

Fig. 2 Flow diagram for systematic search



measure used, and informant of parenting (for positive and negative parenting). The heterogeneity across subgroups was examined using the Q -statistic, and subgroup pooled effect sizes were examined.

Results

Characteristics of Selected Studies

Study characteristics are depicted in Table 1. A total of 30 studies were selected for analysis. Studies included mostly mothers ($k=17$ were more than 80% mothers). One study included 3.6% adoptive mothers (Chaplin et al., 2021), and one study included 0.9% female caretakers in the role of mothers (de Bruin et al., 2014). Biological parent status was not reported or not clear in the remaining studies. Approximately half of the children were girls across studies ($M=45.7\%$). The majority of studies reported on children ranging in age between 0 to 18 years of age, although one study and one subsample of a study included children and adolescents both under and over 18 years of age (de Bruin et al., 2015; Pan et al., 2019, subsample 1). Most studies sampled children from the community ($k=17$), while some children were clinically diagnosed or were recruited from clinic-referred settings ($k=8$). Additionally, one study included a mixed population (both clinical and community recruitment; Chaplin et al., 2021), two studies had different subsamples of community and clinical or other samples (de Bruin et al., 2014; Pan et al., 2019), and another two studies included children who were diagnosed with diabetes, but no mental health disorder was reported (Aalders et al., 2018; Van Gampelaere et al., 2019). Most studies were observational or correlational studies ($k=24$), which included scale validation studies, while the rest were intervention studies ($k=6$).

The majority of studies measured parents' mindfulness using the Mindful Attention and Awareness Scale (MAAS; $k=12$) or the Five Facet Mindfulness Questionnaire (FFMQ; $k=14$). One study and one subsample of a study used the Freiburg Mindfulness Inventory (FMI), and another study used a revised version of the Cognitive and Affective Mindfulness Scale (CAMS-R). Most studies measured mindful parenting using the Interpersonal Mindfulness in Parenting Scale (IMPS; $k=17$), while one study used the Mindfulness in Parenting Questionnaire (MIPQ). While positive and negative parenting measures varied across studies, the majority were parent-reported ($k=13$ positive, 10 negative), with some observed parenting reports ($k=4$ positive; 5 negative) and child reports ($k=2$ positive). Positive parenting measured in studies included warmth, affection, responsiveness, praise, proactivity, authoritative style, positive reinforcement, supportiveness, and acceptance. Negative

parenting measured in studies included criticizing, mocking, interrupting, laxness, verbosity, over-reactivity, hostility, physical control, negative affect, intrusiveness, neglect, over-accommodation, coercive behavior, rejection, overprotective behaviors, and observed anger.

Although we initially sought to assess the mediating role of mindful parenting on the link between parent mindfulness and child outcomes, we found that a limited number of studies measured and reported on all constructs of interest. In studies measuring mindful parenting and child outcomes, for which bivariate correlation data were available or authors responded, all studies focused on internalizing ($k=4$; one study included mothers and fathers with separate correlations) and externalizing ($k=2$) difficulties. All studies measured parents' reports of child outcomes for one target child in the family. No studies measured child self-esteem or social skills in relation to mindful parenting. As such, we focused our meta-SEM on the mediational link between parent mindfulness, mindful parenting, and child internalizing and externalizing difficulties. Further, due to the small number of studies available, our meta-SEM was considered exploratory. Study quality was generally good across studies, as depicted in Table 2. Cross-sectional studies had a mean quality score of 6.04 ($SD=1.20$) out of 7, and intervention studies had a mean quality score of 7.50 ($SD=0.84$) out of 8.

Correlations Between Mindfulness and Parenting

Mindfulness and Mindful Parenting A total of 18 studies reported a total of 23 bivariate correlations between mindfulness and mindful parenting (6057 participants). A moderate, significant pooled random effect size was found between mindfulness and mindful parenting, $r=0.468$, 95% $CI=0.410-0.522$, $p<0.001$, suggesting that higher levels of mindfulness were correlated with higher levels of mindful parenting. Figure 3a depicts the forest plot of effect sizes. Sensitivity analysis identified three outliers (Corthorn & Milicic, 2016; Han et al., 2021; Orue et al., 2020), and when these outlier studies were excluded, a slightly larger pooled random effect size between mindfulness and mindful parenting was found, $r=0.483$, 95% $CI=0.437-0.526$, $p<0.001$ (15 studies; 20 correlations; 3890 participants). Further, Egger's test was significant, $t(21)=2.754$; $p=0.004$, indicating evidence of publication bias as seen in Fig. 4a. Trim-and-fill analyses indicated that 10 studies would need to be added to create funnel plot symmetry, with the pooled random effect smaller with the added correlations, $r=0.371$, 95% $CI=0.287-0.450$.

Heterogeneity amongst studies was substantial, $I^2=87.2\%$, $\tau^2=0.02$, $Q(22)=172.08$, $p<0.001$. Subgroup analyses were conducted on the measure of mindfulness

Table 1 Study characteristics (abridged)

Study	Sub-sample	Sampling	Design	Country	N	Child age (range)	% female	Measures				Child outcome
								Children	Parents	Mindfulness	Parenting (inform-ant)	
Aalders et al. (2018)	1	O	C	Netherlands	421	4–18 Y	46	85	FMI	IMPS (SR)	Mindful	
Belschner et al. (2020)	1	CLIN	I	Canada	39	8–12 Y	51	85	MAAS	FAS (SR)	Negative	
Campbell et al. (2017)	1	COMM	C	USA	128	3 M–17 Y	NR	91	FFMQ	CRPR-NS (SR)	Positive	
Chaplin et al. (2021)	1	Mixed	I	USA	83	12–17 Y	51.8	97.6	MAAS	IMPS (SR); PAIT Coding (O)	Mindful, positive, negative	
Corthorn and Milicic (2016)	1	COMM	C	Chile	62	2–5 Y	NR	100	FFMQ	IMPS (SR)	Mindful	
de Bruin et al. (2014)	1	COMM	C	Netherlands	199	NR	NR	100	FFMQ	IMPS (SR)	Mindful	
de Bruin et al. (2015)	2	O	C	Netherlands	112	12–18 Y	NR	100	FMI	IMPS (SR)	Mindful	
Bunker Murdock (2017)	1	CLIN	I	Netherlands	52	11–23 Y	26.1	62.1	FFMQ	IMPS (SR); PS (SR)	Mindful	INT
Gouveia et al. (2016)	1	COMM	C	Portugal	333	8–18 Y	55	73.9	MAAS	IMPS (SR); PSDQ (SR)	Mindful, positive ^a	
Han et al. (2021)	1	COMM	C	China	2237	6–12 Y	48.1	77	FFMQ	IMPS (SR); MAPS (SR)	Mindful, positive, negative	INT, EXT
Hawk (2007)	1	COMM	C	USA	102	2.8–14.5 Y	52	100	MAAS	PAQ (SR)	Positive	
Hertz (2020)	1	COMM	C	USA	61	NR	NR	100	FFMQ	IMPS (SR)	Mindful	
Jones (2012)	1	COMM	C	USA	128	3 M–17 Y	NR	90.7	FFMQ	CRPR-NS (SR)	Positive	
Kil (2019)	1	COMM	C	Canada	127	9.5–12 Y	52.8	53.6	FFMQ	IMPS (SR)	Mindful	
Meppelink et al. (2016)	1	CLIN	I	Netherlands	140	NR	42.9	92.9	FFMQ	IMPS (SR)	Mindful	
Myhr (2016)	1	COMM	C	USA	104	3–5 Y	NR	82	FFMQ	APQ (SR)	Positive, negative	
Orue et al. (2020)	1	COMM	C	Spain	271	12–16 Y	54.1	80.8	MAAS	MIPQ (SR); PSS (SR;CR)	Mindful, positive	INT
Pan et al. (2019)	1	COMM	C	China	294	4–24 Y	NR	48.3	MAAS	IMPS (SR)	Mindful	
Parent et al. (2010)	2	CLIN	C	China	288	1–15 Y	NR	85	MAAS	IMPS (SR)	Mindful	
Parent et al., (2014)	1	CLIN	C	USA	373	9–15 Y	49.8	89.5	MAAS	IFIRS (O)	Positive, negative	
Parent et al. (2016a)	1	COMM	C	USA	121	10–17 Y	56.2	33.1	FFMQ	CRPBI (CR)	Positive	
Parent et al. (2016b)	1	COMM	C	USA	488	3–17 Y	44.1	59.2	MAAS	IMPS (SR); MAPS (SR)	Mindful, positive, negative	
Potharst et al. (2017)	1	CLIN	I	Netherlands	37	0–18 M	50	100	FFMQ	IMPS (SR); MAPS (SR); CPBQ (SR)	Mindful, positive, negative	INT, EXT

Table 1 (continued)

Study	Sub-sample	Sampling	Design	Country	N	Child age (range)	% female	Measures				
								Children	Parents	Mindfulness	Parenting (informant)	Parenting construct
Potharst et al. (2021)	1	CLIN	I	Netherlands	22	18–48 M	32	100	FFMQ ^b	IMPS (SR); Ainsworth Coding (O); PS (SR)	Mindful, positive, negative	
Siu et al. (2016)	1	COMM	C	Hong Kong	216	NR	NR	100	MAAS	PRQ (SR)	Positive	
Van Gampelaere et al. (2019)	1	O	C	Belgium	96	4–12 Y	55	64	MAAS	PO (SR)	Negative	
Williams and Wahler (2010)	1	CLIN	C	USA	40	NR	22.5	100	MAAS	PAQ-R (SR)	Positive ^a	
Zhang et al. (2019)	1	COMM	C	China	472	3.08–7 Y	45.4	74.4	MAAS	IMPS (SR)	Mindful	
Zhang et al., (2020b)	1	COMM	C	USA	155	4–13 Y	NR	17.50	FFMQ	RACS (O)	Negative	
Zhang et al. (2020a)	1	COMM	C	USA	181	4.5–13.72 Y	53.7	0	FFMQ	MFICS (O)	Negative	

Note. In Sampling column, O other, CLIN clinical, COMM community. In Design column, C cross-sectional, I intervention. In Child age column, Y years, M months. In Child age and % female columns, NR not reported. In Parenting (informant) column, SR self-report, O observed, C child-report

Measures are: Ainsworth Coding system devised to mirror Ainsworth's parenting behaviors, APQ Alabama Parenting Questionnaire, CAMS-R Cognitive and Affective Mindfulness Scale-Revised, CPBQ Comprehensive Parenting Behavior Questionnaire, CRPBI Children's Report of Parent Behavior Inventory, CRPR-NS Child-Rearing Practice Report Questionnaire-Nurturance Scale, CYDS Chicago Youth Development Study, FAS Family Accommodation Scale, FFMQ Five Facet Mindfulness Questionnaire, FMI Freiburg Mindfulness Questionnaire, IFRS Iowa Family Interaction Rating Scales, IMPS Interpersonal Mindfulness in Parenting Scale, MAAS Mindful Attention and Awareness Scale, MAPS Multidimensional Assessment of Parenting Scale, MFICS Macro-Level Family Interaction Coding System, MIPQ Mindfulness in Parenting Questionnaire, PAT Coding Parent-Adolescent Interaction Task Coding Scheme, PAQ-R Parental Authority Questionnaire-Revised, PO Coding Parental Overreactivity Coding, PRQ Parenting Relationship Questionnaire, PS Parenting Scale, PSDQ Parenting Styles and Dimensions Questionnaire, PSS Parental Style Scale, RACS Relationship Affect Coding System

Overall Ns are reported; however, mothers and fathers were considered separately if data were available for analyses. ^aOnly authoritative parenting was included in analyses. ^bOnly three items of the FFMQ were measured

used and clinical or community sampling of participants, as depicted in Table 3. Subgroup analyses of measures of mindfulness (FFMQ, MAAS, FMI, CAMS-R) indicated no between-measure heterogeneity, $Q(3)=5.29$, $p=0.151$, but pooled effect sizes were moderately significant across all three types of measures. Subgroup analyses of samples (clinical, community, mixed, and other) indicated

between-sample heterogeneity, $Q(3)=13.07$, $p=0.004$, but pooled effect sizes were significant and moderate across all samples, though largest for studies with clinical samples and smallest for the study with a mixed sample.

Mindfulness and Positive Parenting A total of 16 studies reported on 19 bivariate correlations between mindfulness

Table 2 Study quality assessments

Author (year)	QA1	QA2	QA3	QA4	QA5	QA6	QA7	QA8	Mean
Intervention studies									
Belschner et al. (2020)	1	1	1	1	1	1	1	1	8
Chaplin et al. (2021)	1	1	1	1	1	1	1	1	8
de Bruin et al. (2015)	1	1	1	1	1	1	1	1	8
Meppelink et al. (2016)	1	1	1	1	1	1	0	1	7
Potharst et al. (2017)	1	1	1	1	0	1	0	1	6
Potharst et al. (2021)	1	1	1	1	1	1	1	1	8
Cross-sectional studies									
Aalders et al. (2018)	1	1	1	1	1	1		1	7
Bunker-Murdock (2017)	1	1	1	1	1	1		1	7
Campbell et al. (2017)	1	1	1	1	1	1		1	7
Corthorn and Milicic (2016)	1	1	1	1	1	1		1	7
de Bruin et al. (2014)	0	1	1	NA	NA	1		1	4
Gouveia et al. (2016)	1	1	1	1	1	1		1	7
Han et al. (2021)	1	1	1	1	1	1		1	7
Hawk (2007)	0	1	1	1	1	1		1	6
Hertz (2020)	0	0	1	1	1	1		1	5
Jones (2012)	1	1	1	1	1	1		1	7
Kil (2019)	0	1	1	1	1	1		1	6
Myhr (2016)	0	0	1	0	NA	1		1	3
Orue et al. (2020)	1	1	1	NA	NA	1		1	5
Pan et al. (2019)	1	1	1	NA	NA	1		1	5
Parent et al. (2010)	1	1	1	1	1	1		1	7
Parent et al., (2014)	1	1	1	NA	NA	1		1	5
Parent et al. (2016a)	1	1	1	1	1	1		1	7
Parent et al. (2016b)	1	1	1	NA	NA	1		1	5
Siu et al. (2016)	1	1	1	NA	NA	1		1	5
Van Gampelaere et al. (2019)	1	1	1	1	1	1		1	7
Williams and Wahler (2010)	1	1	1	1	1	1		1	7
Zhang et al. (2019)	1	1	1	NA	NA	1		1	5
Zhang et al. (2020b)	1	1	1	1	1	1		1	7
Zhang et al. (2020a)	1	1	1	1	1	1		1	7

Note. 1 = yes. 0 = no. NA not applicable

QA1 = Inclusion criteria; were the criteria for inclusion in the sample clearly defined?

QA2 = Subjects and setting; were the study subjects and the setting described in detail?

QA3 = Valid Exposure (IV); was the exposure measured in a valid and reliable way?

QA4 = Confounding variables; were confounding factors identified?

QA5 = Strategies for confounding variables; if Yes for QA4, were strategies to deal with confounding factors stated?

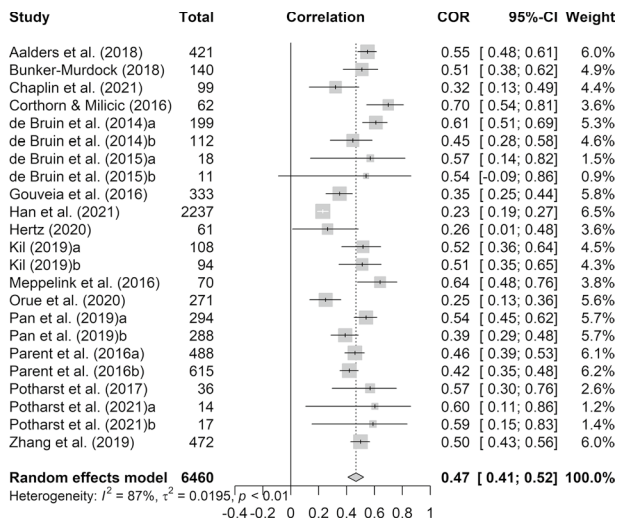
QA6 = Valid outcome (DV); were the outcomes measures in a valid and reliable way?

QA7 = Attrition; if intervention design, was follow-up complete, and if not, were the reasons to loss to follow-up described and explored?

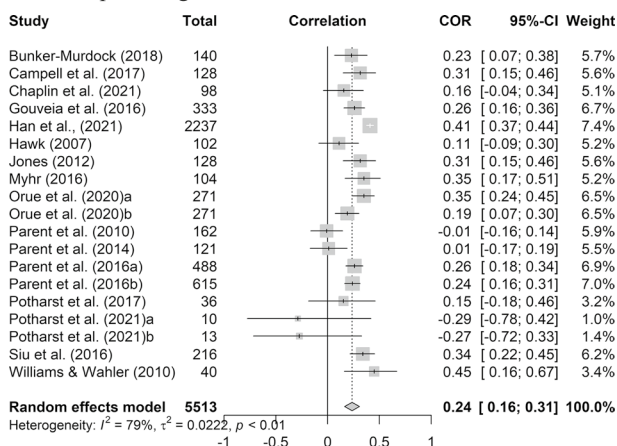
QA8 = Statistical analysis; was appropriate statistical analysis used for the goals of the study?

and positive parenting (pooled $n = 5513$). A small, significant pooled random effect size was found between mindfulness and positive parenting, $r = 0.237$, 95% CI = 0.164,

a Mindful parenting



b Positive parenting



c Negative parenting

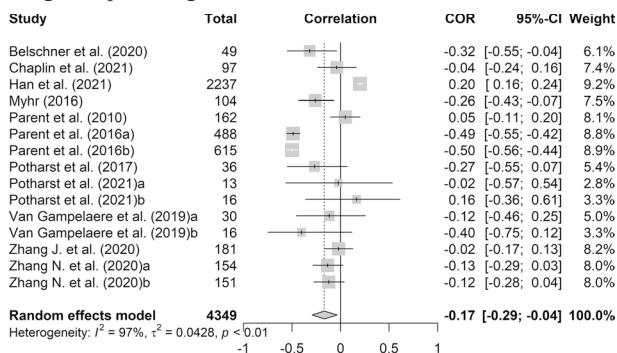


Fig. 3 Forest plots for correlations between mindfulness and parenting. **a** Mindful parenting. **b** Positive parenting. **c** Negative parenting *Note.* a and b appearing outside brackets indicate subsamples from the same study sample. a and b appearing inside brackets indicate different studies and corresponding samples

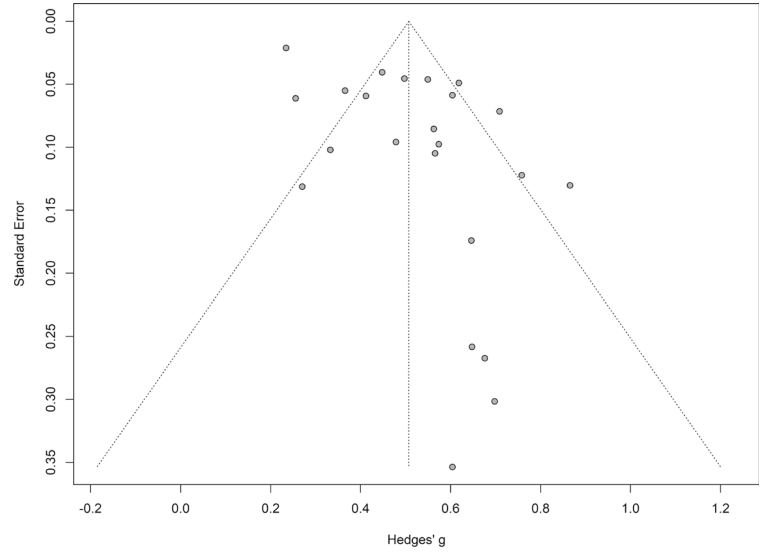
0.307, $p < 0.001$, suggesting that higher levels of mindfulness were correlated with more positive parenting. Figure 3b depicts the forest plot of effect sizes of all studies. Sensitivity analyses identified two outliers (Han et al., 2021; Parent et al., 2010). Excluding the outlier studies resulted in a nearly equivalent pooled random effect size between mindfulness and positive parenting, $r = 0.238$, 95% CI = 0.169, 0.305 (14 studies; 17 correlations; pooled $n = 3114$). Egger's test on the full set of studies was significant, $t(17) = -3.592$; $p = 0.002$, indicating evidence of publication bias as seen in Fig. 4b. Trim-and-fill analyses indicated that eight studies would need to be added to create funnel plot symmetry, with the pooled random effect stronger with the added correlations, $r = 0.333$, 95% CI = 0.240, 0.421.

Heterogeneity amongst the full set of studies was substantial, $I^2 = 79.0$, $\tau^2 = 0.149$, $Q(18) = 85.70$, $p < 0.001$. Subgroup analyses were conducted on the measure of mindfulness used, informant of parenting, and clinical or community sampling of participants, as depicted in Table 3. Subgroup analyses on measures of mindfulness (FFMQ, MAAS, CAMS-R) indicated no significant differences in measures, $Q(2) = 0.03$, $p = 0.986$, and all three measures showed similarly significant and positive pooled correlations between mindfulness and positive parenting. Subgroup analyses on informants of parenting (self-reported, child-reported, or observed) indicated significant differences across informants, $Q(2) = 14.16$, $p < 0.001$. Studies that measured self-reported parenting demonstrated a significant pooled effect for mindfulness and positive parenting, while studies that measured child-reported and observed parenting demonstrated non-significance. Subgroup analyses comparing samples (clinical, community) indicated non-significant between-sample heterogeneity, $Q(1) = 2.60$, $p = 0.107$. However, the pooled correlation between mindfulness and positive parenting was significantly positive for community samples, and not significant for clinical samples.

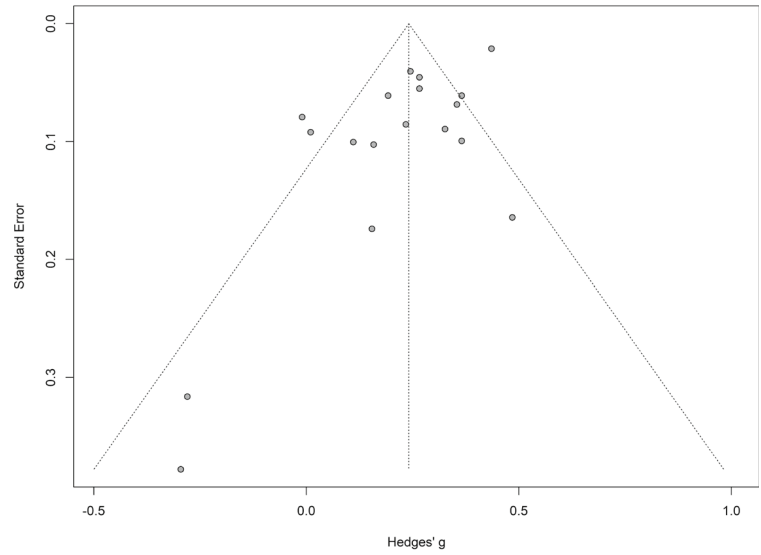
Mindfulness and Negative Parenting Eleven studies reported a total of 15 bivariate correlations between mindfulness and negative parenting (pooled $n = 4349$). A small, negative, significant pooled random effect size was found between mindfulness and negative parenting, $r = -0.167$, 95% CI = -0.293 , -0.035 , $p = 0.017$, suggesting that higher levels of mindfulness were associated with less negative parenting. Sensitivity analysis identified three outliers (Han et al., 2021; Parent et al., 2016a, b). Excluding these three outlier studies resulted in a smaller but still significant pooled random effect size between mindfulness and negative parenting, $r = -0.115$, 95% CI = -0.201 , -0.027 (9 studies; 12 correlations; 1009 participants). Figure 3c depicts the forest plot of effect sizes of all studies. Egger's test for the full set of studies was

Fig. 4 Funnel plots of effect sizes for mindfulness and parenting. **a** Mindful parenting. **b** Positive parenting. **c** Negative parenting

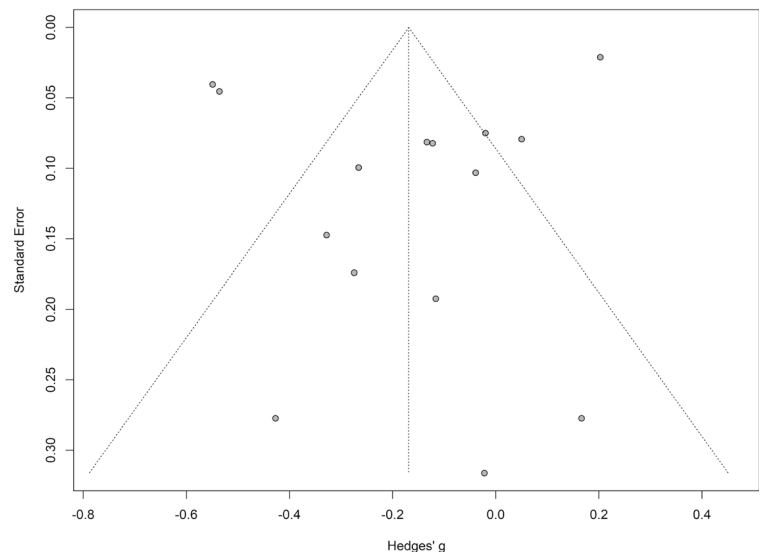
a Mindful parenting



b Positive parenting



c Negative parenting



not significant, $t(13) = -1.191$; $p = 0.255$, indicating no evidence of publication bias as seen in Fig. 4c.

Heterogeneity amongst the full set of studies was substantial, $I^2 = 96.7\%$, $\tau^2 = 0.207$, $Q(14) = 425.86$, $p < 0.001$. Subgroup analyses were conducted on the measure of mindfulness used, informant of parenting, and clinical or community sampling of participants, as depicted in Table 3. Subgroup results on the measure of mindfulness (FFMQ, MAAS) indicated marginally significant differences across measures used, $Q(1) = 3.74$, $p = 0.053$. Studies that measured mindfulness using the FFMQ demonstrated a non-significant pooled

effect size in the link between mindfulness and negative parenting, while studies using the MAAS demonstrated a small, significant pooled effect size. Subgroup results based on informant of parenting (self-reported or observed) indicated significant differences across informants, $Q(1) = 3.97$, $p = 0.046$. Studies using self-reported measures of negative parenting demonstrated small, significant pooled effect sizes, while studies using observed measures demonstrated non-significant associations between mindfulness and negative parenting. Subgroup analyses on sampling (clinical, community, mixed, other) indicated non-significant between-sample

Table 3 Main and subgroup analyses of mindfulness and parenting

	n_r	Pooled n	Pooled effect				Q			I^2 (%)	Egger's test		Trim-and-Fill		
			r	SE	95% CI	p	Statistic	df	p		t	p	k	r	p
Mindful parenting	23	6460	.468		.410, .522	<.001	172.08	22	<.001	87.2	3.264	.003	33	.371	<.001
2a: By mindfulness measure							5.29	3	.152						
FFMQ	12	2927	.573	.061	.453, .693	<.001	97.86			89					
MAAS	8	2860	.440	.040	.361, .519	<.001	26.83			74					
FMI	2	533	.572	.066	.442, .701	<.001	1.69			41					
CAMS-R	1	140	.563	.085	.395, .730	<.001	-			-					
2b: By sampling of clinical status							13.07	3	.004						
Clinical	7	306	.637	.032	.573, .700	<.001	1.81			0					
Community	13	5522	.479	.049	.383, .575	<.001	132.40			91					
Mixed	1	99	.333	.102	.133, .533	.001	-			-					
Other	2	533	.572	.066	.442, .701	<.001	1.69			41					
Positive parenting	19	5513	.237		.164, .307	<.001	85.70	18	<.001	79.0	-3.592	.002	27	.333	<.001
2c: By mindfulness measure							.03	2	.986						
FFMQ	8	2777	.222	.083	.060, .385	.007	32.25			78					
MAAS	10	2596	.238	.040	.160, .316	<.001	22.49			60					
CAMS-R	1	140	.234	.085	.067, .402	.006	-			-					
2d: By informant of parenting							14.16	2	<.001						
Self-report	13	4838	.310	.025	.260, .360	<.001	38.51			69					
Child-report	2	392	.115	.090	-.062, .292	.202	2.72			63					
Observed	4	283	.009	.088	-.164, .181	.922	3.52			15					
2e: By sampling of clinical status							2.60	1	.107						
Clinical	7	499	.131	.087	-.040, .302	.134	12.30			51					
Community	12	5014	.281	.033	.216, .346	<.001	54.66			80					
Negative parenting	15	4349	-.167		-.293, -.035	.017	425.86	14	<.001	96.7	-1.191	.255	23	.127	.193
2f: By mindfulness measure							3.74	1	.053						
FFMQ	8	2892	-.057	.063	-.182, .068	.370	57.27			88					
MAAS	7	1457	-.282	.098	-.473, .091	.004	68.30			91					
2g: By informant of parenting							3.97	1	.046						
Self-report	10	3604	-.242	.088	-.415, -.068	.006	422.25			98					
Observed	5	745	-.052	.035	-.121, .016	.136	3.60			0					
2h: By sampling of clinical status							1.82	3	.611						
Clinical	5	276	-.100	.094	-.283, .084	.287	7.43			46					
Community	7	3930	-.204	.105	-.410, .001	.051	416.50			99					
Mixed	1	97	-.039	.103	-.241, .163	.705	-			-					
Other	2	46	-.228	.149	-.521, .064	.126	.85			0					

Note. n_r number of correlations analyzed in subgroup, 95% CI lower and upper confidence intervals, FFMQ Five Facet Mindfulness Questionnaire, MAAS Mindful Attention and Awareness Scale, FMI Freiberg Mindfulness Inventory

heterogeneity, $Q(3)=1.82$, $p=0.611$, and pooled effect sizes were not significant for most sampled groups, although a marginally significant small pooled effect emerged for community-sampled studies.

Mindful Parenting as a Mediator Between Parent Mindfulness and Child Outcomes

Correlations were aggregated into correlation matrices for studies that reported on data needed for our meta-SEM. Of 23 correlations that examined mindfulness and mindful parenting, a total of five correlations across four studies (de Bruin et al., 2015; Han et al., 2021; Orue et al., 2020; Parent et al., 2016b) reported on mindful parenting and child internalizing outcomes. Two of these same studies also included two correlations on child externalizing outcomes (Han et al., 2021; Parent et al., 2016b). Using meta-SEM, only three of four studies on child internalizing difficulties could be included in the meta-SEM on internalizing difficulties due to missing data (omitted de Bruin et al., 2015). All remaining studies included a community sample. The random effect pooled correlation matrices are depicted in Table 4, and all correlations were significant.

To address issues with listwise deletion and resulting small sample of studies in meta-SEM, each analysis was further supplemented by a full sample path analysis of correlations in *Mplus* using full information maximum likelihood (FIML) estimation. Using FIML, studies could be pairwise deleted for each path, thus any reported correlations between mindfulness and mindful parenting, mindfulness and child outcomes, and mindful parenting and child outcomes from the 23 studies could be included in a single path model separately for internalizing and externalizing difficulties, with the smallest meta-analytic sample size applied for each path analysis. Pooled correlation matrices using all available

Table 4 Pooled correlational matrices

		1	2	3
<i>Meta-SEM</i>				
1	Mindfulness		.299	-.226
2	Mindful parenting	.318		-.109
3	Child difficulties	-.232	-.146	
<i>All available correlations</i>				
1	Mindfulness		.468	-.272
2	Mindful parenting	.468		-.109
3	Child difficulties	-.249	-.153	

Note. Correlations above the diagonal represent studies measuring child internalizing difficulties. Correlations below the diagonal represent studies measuring child externalizing difficulties. When using all available correlations, pooled correlations were weighted, used random effects, and significant, $p < .001$

correlations in path analyses are depicted in Table 4, and all correlations were significant. In all tested meta-SEM and path models, model fit was saturated, with a null Chi-square value, RMSEA = 0.00, CFI = 1.00, SRMR = 0.00, as paths amongst all variables were examined. Regardless of the tested model, caution must be taken in interpreting these results due to the small number of studies simultaneously reporting associations amongst mindfulness, mindful parenting, and children's mental health outcomes.

Child Internalizing Difficulties The meta-SEM model indicated significant average between-study heterogeneity, $Q(6)=71.97$, $p < 0.001$, warranting use of the random effects model. As depicted in Fig. 5a, the model (3123 participants) reflected the pooled correlation coefficients. Parent mindfulness was significantly related to more mindful parenting and less child internalizing difficulties, but mindful parenting was not significantly related to child internalizing difficulties. Accordingly, the indirect path between mindfulness and child internalizing difficulties through mindful parenting was not significant, $\beta = -0.062$, 95% CI = $-0.014, 0.036$. Results of the supplementary path analysis depicted in Fig. 5b showed similar effects, with significant associations between mindfulness and child internalizing difficulties as well as mindful parenting, but not between mindful parenting and child internalizing difficulties. The indirect effect was similarly not significant, $\beta = 0.011$, 95% CI = $-0.007, 0.029$.

Child Externalizing Difficulties The meta-SEM model indicated significant average between-study heterogeneity, $Q(3)=41.31$, $p < 0.001$, warranting use of the random effects model. As depicted in Fig. 5c, the model (2852 participants) showed that parent mindfulness was associated with more mindful parenting and less child externalizing difficulties, but mindful parenting was not significantly related to child externalizing difficulties. Accordingly, the indirect path between mindfulness and child externalizing difficulties through mindful parenting was not significant, $\beta = -0.078$, 95% CI = $-0.026, 0.025$. On the contrary, results of the supplementary path analysis depicted in Fig. 5d showed significant associations between all variables of interest. Accordingly, the indirect effect was significant, $\beta = -0.022$, 95% CI = $-0.041, -0.003$, with higher mindful parenting facilitating the indirect association between higher parental mindfulness and lower child externalizing difficulties.

Discussion

In the present meta-analysis, we examined whether mindfulness in parents may be linked to more positive and mindful parenting and less negative parenting, in the absence of

or prior to clinical intervention. Results demonstrated that parent mindfulness showed a moderate positive correlation with mindful parenting ($r=0.458$), a small positive correlation with positive parenting ($r=0.237$), and a small negative correlation with negative parenting ($r=-0.167$). These pooled correlations were consistent in models including and excluding outliers. The moderate correlation between mindfulness and mindful parenting is in line with existing theoretical models and supporting research on parent

mindfulness, suggesting that parents who have high levels of mindfulness tend to be able to apply these mindfulness skills in their interpersonal behaviors, such as in parenting (Meppelink et al., 2016). It may be expected that there is a considerable amount of overlap between measures of mindfulness and mindful parenting; for example, “I watch my feelings without getting lost in them” from the FFMQ and “I listen carefully to my child’s ideas, even when I disagree with them” from the IMPS incorporate similar processes

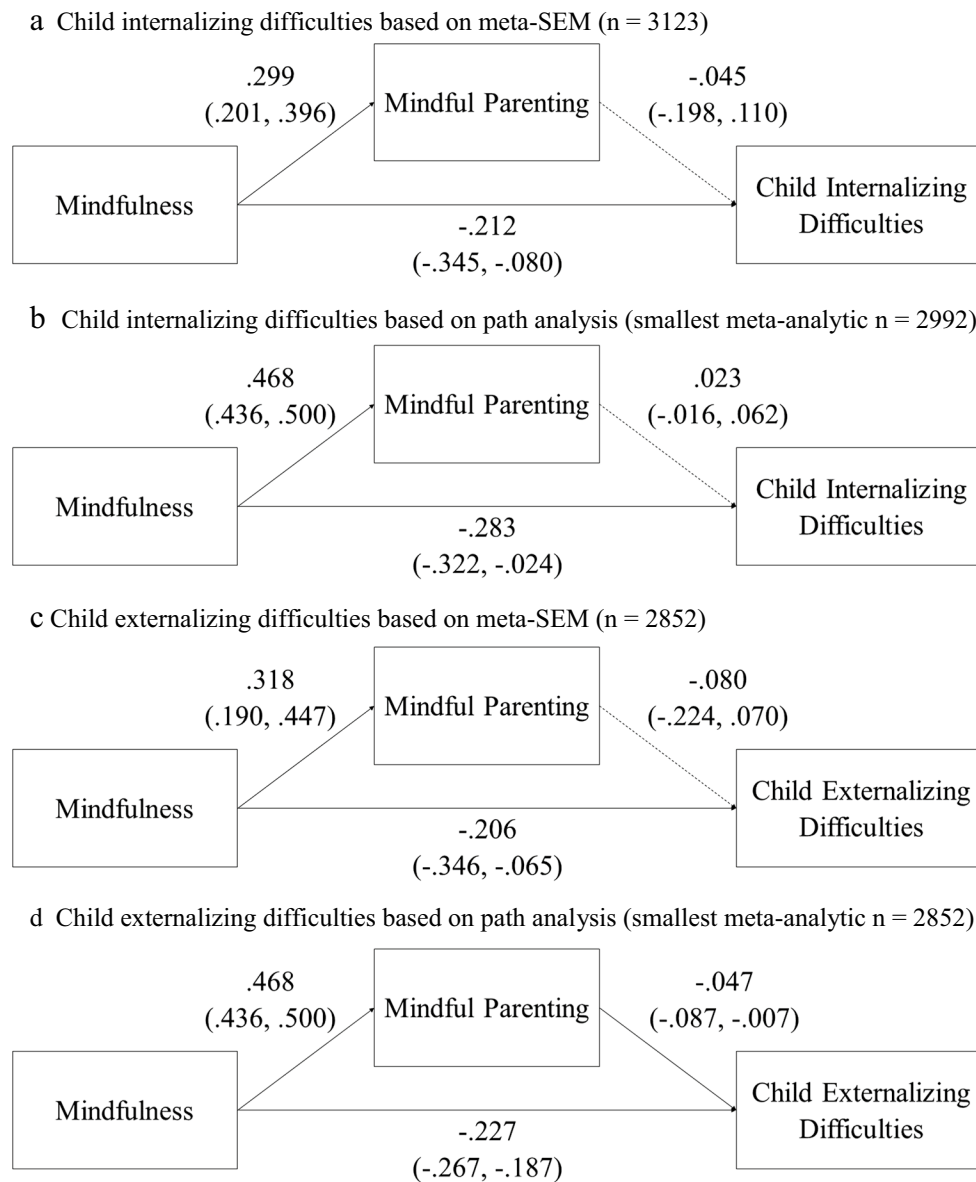


Fig. 5 Mediation results for child internalizing and externalizing difficulties: meta-SEM and supplemental path analyses. **a** Child internalizing difficulties based on meta-SEM ($n=3123$). **b** Child internalizing difficulties based on path analysis (smallest meta-analytic $n=2992$). **c** Child externalizing difficulties based on meta-SEM ($n=2852$). **d** Child externalizing difficulties based on path analysis

(smallest meta-analytic $n=2852$). *Note.* All models demonstrated fully saturated model fit statistics. Models **b** and **d** used a sample size of $k=23$. Values in brackets indicate lower and upper 95% confidence intervals. Dashed lines indicate non-significant paths based on confidence intervals including zero

regarding nonjudgment of own emotional states (Baer et al., 2006; Duncan, 2007). Indeed, a number of published studies have measured and referred to mindful parenting as parents' mindfulness (e.g., Zimmer-Gembeck et al., 2019). Such construct convergence may explain the medium size of the pooled correlation between mindfulness and mindful parenting across the large sample included in the present meta-analysis.

Our meta-analysis also revealed that parents with higher levels of mindfulness used more positive parenting, including warmth, support, responsiveness and authoritative parenting practices. Parents with high mindfulness also used less negative parenting, including anger, hostility, coercion, lax parenting, overprotection, and physical control. However, subgroup analyses indicated that studies using the MAAS to measure mindfulness led to significant pooled correlations between mindfulness and both positive and negative parenting, while those using the FFMQ did not. The MAAS and FFMQ differ in their conceptualization of mindfulness. Namely, the MAAS is a shorter, single-construct measure focusing on the attention and awareness component of mindfulness (Brown & Ryan, 2003), while the FFMQ is a longer, five-facet measure focusing on multiple components, including describing internal states and non-judgment of and non-reactivity to internal experiences (Baer et al., 2006). Potentially, substantial differences may exist in what is measured by the FFMQ versus by the MAAS. For example, questions on the MAAS are mostly associated with the process of self- and present-awareness, whereas the FFMQ extends beyond awareness into an examination of processes such as emotion labeling (describing) and non-judgment of internal experiences (Zhuang, et al., 2017). However, for one of the studies using the FFMQ, only three items from the Acting with Awareness subscale were used to assess mindfulness rather than the full 39 items, and as such the conclusions of these subgroup analyses must be considered preliminary. Further research on mindfulness using the FFMQ and other measures in the parenting context is needed to better isolate the unique properties of these measures and their different links to parenting.

Further subgroup analyses of the link between mindfulness and positive or negative parenting by the informant on parenting indicated that parents' self-reported parenting was significantly correlated with their reports of mindfulness, while child-reported and observed measures of parenting were not significantly related to parents' mindfulness. Highly mindful parents may rate their own parenting more positively because they are less likely to ruminate about and more likely to positively reappraise stressful experiences (Garland et al., 2015), and these thinking patterns may extend to parenting contexts, increasing the tendency to remember positive parenting events. The results also echo ongoing perspectives in family psychology regarding the

tendency for parents to rate their parenting more positively or less negatively compared to their children or observers (e.g., Morsbach & Prinz, 2006). These discrepancies in the significance of correlations between mindfulness and parents' self-reported and other reporters' accounts of parenting may be explained by shared method variance or social desirability biases. However, there is also evidence that under certain conditions, such as low socioeconomic status or high parental distress, parents tend to overestimate positive parenting and underestimate negative parenting compared to their children (e.g., Herbers et al., 2017). Further examination of such moderating factors that may explain these informant discrepancies would be valuable in extending our understanding in the link between mindfulness and parenting.

Our preliminary meta-SEM further showed that parent mindfulness was directly associated with more mindful parenting and lower rates of children's internalizing and externalizing difficulties. However, mindful parenting was not related to children's internalizing or externalizing difficulties either directly or as a mediator between parent mindfulness and child difficulties. Contrasting these results for externalizing difficulties, our supplemental analyses suggested that mindful parenting mediates the link between parents' mindfulness and children's externalizing difficulties. It must be emphasized again that this analysis is exploratory and must be interpreted with caution. In fact, the lack of association between mindful parenting and children's internalizing outcomes is contrary to a wealth of literature on the topic (e.g., Geurtzen et al., 2015; Turpyn & Chaplin, 2016). As a key limitation to these analyses, including studies that had reported even solely on the correlation between mindful parenting and child outcomes would have been helpful in realizing a stronger conclusion. However, it must be noted that many studies examining mindful parenting do not also measure parents' mindfulness separately. As such, further work is needed that simultaneously considers associations amongst parents' mindfulness, mindful parenting, and their children's outcomes in a single sample. Additionally, as reflected in the present two meta-SEMs, it remains to be seen whether parents' mindfulness could be a stronger direct correlate of child internalizing and externalizing difficulties, beyond the links via mindful parenting.

The results of this meta-analysis provide partial support for the bolded paths identified in the Consolidated Model of Mindful Parenting by demonstrating that parent mindfulness is linked with more mindful parenting and positive parenting, and with less negative parenting. These results may have implications for practice. For example, in clinical settings, mindfulness-based interventions (MBIs) such as mindfulness-based stress reduction and mindfulness-based cognitive therapy have become increasingly

more accessible to adult populations, many of whom are parents (Cullen, 2011). Our results suggest that parents who report higher levels of mindfulness may also report more mindful, more positive, and less negative parenting. Indeed, recent evidence syntheses such as meta-analyses demonstrate that parents who participate in mindfulness interventions tend to benefit at the cognitive level, experiencing reduced depressive symptoms and parenting stress, as well as at the behavioral level, with decreases in harsh or lax disciplinary style (see Alexander, 2018; Burgdorf et al., 2019; Friedmutter, 2015). Further, our exploratory meta-SEM results suggest that parents who are highly mindful report fewer internalizing and externalizing difficulties in their children. Interventions that facilitate parents' increases in general mindfulness may be effective in improving family and child functioning. Additionally, our subgroup analyses on links between mindfulness and parenting demonstrated mostly similar pooled effect sizes across studies with clinical and community samples. Thus, our findings provide support for the proposed pathways in models of mindful parenting, including our consolidated model, in both community and clinical populations. The findings also reflect the potential mental health implications of mindfulness in parents of children with and without clinically elevated mental health issues.

However, we emphasize that these clinical implications must be considered with caution, as significant links emerging between mindfulness and parenting in the present meta-analysis were limited to parent reports and were not found for observed or child-reported parenting. Indeed, other mindfulness literature examining the effects of mindfulness-based parenting interventions on child outcomes in community samples have similarly shown that although parents report improvements in child behavior after parent involvement in such interventions, observer- and child-reported child behavior does not appear to significantly improve (see Kil & Antonacci, 2020). As such, it remains to be ascertained whether increasing parent mindfulness may result in changes in parenting behaviors according to other sources beyond the parent.

Limitations and Future Research

While the present study provides initial syntheses of the links between mindfulness, parenting, and child outcomes, some limitations must be considered. First, the absence of a translator meant inclusion was restricted to studies in English, resulting in exclusion of some studies (e.g., Ercegovic & Ljubetić, 2019). However, diverse language regions were represented in studies, including Chinese (e.g., Han et al., 2021), Dutch (e.g., Potharst et al., 2017), and Spanish (Corthorn & Milicic, 2016), suggesting the results may be culturally generalizable. Further, the sample size of included studies was 30, but for

subgroup analyses and meta-SEM, this size was as small as one or two studies. However, given the large pooled sample size for studies included in the meta-SEM (3123 and 2852 for internalizing and externalizing child difficulties, respectively), and similar results using FIML methods in supplemental path analyses, the conclusions drawn may provide good foundational results for future work. We found no longitudinal studies in our search, although we know of one recently published study by Parent et al. (2021) that was longitudinal in nature. More research on longitudinal paths in the Consolidated Model is needed to understand the links between mindfulness and parenting in the absence of interventions. Within the studies, children's age ranges were broad, ranging from 0 to 18 years old. Although this offered a wide scope for assessing child outcomes, aggregating this broad age range in our analyses may have obscured any child age-related differences in links among the variables of interest. Additionally, our conclusions may not be fully comprehensive, as several studies were excluded due to data unavailability or lack of author response. Lastly, many of the measures used in the included studies were based on parent-reports, which may not describe the complete picture of a family's functioning, as each informant could be biased in their perspectives (Achenbach, 2006; Cottrell et al., 2003; Trang & Yates, 2020).

Despite these limitations, the results of the present meta-analysis outline several avenues by which future research on mindfulness in parenting may be strengthened. First, our subgroup analyses suggest that further work is needed to assess mindfulness in relation to child-reported or observed parenting behaviors. Research has identified that parents self-reporting high mindful parenting tend to also report more sensitive and emotionally clear interactions with their children (Potharst et al., 2021), and warmer and less harsh parenting (Duncan et al., 2015). However, there is yet no measure of other-reported or observed mindful parenting, potentially owing to the perspective that mindfulness is difficult to observe through behavior (Duncan et al., 2015). Considering that the present meta-analysis found different strengths of pooled correlations between mindfulness and positive and negative parenting across informants, similar results may be expected for mindful parenting. Other methods of measuring mindful parenting are needed to help researchers understand the phenomenon of mindful parenting beyond self-report.

Second, while the present study explored three pathways in the Consolidated Model of Mindful Parenting, other paths may benefit from further exploration. Beyond mindful, positive, and negative parenting, future work may build upon the pathways linking mindfulness and effective child management, parent-child affection, and family functioning. Meta-analyses of these other links would be important to provide support for the impact of mindful parenting on the family and other parent-child relationship characteristics.

Finally, our meta-analysis identified that studies on mindfulness in parenting are largely focused on mothers; as such, little is known about fathers, their mindfulness, and their impacts on the family. Some research that has focused on gender differences have reported that mothers tend to report higher levels of mindful parenting compared to fathers (Medeiros et al., 2016). As such, the significance of mindfulness for parenting in fathers is not well-known. Further, different processes may underlie mindful parenting for mothers and fathers. For example, mothers and fathers differ in terms of emotion regulation (a tenet of mindfulness) with mothers responding constructively to and fathers encouraging inhibition in their children (Cassano et al., 2007). Research assessing mindfulness in parenting contexts must be further developed to generalize to or better represent both parenting agents.

Recent years have seen increasing interest in mindfulness in the family context, particularly how parents' mindful thinking and behavior can foster children's well-being and psychological adjustment. The present meta-analysis presented a synthesis of existing research on the links between parent mindfulness and parenting, and explored the mediating role of mindful parenting on the link between parent mindfulness and child internalizing and externalizing outcomes. The preliminary findings of our meta-analyses pose important questions regarding potentially direct links between parent mindfulness and child internalizing and externalizing difficulties. Collectively, the results highlight the need for advancements in the study of mindful parenting, differentiation of measures of mindfulness in parenting studies, and further research that can help to confirm models of mindful parenting.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s12671-021-01720-7>.

Acknowledgements The authors thank Marcos Sanches for statistical advice during the revision process.

Author Contribution HK designed the study, conducted data collection and analyses, and wrote the initial draft of the manuscript. RA contributed to data collection and to writing and editing of the final manuscript. SS contributed to data collection and writing and editing of the final manuscript. ADL contributed to data collection and writing and editing of the final manuscript.

Funding At the time of writing, the first author was funded by a postdoctoral fellowship from the Social Sciences and Humanities Research Council of Canada.

Declarations

Ethics Approval and Consent of Participate Not applicable.

Conflict of Interest The authors declare no competing interests.

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