THE DEVELOPMENT OF MINDFUL PARENTING IN PRESCHOOLERS (MPP) SCALE

Afifah At Thohiroh[*], Mutia Aulia Dewi , Dewi Maulina,
Nabilah Maghfirah Maulani, Riska Faradila, Tahlia Latifah

Faculty of Psychology, University of Indonesia,
Prof. DR. R Slamet Iman Santoso Street, Depok, 16424, Indonesia

[*]E-mail: thohiroh.afifah@gmail.com

Abstract

Existing measurements of mindful parenting primarily focus on parenting in infants or older children and are designed specifically for mothers. The current study aims to develop a scale to assess mindful parenting in preschool children aged 3 to 5 (Mindful Parenting in Preschoolers/MPP) using a situational judgment test that can be completed by both parents. A total of 307 Indonesian parents aged 24–54 years old ($M = 33.1$, $SD = 4.73$) completed the 42 pooled items of the MPP. Psychometric testing was conducted to obtain the final version of the MPP with 30 items. Factor analysis revealed a three-factor structure, awareness, compassion, and non-reactivity, differing from the proposed model. Overall, the MPP demonstrates good internal consistency, and validity testing showed a significant negative correlation with parenting stress as a convergent criterion. The statistical performance of individual dimensions remains inadequate following scale reduction, necessitating further refinement and additional data collection. Despite these limitations, the MPP is a promising tool that offers a different test format compared to most currently available mindful parenting measurements.

Keywords: mindful parenting, parental stress, preschool children, scale development, situational judgment test

Pengembangan Skala Pengasuhan Berkesadaran pada Anak Prasekolah (MPP)

Abstrak

Alat ukur pengasuhan yang ada utamanya berfokus pada pengasuhan bayi atau anak dengan usia yang lebih tua, serta dirancang khusus untuk ibu. Studi ini bertujuan untuk mengembangkan alat ukur pengasuhan berkesadaran pada anak prasekolah berusia 3–5 tahun (MPP) menggunakan format penilaian situasional yang dapat diisi oleh kedua orang tua. Sebanyak 307 orang tua di Indonesia berusia 24–54 tahun ($M = 33.1$, $SD = 4.73$) mengisi 42 item awal MPP. Uji psikometri dilakukan untuk menghasilkan versi akhir MPP dengan 30 item. Analisis faktor mengungkapkan MPP terdiri dari tiga faktor yakni *awareness, compassion*, dan *non-reactivity,* berbeda dari model yang diajukan. Secara keseluruhan, MPP memiliki konsistensi internal yang baik dan uji validitas menunjukkan MPP berkorelasi secara signifikan dengan stres pengasuhan sebagai kriteria konvergen. Performa statistik dari masing-masing dimensi MPP belum memadai setelah tahap eliminasi item, sehingga membutuhkan perbaikan dan pengambilan data tambahan. Terlepas dari keterbatasan ini, MPP merupakan alat ukur potensial yang menawarkan format tes berbeda dari kebanyakan alat ukur pengasuhan berkesadaran yang tersedia saat ini.

Kata kunci: anak prasekolah, pengasuhan berkesadaran, pengembangan skala, stres pada orang tua, tes penilaian situasional

INTRODUCTION

One of the strategies to optimize parent-child relationships is mindful parenting. This term is derived from the concept of mindfulness, which refers to an awareness of the present moment that arises from intentionally paying attention without judgment (Kabat-Zinn & Kabat-Zinn, 1997). While awareness is an internal process within an individual, it is also relevant to various contexts, including but not limited to child-rearing (Kabat-Zinn, 2021). Mindful parenting consists of three fundamental elements: sovereignty (i.e., honoring a child's true nature), empathy (i.e., understanding a child's perspective), and acceptance (i.e., acknowledging things as they are). In contrast, Duncan et al. (2009) conceptualized mindful parenting as a multidimensional construct comprising five distinct but interrelated dimensions: listening with full attention, non-judgmental acceptance of self and child,

emotional awareness of self and child, self-regulation in the parenting relationship, and compassion for self and child. This paper focuses on the conceptualization proposed by Duncan and colleagues for two reasons. First, it is the most widely adopted framework for scale development (Acet & Oliver, 2023; Gartstein, 2021; Laurent et al., 2017). Second, the five dimensions have been empirically validated through scientific model testing in multiple studies (e.g., Duncan, 2007; Duncan et al., 2009).

The first dimension involves attentively responding to a child's verbal and non-verbal cues (Duncan et al., 2009). Mindful parents listen beyond words, considering body language and tone. The second dimension, non-judgmental acceptance, highlights accepting both their own and their child's personality and challenges without compromising discipline. Emotional awareness refers to recognizing and understanding emotions to respond consciously. Self-regulation means pausing before responding to avoid impulsive, hostile reactions. Lastly, compassion involves fulfilling the child's needs while avoiding self-blame when parenting goals are not accomplished. These dimensions are interconnected but also have separate intrapsychic and interpersonal processes.

Practicing mindful parenting benefits both parents and children. Research consistently links it to reduced parental stress (e.g., Anand et al., 2023; Chaplin et al., 2021; Kakhki et al., 2022; Potharst et al., 2021), which can otherwise hinder supportive parenting (Amalia et al., 2022). A meta-analysis by Anand et al. (2023) found that mindfulness-based parenting programs moderately improve stress, well-being, and parental behavior. Clinical studies indicate that such training helps mothers with stress and parent-child interaction issues (Kakhki et al., 2022), strengthens parent-child relationships (Chaplin et al., 2021), and is equally effective for both clinical and non-clinical groups (Potharst et al., 2021). When it comes to children, mindful parenting plays an equally positive role. Research has demonstrated that mindful parenting fosters children's mindfulness (Kil et al., 2023) and reduces behavioral problems post-intervention (Emerson et al., 2021). It also strengthens parent-child attachment (Zhang et al., 2019) and enhances security and well-being (Medeiros et al., 2016). These findings suggest that mindful parenting serves as a protective factor against child psychopathology.

Despite the benefits of mindful parenting, its measurement remains a challenge, as most studies rely on self-reports (Cowling & Van Gordon, 2022). Duncan et al. (2015) introduced an observational coding system to enhance objectivity, but its complexity, requiring training and continuous monitoring, limits its widespread use. Consequently, self-reports remain the primary method despite their limitations.

Several mindful parenting measurements have been developed. Duncan (2007) first introduced the Interpersonal Mindfulness in Parenting Scale (IEM-P) based on Kabat-Zinn and Kabat-Zinn's (1997) framework. Originally a 10-item, three-factor scale, it was later refined into an 8-item, four-factor model with improved reliability. Duncan et al. (2009) expanded it into the 31-item IMPS-31, which is currently the most widely used instrument (Ahemaitijiang et al., 2021). It has also been adapted into multiple languages. However, cross-cultural validation has yielded inconsistent factor structures, with South Korea favoring a six-factor model (Kim et al., 2019), while studies in Hong Kong and China support a four-factor model (Lo et al., 2018). This highlights an ongoing debate over its structure, even within Eastern cultures.

Mindful parenting measurements have primarily focused on parents of adolescents (e.g., Acet & Oliver, 2023; McCaffrey et al., 2017), including in Indonesia (Prihandini et al., 2019). Some scales assess mindful parenting in infants (e.g., Gartstein, 2021; Laurent et al., 2017) but only include mothers, while others examine mindful parenting in children with autism (Jones et al., 2014) but rely on dispositional mindfulness rather than mindful parenting (Ahemaitijiang et al., 2021). Thus, no existing tool measures mindful parenting beyond infancy and adolescence for both mothers and fathers, despite evidence that both parents engage in it (Duncan, 2007). Researchers have also called for more age-specific assessments (Burgdorf & Szabó, 2021; Prihandini et al., 2019). Furthermore, prior instruments have shown unsatisfactory reliability (e.g., Duncan, 2007; Moreira & Canavarro, 2017). These gaps underscore the need for a new measurement.

Preschool-aged children are a crucial yet understudied group in mindful parenting research. Parenting quality at this stage significantly influences cognitive and social-emotional development (Knauer et al., 2019). Studies show that preschoolers with mindful parents exhibit better emotion regulation (Zhang et al., 2019), as parental mindfulness fosters warmth and reduces negative emotions. Attentive and accepting fathers also contribute to fewer externalizing problems (Maglica et al.,

2020), whereas harsh parenting predicts behavioral issues (Berthelon et al., 2020). the role of mindfulness in high-quality parenting and the limitations of existing assessments, a tailored tool for measuring mindful parenting in preschool-aged children is needed.

The current study aims to develop and validate the Mindful Parenting in Preschoolers (MPP) scale based on Duncan et al.'s (2009) model. The MPP is hypothesized to consist of five factors and negatively correlate with parenting stress. To assess mindful parenting, the study employs a situational judgment test (SJT), in which participants are presented with specific situations and possible responses (Lievens et al., 2008). While SJTs are commonly used in personnel selection, they also assess cognitive abilities and personality traits (Whetzel & McDaniel, 2009) and can be developed to measure a variety of constructs. This alternative approach provides a more nuanced measure of mindfulness in parenting. The MPP will aid researchers and practitioners in assessing mindful parenting levels and identifying appropriate interventions or preventive measures for parental stress and child developmental risks.

METHODS

Design, Sampling, and Procedure

The current research employed a quantitative approach. The study employed convenience sampling to maximize the sample size. The inclusion criteria for the participants are Indonesian parents with children aged 3 to 5 years. Digital pamphlets were distributed via social media platforms (i.e., Instagram, Whatsapp, and TikTok) to recruit participants. Data were collected over two weeks in May 2024 through an online administration using Google Forms. Participants completed two tests: the MPP and the Parental Stress Scale for validity testing. Informed consent and demographic data were collected before participants completed the questionnaire. As a reward, participants were invited to join an online seminar about parenting.

Participants

In total, 307 parents aged 24–54 (M = 33.1, SD = 4.73) participated in this study. No data were excluded, as all participants met the inclusion criteria (i.e., being parents of preschool children aged 3 to 5). Most participants were mothers (94%, with the remainder being fathers), housewives (48.2%), and had high levels of education (undergraduate = 60.6%, postgraduate = 15.3%). The percentage of parents with children aged 3, 4, and 5 was proportionate, ranging from 33 to 35 percent (M = 3.98, SD = 0.82). Participants came from 20 provinces in Indonesia, with the majority from West Java (39.4%), Jakarta (15.3%) and East Java (14.3%).

Development of the Mindful Parenting in Preschoolers (MPP) Scale

The construction of psychological tests typically includes three main stages: item generation and selection, item analysis, and pilot testing (Fenn et al., 2020). After these stages, test developers evaluate the reliability and validity of the test to enhance its psychometric properties and overall quality.

Following Duncan and colleagues' (2009) model, the MPP was developed using a five-factor framework with twelve behavioral indicators (see Table 1). The final 30-item scale includes six items per dimension, to ensure balanced representation and sufficient length for model testing (Cohen et al., 2022; Duncan, 2007) without inducing fatigue. Initially, 42 items were created based on common parenting scenarios for preschoolers. To ensure applicability to both parents, items were designed to avoid role-specific situations (e.g., cooking, often associated with mothers, or office work, often associated with fathers).

The MPP used selected-response items, which require participants to choose one of three equally structured responses per scenario (Cohen et al., 2022). Participants indicated the action they were most likely to take. A scoring guideline was used to ensure equivalency across items: 1 (no mindful behavior), 2 (some but not optimal), and 3 (optimal mindful behavior). The MPP has two scores: a total score ranging from 30 to 90, and the dimension scores from 6 to 18, calculated by summing the corresponding items. Each item scores between 1 and 3.

Item wording and response options were refined based on feedback from a psychological test construction expert and graduate-level psychology students. A readability test with 10 parents (7 mothers, 3 fathers) was conducted to assess clarity, instructions, and completion time. On average, participants completed the test in 15 to 20 minutes and found the MPP items easy to understand, as the scenarios reflected familiar situations. Hence, only minor revisions were made. This step was followed by data collection.

Table 1 Dimensions and indicators of the Mindful Parenting in Preschoolers (MPP)

Dimension	Behavior Indicator	Example (English)	Example (Indonesian)
1. Listening with full attention	(1) Parents listen attentively to their children during interaction (2) Parents are sensitive to what their children try to convey verbally and nonverbally (3) Parents understand the information their children provide and use it to understand their children's needs better	You are in the middle of a phone call when your child comes to you complaining about a broken toy. Which response describes you best? A. Ask your child to be quiet and not disturb you B. Ask your child to wait, and you move to another place C. Pause your conversation briefly and respond to your child	*Anda sedang menerima telepon, lalu anak datang dan mengeluhkan mainannya yang rusak. Mana respons yang paling sesuai dengan Anda?* *A. Meminta anak untuk diam dan tidak mengganggu* *B. Meminta anak menunggu dan Anda berpindah tempat* *C. Berhenti bercakap-cakap sebentar lalu menanggapi anak*
2. Non-judgmental acceptance of self and child	(1) Parents recognize that challenges and mistakes are a natural part of the parenting process (2) Parents accept that turbulence in the parent-child relationship is inevitable (3) Parents realize that the process of growing up can be complicated for their children	Your child has wet the bed again after stopping for a while. Which action describes you best? A. Scold your child because it is their fault B. Ask your child why they wet the bed C. Think that bedwetting may occur occasionally	*Anak Anda mengompol kembali setelah sudah tidak pernah lagi mengompol. Mana tindakan yang paling menggambarkan diri Anda?* *A. Menegur anak karena itu adalah kesalahannya* *B. Menanyakan kepada anak mengapa ia mengompol* *C. Menganggap mengompol bisa saja terjadi sesekali*
3. Emotional awareness of self and child	(1) Parents have the willingness and ability to restrain their intense emotions by recognizing that feelings are just feelings (2) Parents are responsive to children's emotions	You feel anxious because you are out of town while your child is staying at their grandparents' house. Which action would suit you best? A. Call your child once an hour to stop feeling anxious (1) B. Try to act normal as a way to distract yourself (2) C. Calm yourself down and stay focused on what you are doing (3)	*Anda merasa cemas karena sedang di luar kota, sementara anak Anda sedang menginap di rumah kakek-neneknya. Tindakan mana yang paling sesuai dengan Anda?* *A. Menelepon anak 1 jam sekali agar Anda tidak lagi merasa cemas (1)* *B. Mencoba bersikap biasa saja sebagai cara mengalihkan rasa cemas (2)* *C. Menenangkan diri dan tetap fokus pada apa yang sedang dikerjakan (3)*
4. Self-regulation in the parenting relationship	(1) Parents can control themselves before reacting to their children's behavior	While playing, you suddenly hear your child say a bad word that startles you. Which action best suits you?	*Saat bermain, tiba-tiba Anda mendengar anak mengucapkan kata kasar yang membuat Anda kaget. Tindakan mana yang paling sesuai dengan Anda?*

Table 1 Dimensions and indicators of the Mindful Parenting in Preschoolers (MPP) (*continued*)

Dimension	Behavior Indicator	Example (English)	Example (Indonesian)
		A. Forbid your child to repeat the word (1) B. Remind your child that what was said was inappropriate (2) C. Invite your child to discuss what was said (3)	*A. Melarang anak untuk mengucapkan kata tersebut lagi (1)* *B. Mengingatkan anak bahwa apa yang diucapkan tidak pantas (2)* *C. Mengajak anak untuk berdiskusi tentang apa yang diucapkan (3)*
5. Compassion for self and child	(1) Parents prioritize the process over the outcomes of parenting (2) Parents have the urge to fulfill their children's needs (3) Parents have the urge to provide comfort when their children are in distress	Your child gets scared when meeting new people and immediately asks you to go home. Which action describes you best? A. Direct your child to shake hands (1) B. Show your child how to get acquainted with the person (2) C. Accompany your child until they are ready to get acquainted	*Anak Anda merasa takut ketika bertemu orang baru dan meminta untuk segera pulang ke rumah. Tindakan mana yang paling sesuai dengan Anda?* *A. Mengarahkan tangan anak untuk berjabat tangan (1)* *B. Menunjukkan cara berkenalan dengan orang tersebut (2)* *C. Mendampingi hingga anak siap untuk berkenalan (3)*

Data Analysis

Several psychometric properties of the MPP were tested in the current study. Cronbach's alpha was used to assess the internal consistency of the MPP scale. Reliability values between 0.7 and 0.8 are considered acceptable for basic research (Kaplan & Saccuzzo, 2018). Confirmatory factor analysis (CFA) and convergent validity testing were used to assess construct validity. Factor analysis was conducted to test the five-factor model of mindful parenting proposed by Duncan et al. (2009). Fit indices, including Root Mean Square Error of Approximation (RMSEA) ≤ 0.05, Tucker-Lewis Index (TLI) ≥ 0.90, Comparative Fit Index (CFI) ≥ 0.90, and Standardized Root Mean Square Residual (SRMR) ≤ 0.05, were used to determine whether the proposed model met these criteria (Pituch & Stevens, 2016).

Construct validity was further examined by testing parental stress as a convergent criterion, given its theoretical relationship with mindful parenting. A convergent criterion can be derived from a measurement that assesses related constructs, not identical ones (Cohen et al., 2022). Duncan et al. (2009) argued that mindful parenting positively impacts parental stress. Studies have demonstrated that parents mindful of their parenting generally have lower stress

levels (Burgdorf et al., 2019; Chaplin et al., 2021; Kakhki et al., 2022). The Parental Stress Scale (PSS; Berry & Jones, 1995), adapted by Devina (2023), was used to measure parental stress. This version has good reliability (α = 0.87) and a validity coefficient ranging from 0.2 to 0.68. The PSS consisted of 18 items and was rated using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). A higher score on the PSS indicates a greater level of parental stress.

An item analysis was conducted to refine the MPP by evaluating item discrimination, factor loadings, and the item-endorsement index. This step reduced the 42-item MPP to a final version with 30 items. The final number of items was determined to reflect behavioral indicators of mindfulness in the parenting context, ensure equal representation across dimensions to balance their contribution to the test, and maintain brevity to minimize participant fatigue. A corrected item-total correlation was employed to ensure the item's ability to discriminate between individuals with low and high mindful parenting. Then, the results were used for item discrimination analysis. The corrected item-total correlations were conducted for each dimension and in total (cr_{ITD} and cr_{ITT}). The cutoff of r value was ≥ 0.3 (Nunnally & Bernstein, 1994). Factor loadings show the correlation between items on the scale and the hypothesized factor. A value

greater than 0.4 is considered adequate loading for the sample size used in the current study (Pituch & Stevens, 2016). Another item analysis conducted is the item-endorsement index, which determines the level of agreement of an item (Cohen et al., 2022). The item-endorsement index was examined by analyzing response distributions to determine which options were frequently selected or avoided.

In brief, psychometric testing was conducted in the following steps: 1) assessing the internal consistency and conducting CFA of the 42-item MPP, 2) examining the corrected item-total correlation, factor loadings, and item-endorsement index of the 42-item MPP to reduce it to a selected 30-item version, 3) assessing the internal consistency and performing CFA for the selected 30 items, 4) conducting additional analysis, Exploratory Factor Analysis (EFA), to identify a better factor solution, and 5) evaluating the convergent validity of the final version of the MPP. These tests were performed using JASP Software version 0.17.3 (JASP Team, 2023).

RESULTS

The results below are presented according to the abovementioned steps.

Internal Consistency and Factor Analysis of the 42-item MPP

The reliability of the initial version of the MPP was assessed using Cronbach's alpha by correlating all items and correlating items within each dimension. The overall reliability coefficient was 0.759. The reliability coefficients for individual dimensions ranged from 0.225 to 0.579. These results suggest that while the total score of the 42-item MPP demonstrates good internal consistency ($\alpha > 0.70$), the scale lacks reliability for assessing each individual dimension (see Table 2).

Then, Confirmatory Factor Analysis (CFA) was conducted to evaluate the five-factor model of mindful parenting based on the initial 42-item MPP. The results suggested a poor model fit (RMSEA = 0.039, CFI = 0.646, TLI = 0.623, SRMR = 0.060). Additionally , only 8 out of 42 items indicated a high factor loading ($\geq$ 0.4). Specifically, these included three items from the *Non-Judgmental Acceptance of Self and Child* dimension, three from *Self-Regulation in the Parenting Relationship*, and two from *Emotional Awareness of Self and Child*.

Item Analysis for MPP Scale Reduction

To obtain the final version of the MPP, item analysis was performed on the initial 42-item scale. Item-total correlations for both dimension (cr_{ITD}) and total (cr_{ITT}) were calculated (see Table 3). Based on cr_{ITT}, 82 percent of MPP items showed poor discrimination, while only 12 percent indicated acceptable discrimination ($r \geq$ 0.3). Overall, the scale demonstrated weak discriminative ability, as most r-values fell below 0.3. A more detailed analysis revealed that 66.7 percent of items in *Non-Judgmental Acceptance of Self and Child*, 75 percent in *Emotional Awareness of Self and Child*, 55.6 percent in *Listening with Full Attention*, and all items in *Compassion for Self and Child* exhibited poor discrimination. The *Self-Regulation in the Parenting Relationship* dimension was the only one with acceptable discriminative ability, as 57.1 percent of its items had r-values above 0.3.

Then, based on the item-endorsement index analysis, participants avoided option A (score 1) in 54.8 percent of MPP items, while 26.2 percent of responses favored option C (score 3). This uneven response distribution suggests potential response bias across the 42 items.

Table 2 Reliability coefficients (cronbach's alpha) for the initial 42-item MPP

Dimensions	Number of items	α	M	SD
Listening with full attention	9	0.398	18.319	10.631
Non-judgmental acceptance of self and child	9	0.470	16.199	9.559
Emotional awareness of self and child	8	0.346	15.717	9.156
Self-regulation in the parenting relationship	7	0.579	13.855	8.086
Compassion for self and child	9	0.225	17.430	10.084
Total	42	0.759	81.521	47.040

Note. n = 307; MPP=Mindful Parenting in Preschoolers

Table 3 Item-total correlations for the initial 42-item MPP

Index	Category	Listening with full attention	Non-judgmental acceptance of self and child	Emotional awareness of self and child	Self-regulation in the parenting relationship	Compassion for self and child
Item-Dimension Correlation (cr_{ITD})						
r ≥ 0.3	Good discrimination power	-	-	26	27, 30, 32, 33	-
r < 0.3	Poor discrimination power	1, 2, 3, 4, 5, 6, 7, 8, 9	10, 11, 12, 13, 14, 15, 16, 17,18	19, 20, 21, 22, 23, 24, 25	28, 29, 31	34, 35, 36, 37, 38, 39, 40, 41, 42
Item-Total Correlation (cr_{ITT})						
r ≥ 0.3	Good discrimination power	2, 3, 6, 9	14, 17, 18	23, 26	27, 29, 30, 33	-
r < 0.3	Poor discrimination power	1, 4, 5, 7, 8	10, 11, 12, 13, 15, 16	19, 20, 21, 22, 24, 25	28, 31, 32	34, 35, 36, 37, 38, 39, 40, 41, 42

Note. n = 307; MPP=Mindful Parenting in Preschoolers

An integrative item analysis was conducted to refine the 42-item MPP into a final 30-item version, ensuring an equal distribution of six items per dimension based on rigorous psychometric criteria. Both quantitative and qualitative analyses guided the refinement process. The quantitative approach examined cr_{ITD}, cr_{ITT}, item-endorsement index, and factor loadings for item selection. Meanwhile, the qualitative analysis examined the alignment between parenting scenarios and their intended behavioral indicators, as well as the item relevance to parents' daily experiences. For example, an item from the *Compassion for Self and Child* dimension was eliminated: *"Your child is not allowed to participate in an activity because they are not old enough. They are whining to you to let them join. Which action describes you best?"* This item was removed due to its weak alignment with the intended behavioral indicator (i.e., parents have the urge to fulfill their children's needs).

Internal Consistency and Factor Analysis of the Selected 30-Item MPP

The selected 30-item was reanalyzed for its psychometric properties. Cronbach's alpha was used to assess the reliability of each dimension and the total score. The results indicated that the selected 30-item MPP demonstrated good overall internal consistency (α = 0.758). However, the reliability coefficients for individual dimensions ranged from 0.175 to 0.589 (see Table 4), indicating insufficient internal consistency for the five-factor model.

Table 4 Cronbach's alpha of the selected 30-item and final version of MPP

Dimension	Number of items	α	M	SD
Selected 30-item MPP				
Listening with full attention	6	0.350	12.283	7.156
Non-judgmental acceptance of self and child	6	0.398	10.172	6.129
Emotional awareness of self and child	6	0.317	11.710	6.871
Self-regulation in the parenting relationship	6	0.589	11.607	6.828
Compassion for self and child	6	0.175	11.838	6.886
Total	30	0.758	57.609	33.396
Final Version of the MPP				
Awareness	14	0.656	36.821	3.301
Compassion	8	0.574	20.199	2.491
Non-reactivity	8	0.561	19.355	2.756
Total	30	0.758	57.609	33.396

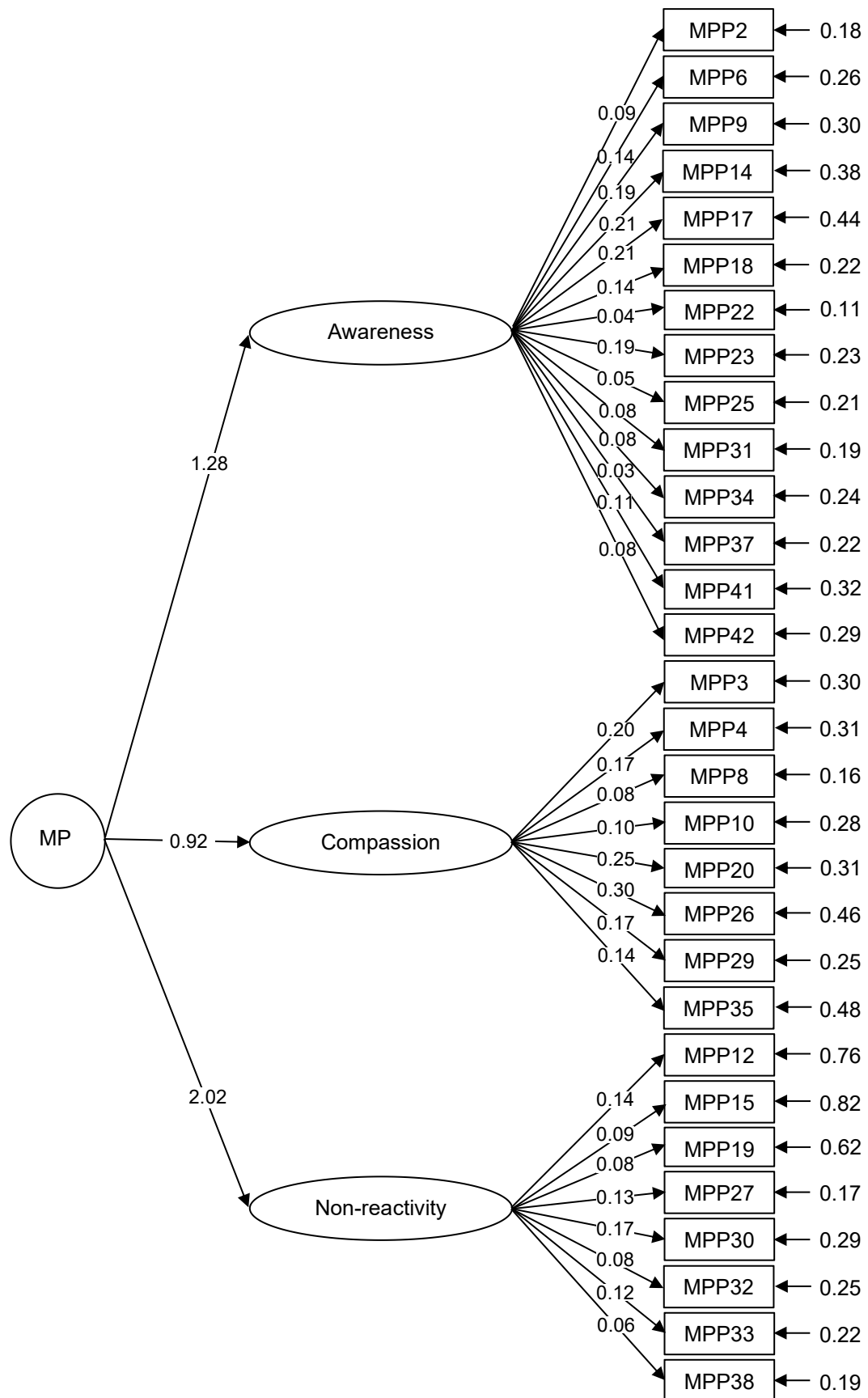*Note.* n = 307; MPP=Mindful Parenting in Preschoolers

Figure 1 Model plot of the final version of Mindful Parenting in Preschoolers (MPP)

Another factor analysis was conducted to confirm the model fitness of the five dimensions with the selected 30-item of the MPP. CFA results indicated that the five-factor model had a poor fit (RMSEA = 0.040, CFI = 0.765, TLI = 0.741, SRMR = 0.056). While CFI and TLI values improved, they remained below acceptable thresholds. Factor loadings were low (0.000 to 0.186), making poorly fitting items removal impractical (i.e., < 0.4), as this result would be counterproductive and compromise the representation of behavioral indicators.

An Exploratory Factor Analysis (EFA) was conducted to explore the factor structure of the 30-item MPP. Bartlett's sphericity test yielded significant results, X^2 (435) = 1604.062, p < 0.001, and the Kaiser-Meyer-Olkin test showed a value of 0.739. These results confirmed the adequacy of the sample for factor analysis. A three-factor solution was preferred based on parallel analysis and oblique rotation: awareness, compassion, and non-reactivity. The factors included 14, 8, and 8 items, respectively, explaining 17.1 percent of the variance. Subsequently, a CFA was performed again, and the results showed improved but still inadequate fit indices (RMSEA = 0.033, CFI = 0.833, TLI = 0.820, SRMR = 0.033). Figure 1 illustrates the model plot for the three-factor solution. Reliability analysis on the three-factor MPP was also conducted and showed good internal consistency for the total score (α = 0.758) and awareness dimension (α = 0.656). The Cronbach's alpha for compassion and non-reactivity dimensions are 0.574 and 0.561, respectively (see Table 4). Thus, the final version of the MPP consists of 30 items across three factors.

Convergent Validity of the Final MPP

The construct validity of the final three-factor MPP was evaluated using Pearson correlations between the total score, dimension scores, and the Parental Stress Scale (PSS) as a convergent criterion. A significant negative correlation was found between the MPP total score and the PSS (r (305) = -0.184, p < 0.01). Significant negative correlations were also found in two out of three dimensions: compassion (r (305) = -0.328, p < 0.001) and non-reactivity (r (305) = -0.136, p < 0.01). The awareness dimension showed no significant correlation (r (305) = -0.0003, p > 0.05). These findings suggest that while the MPP demonstrates overall construct validity with parental stress, the awareness dimension does not align with this relationship.

DISCUSSION

This study aimed to develop an instrument for measuring mindful parenting in parents of preschool-aged children, using Duncan et al.'s (2009) model as a framework, and to evaluate its psychometric properties. Following quantitative and qualitative item analyses, the initial 42-item scale was reduced to 30 items.

Contrary to our hypothesis, the five-factor model proposed was not supported, as CFA revealed inadequate fit indices. CFA results did not confirm the five-factor model conceptualized by Duncan et al. (2009), even after item reduction. Instead, a three-factor model is obtained: awareness, compassion, and non-reactivity. The first dimension reflects parents' awareness of the child's emotions and needs, as well as their own. The second dimension pertains to parents' compassion in everyday parenting situations directed toward themselves and their children. The final dimension represents parents' ability to respond non-reactively to their child's challenging behavior and parenting challenges. Like Duncan's model, our three-factor model did not separate parent's and child's experiences into two distinct factors. Additionally, two dimensions from Duncan's model, listening with full attention and non-judgmental acceptance, did not emerge in our model, as they may have been integrated into other similar factors (e.g., parent's attention to their child's discomfort may be linked to the desire to ease it, as in the compassion dimension).

Cultural influences on parenting values may explain the discrepancy between our model and the hypothesized five-factor structure. In Indonesia, parents of young children, particularly those under the age of six, are believed to adopt a somewhat more permissive parenting style (Riany et al., 2017). Very young children are often perceived as having a limited understanding of rules and the appropriateness of behavior. Attributing a child's misbehavior to parental inadequacy rather than to the child is viewed as a sign of responsibility and a reflective quality important in mindful parenting (Abidin et al., 2024). This cultural tendency may be manifested in the compassion dimension identified in the current study. Furthermore, one unique finding in our model is that most items involving more challenging parenting situations tend to cluster in the non-reactivity dimension. In contrast, more general parenting situations are grouped in the compassion dimension. Indeed, controlling one's reaction in emotionally eliciting situations is a key aspect of self-regulation (Duncan et al., 2009). Meanwhile, comforting a

distressed child lies at the very heart of compassion.

Additional findings revealed low item factor loadings and poor discriminative power. Weak loadings suggest low variance explained by the items, possibly due to scenarios not fully capturing mindfulness despite depicting realistic parenting situations. Item-level heterogeneity is common in SJTs and may arise when scenarios are not entirely construct-driven (Guenole et al., 2017). This could result in specific items being attributable to multiple dimensions. On the other hand, low item discrimination indicates the test struggles to differentiate mindful parenting levels. This may result from behavioral tendency instructions (e.g., "What would you do in this situation?"), which, while less prone to faking, can encourage socially desirable responses (Nguyen et al., 2005). This pattern can lead to a restricted range of responses, making it difficult to distinguish the attribute being measured across individuals.

Despite these findings, the MPP total score demonstrates construct validity through its significant association with parental stress (PSS). This result aligns with earlier studies (e.g., Anand et al., 2023; Chaplin et al., 2021; Kakhki et al., 2022). Duncan et al. (2009) argued that mindful parenting is a psychological resource, enabling parents to develop better coping strategies and lower stress levels. This study's negative relationship between the MPP and the PSS further supports that mindful parenting is linked to lower stress levels. Consequently, this relationship demonstrates the construct validity of the total score of the MPP.

The final version of the MPP showed good overall internal consistency, but Cronbach's alpha for three dimensions remains insufficient. Inconsistency may result from content errors, as reliability depends on adequate sampling of the intended attribute (Cohen et al., 2022). Low reliability suggests excessive item variability within dimensions. For example, non-reactivity had the lowest alpha, with Item 19 (parental anxiety when leaving a child with grandparents) and Item 38 (uncertainty in answering a child's question) potentially misaligned with the construct. Consequently, this dimension's scores contain more error than true variance.

Most existing mindful parenting measures rely on Likert-scale rating formats. In contrast, the MPP employs a different format by examining participant responses to parenting-related situations, known as situational judgment tests (SJTs). A key advantage of SJT items is their

resistance to response distortion; responses are less susceptible to faking or "faking good" compared to other personality inventories (Lievens et al., 2008), as it is not always clear which response is the most appropriate or receives the highest score. People are less likely to fake their answers, especially when the cognitive demand for inventory completion is low. In this sense, the MPP might have an advantage in using relevant everyday parenting situations. To our understanding, the MPP is the first mindful parenting scale to adopt this format. In addition, this study involved an adequate number of samples, overcoming the limitations of previous tool development studies.

However, these findings should be interpreted with caution due to several limitations. First, the sample is relatively homogeneous, consisting primarily of highly educated mothers. A higher maternal education is associated with higher parenting quality (Naziah et al., 2023), higher maternal mindfulness, positive parenting, and lower parental stress (Ren et al., 2021). Mothers with higher levels of education have a greater tendency to be in the present moment with their children because they are more perceptive and responsive to their children's needs and emotions (Wu et al., 2019). At the same time, mindful parenting interventions are particularly beneficial for parents with low education, as employing mindfulness in parenting situations can be more challenging for them (Gouveia et al., 2016; Moreira et al., 2016). In the current study, our data may represent a group with specific characteristics and parenting practices (e.g., having a university degree and exhibiting a more positive parenting style). Therefore, involving more participants to cover a broader parental demographic is necessary for generalization and data representation.

Second, the MPP demonstrates limited internal consistency, particularly across its three dimensions. This appears to be linked to one of the weaknesses of SJTs, which tend to have relatively low reliability (Kasten & Freund, 2016). Some argue that estimating internal consistency from SJTs can be problematic due to its nature of capturing multiple constructs (Whetzel & McDaniel, 2009). SJTs are said to cover a wide range of situations (Lievens et al., 2008). Thus, using content homogeneity as a parameter of good reliability might not be the best option. Test-retest and parallel forms are considered better methods for assessing SJTs' reliability. Third, the initial MPP item development did not directly involve experts in mindful parenting. Although behavioral indicators were utilized, there remains a possibility that the full content of

the construct was not adequately sampled. Lastly, statistical analysis of the three-factor model indicates some improvements, though it does not demonstrate an adequate fit. It is important to note that this study relied on cross-sectional data collected at a single time point. Therefore, revisions to these items are necessary, and further testing with additional data is imperative.

CONCLUSION AND SUGGESTION

Several conclusions can be drawn based on the investigation of the psychometric properties of the MPP. First, the five-factor model proposed is not supported. This scale obtained a three-factor solution instead. Second, it has good overall internal consistency and validity, as demonstrated by a convergent criterion. However, the MPP lacks reliability across its three dimensions, suggesting inconsistency in measuring the aspects of each dimension. While the MPP shows potential as a tool for measuring mindful parenting in parents of preschool-aged children and addresses some research gaps, it requires further refinement to strengthen its psychometric properties.

To address the limitations of the current research, we strongly recommend revising the items and collecting additional data. Given that the MPP uses an SJT format, we recommend employing alternative statistical methods (e.g., test-retest or parallel forms) to more accurately assess its reliability. Future studies should also conduct a comprehensive content validity assessment by involving experts in mindful parenting to reduce content sampling errors. Additionally, we recommend including a larger and more diverse sample, particularly fathers, to improve demographic representation.

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REFERENCES

Abidin, F. A., Novita, S., Kustimah, K., Hasyyati, B. M., Azoma, M., Darmagita, S. F., Larasati, K. A., & Millati, A. Q. (2024). Mindful parenting as a mediator in parents' perspective-taking: Exploring the roles of causal attribution and self-compassion. *Psychology Research and Behavior Management*, *17*, 249–258. https://doi.org/10.2147/PRBM.S445490

Acet, P., & Oliver, B. R. (2023). Perspectives of maternal mindful parenting: Development and initial validation of the Mindful Parenting Inventories for Parents (MPIP) and Children (MPIC). *Mindfulness*, *14*(5), 1219–1233. https://doi.org/10.1007/s12671-023-02078-8

Ahemaitijiang, N., Fang, H., Ren, Y., Han, Z. R., & Singh, N. N. (2021). A review of mindful parenting: Theory, measurement, correlates, and outcomes. *Journal of Pacific Rim Psychology*, *15*. https://doi.org/10.1177/18344909211037016

Amalia R. P., Abidin F. A., & Lubis F. Y. (2022). Stres pengasuhan, penilaian ibu terhadap Covid-19, dan pengasuhan suportif. *Jurnal Ilmu Keluarga dan Konsumen, 15*(1), 51–62. https://doi.org/10.24156/jikk.2022.15.1.51

Anand, L., Sadowski, I., Per, M., & Khoury, B. (2023). Mindful parenting: A meta-analytic review of intrapersonal and interpersonal parental outcomes. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues.* https://doi.org/10.1007/s12144-021-02111-w

Berry, J. O., & Jones, W. H. (1995). The Parental Stress Scale: Initial psychometric evidence. *Journal of Social and Personal Relationships, 12*(3), 463–472. https://doi.org/10.1177/0265407595123009

Berthelon, M., Contreras, D., Kruger, D., & Palma, M. I. (2020). Harsh parenting during early childhood and child development. *Economics and Human Biology*, *36*, 100831. https://doi.org/10.1016/j.ehb.2019.100831

Burgdorf, V., & Szabó, M. (2021). The Interpersonal Mindfulness in Parenting Scale in mothers of children and infants: Factor structure and associations with child internalizing problems. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.633709

Burgdorf, V., Szabó, M., & Abbott, M. J. (2019). The effect of mindfulness interventions for parents on parenting stress and youth psychological outcomes: A systematic review and meta-analysis. *Frontiers in Psychology*, *10*, 433825. https://doi.org/10.3389/fpsyg.2019.01336

Chaplin, T. M., Turpyn, C. C., Fischer, S., Martelli, A. M., Ross, C. E., Leichtweis, R. N., Miller, A. B., & Sinha, R. (2021). Parenting-focused mindfulness intervention reduces

stress and improves parenting in highly stressed mothers of adolescents. *Mindfulness, 12*(2), 450–462. https://doi.org/10.1007/s12671-018-1026-9

Cohen, R. J., Schneider, W. J., & Tobin, R. M. (2022). *Psychological testing and assessment: An introduction to tests and measurement.* McGraw-Hill.

Cowling, C., & Van Gordon, W. (2022). Mindful parenting: Future directions and challenges. *International Journal of Spa and Wellness*, *5*(1), 50–70. https://doi.org/10.1080/24721735.2021.196 1114

Devina, A. (2023). *Peran mediasi autonomy support ibu dalam hubungan stres pengasuhan dan kompetensi sosial anak usia prasekolah* [Master's thesis, Universitas Indonesia]. Universitas Indonesia Library. https://lib.ui.ac.id/detail?id=9999920523489 &lokasi=lokal

Duncan, L. G. (2007). *Assessment of mindful parenting among parents of early adolescents: Development and validation of the Interpersonal Mindfulness in Parenting Scale* [Doctoral dissertation, The Pennsylvania State University]. Penn State Electronic Theses and Dissertations. https://etda.libraries.psu.edu/catalog/7740

Duncan, L. G., Coatsworth, J. D., Gayles, J. G., Geier, M. H., & Greenberg, M. T. (2015). Can mindful parenting be observed? Relations between observational ratings of mother–youth interactions and mothers' self-report of mindful parenting. *Journal of Family Psychology, 29*(2), 276–282. https://doi.org/10.1037/a0038857

Duncan, L. G., Coatsworth, J. D., & Greenberg, M. T. (2009). A model of mindful parenting: Implications for parent-child relationships and prevention research. *Clinical Child and Family Psychology Review*, *12*(3), 255–270. https://doi.org/10.1007/s10567-009-0046-3

Emerson, L. M., Aktar, E., de Bruin, E., Potharst, E., & Bögels, S. (2021). Mindful parenting in secondary child mental health: Key parenting predictors of treatment effects. *Mindfulness, 12*(2), 532–542. https://doi.org/10.1007/s12671-019-01176-w

Fenn, J., Tan, C.-S., & George, S. (2020). Development, validation and translation of psychological tests. *BJPsych Advances, 26*(5), 306–315. https://doi.org/10.1192/bja.2020.33

Gartstein, M. A. (2021). Development and validation of the Mindful Parenting in Infancy Scale (MPIS). *Infancy, 26*(5), 705-723. https://doi.org/10.1111/infa.12417

Gouveia, M. J., Carona, C., Canavarro, M. C., & Moreira, H. (2016). Self-compassion and dispositional mindfulness are associated with parenting styles and parenting stress: The mediating role of mindful parenting. *Mindfulness, 7*(3), 700–712. https://doi.org/10.1007/s12671-016-0507-y

Guenole, N., Chernyshenko, O. S., & Weekly, J. (2017). On designing construct driven situational judgment tests: Some preliminary recommendations. *International Journal of Testing, 17*(3), 234–252. https://doi.org/10.1080/15305058.2017. 1297817

JASP Team. (2023). *JASP (Version 0.17.3)* [Computer software]. https://jasp-stats.org/

Jones, L., Hastings, R. P., Totsika, V., Keane, L., & Rhule, N. (2014). Child behavior problems and parental well-being in families of children with autism: The mediating role of mindfulness and acceptance. *American Journal on Intellectual and Developmental Disabilities, 119*(2), 171-185. https://doi.org/10.1352/1944-7558-119.2.171

Kabat-Zinn, J. (2021). The invitation within the cultivation of mindfulness. *Mindfulness, 12*(4), 1034–1037. https://doi.org/10.1007/s12671-021-01592-x

Kabat-Zinn, M., & Kabat-Zinn, J. (1997). *Everyday blessings: The inner work of mindful parenting*. Hyperion.

Kakhki, Z. B., Mashhadi, A., Yazdi, S. A. A., & Saleh, S. (2022). The effect of mindful parenting training on parent-child interactions, parenting stress, and cognitive emotion regulation in mothers of preschool children. *Journal of Child and Family Studies, 31*(11), 3113–3124. https://doi.org/10.1007/s10826-022-02420-z

Kaplan, R. M., & Saccuzzo, D. P. (2018). *Psychological testing: Principles, application, and issues* (9th ed.). Cengage Learning.

Kasten, N., & Freund, P. A. (2016). A meta-analytical multilevel reliability generalization of Situational Judgment Tests (SJTs). *European Journal of Psychological Assessment, 32*(3), 230–

240. https://doi.org/10.1027/1015-5759/a000250

Kil, H., Lee, E., Antonacci, R., & Grusec, J. E. (2023). Mindful parents, mindful children? Exploring the role of mindful parenting. *Parenting*, *23*(1), 33–51. https://doi.org/10.1080/15295192.2022.2049601

Kim, E., Krägeloh, C. U., Medvedev, O. N., Duncan, L. G., & Singh, N. N. (2019). Interpersonal Mindfulness in Parenting Scale: Testing the psychometric properties of a Korean version. *Mindfulness, 10*(3), 516–528. https://doi.org/10.1007/s12671-018-0993-1

Knauer, H. A., Ozer, E. J., Dow, W. H., & Fernald, L. C. H. (2019). Parenting quality at two developmental periods in early childhood and their association with child development. *Early Childhood Research Quarterly*, *47*, 396–404. https://doi.org/10.1016/j.ecresq.2018.08.009

Laurent, H. K., Duncan, L. G., Lightcap, A., & Khan, F. (2017). Mindful parenting predicts mothers' and infants' hypothalamic-pituitary-adrenal activity during a dyadic stressor. *Developmental Psychology*, *53*(3), 417–424. https://doi.org/10.1037/dev0000258

Lievens, F., Peeters, H., & Schollaert, E. (2008). Situational judgment tests: A review of recent research. *Personnel Review, 37*(4), 426–441. https://doi.org/10.1108/00483480810877598

Lo, H. H. M., Yeung, J. W. K., Duncan, L. G., Ma, Y., Siu, A. F. Y., Chan, S. K. C., Choi, C. W., Szeto, M. P., Chow, K. K. W., & Ng, S. M. (2018). Validating of the Interpersonal Mindfulness in Parenting Scale in Hong Kong Chinese. *Mindfulness, 9*(5), 1390–1401. https://doi.org/10.1007/s12671-017-0879-7

Maglica, T., Ercegovac, I. R., & Ljubetić, M. (2020). Mindful parenting and behavioral problems in preschool children. *Hrvatska Revija Za Rehabilitacijska Istrazivanja, 56*(1), 44–57. https://doi.org/10.31299/hrri.56.1.4

McCaffrey, S., Reitman, D., & Black, R. (2017). Mindfulness In Parenting Questionnaire (MIPQ): Development and validation of a measure of mindful parenting. *Mindfulness*, *8*(1), 232–246. https://doi.org/10.1007/s12671-016-0596-7

Medeiros, C., Gouveia, M. J., Canavarro, M. C., & Moreira, H. (2016). The indirect effect of the mindful parenting of mothers and fathers on the child's perceived well-being through the child's attachment to parents. *Mindfulness*, *7*(4), 916–927. https://doi.org/10.1007/s12671-016-0530-z

Moreira, H., & Canavarro, M. C. (2017). Psychometric properties of the Interpersonal Mindfulness in Parenting Scale in a sample of Portuguese mothers. *Mindfulness*, *8*(3), 691–706. https://doi.org/10.1007/s12671-016-0647-0

Moreira, H., Carona, C., Silva, N., Nunes, J., & Canavarro, M. C. (2016). Exploring the link between maternal attachment-related anxiety and avoidance and mindful parenting: The mediating role of self-compassion. *Psychology and Psychotherapy*, *89*(4), 369–384. https://doi.org/10.1111/papt.12082

Naziah H. R., Sunarti E., & Riany Y. E. (2023). Pengaruh manajemen stres dan status pekerjaan ibu terhadap pengasuhan anak usia sekolah saat pandemic covid-19. *Jurnal Ilmu Keluarga dan Konsumen, 16*(1), 23–36. https://doi.org/10.24156/jikk.2023.16.1.23

Nguyen, N. T., Biderman, M. D., & McDaniel, M. A. (2005). Effects of Response Instructions on Faking a Situational Judgment Test. *International Journal of Selection and Assessment, 13*(4), 250–260. https://doi.org/10.1111/j.1468-2389.2005.00322.x

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

Pituch, K. A., & Stevens, J. P. (2016). *Applied multivariate statistics for the social sciences: Analyses with SAS and IBM's SPSS*. Routledge.

Potharst, E. S., Baartmans, J. M. D., & Bögels, S. M. (2021). Mindful parenting training in a clinical versus non-clinical setting: An explorative study. *Mindfulness*, *12*(2), 504–518. https://doi.org/10.1007/s12671-018-1021-1

Prihandini, G. R., Boediman, L. M., Azizah, L. N., Kristiyani, V., & Gistilisanda, F. H. (2019). Pengembangan alat ukur mindful parenting untuk orang tua dari remaja di Indonesia. *Jurnal Psikogenesis, 7*(2), 215-227. https://doi.org/10.24854/jps.v7i2.783

Ren, Y., Han, Z. R., Ahemaitijiang, N., & Zhang, G. (2021). Maternal mindfulness and school-age children's emotion regulation:

Mediation by positive parenting practices and moderation by maternal perceived life stress. *Mindfulness, 12*(2), 306–318. https://doi.org/10.1007/s12671-019-01300-w

Riany, Y. E., Meredith, P., & Cuskelly, M. (2017). Understanding the influence of traditional cultural values on Indonesian parenting. *Marriage & Family Review, 53*(3), 207–226. https://doi.org/10.1080/01494929.2016.1157561

Whetzel, D. L., & McDaniel, M. A. (2009). Situational judgment tests: An overview of current research. *Human Resource Management Review*, *19*(3), 188–202. https://doi.org/10.1016/j.hrmr.2009.03.007

Wu, L., Buchanan, H., Zhao, Y., Wang, P., Zhan, Z., Zhao, B., & Fan, B. (2019). Translation and validation of a Chinese version of the Mindfulness in Parenting Questionnaire (MIPQ). *Frontiers in Psychology, 10,* Article 1847. https://doi.org/10.3389/fpsyg.2019.01847

Zhang, W., Wang, M., & Ying, L. (2019). Parental mindfulness and preschool children's emotion regulation: The role of mindful parenting and secure parent-child attachment. *Mindfulness*, *10*(12), 2481–2491. https://doi.org/10.1007/s12671-019-01120-y