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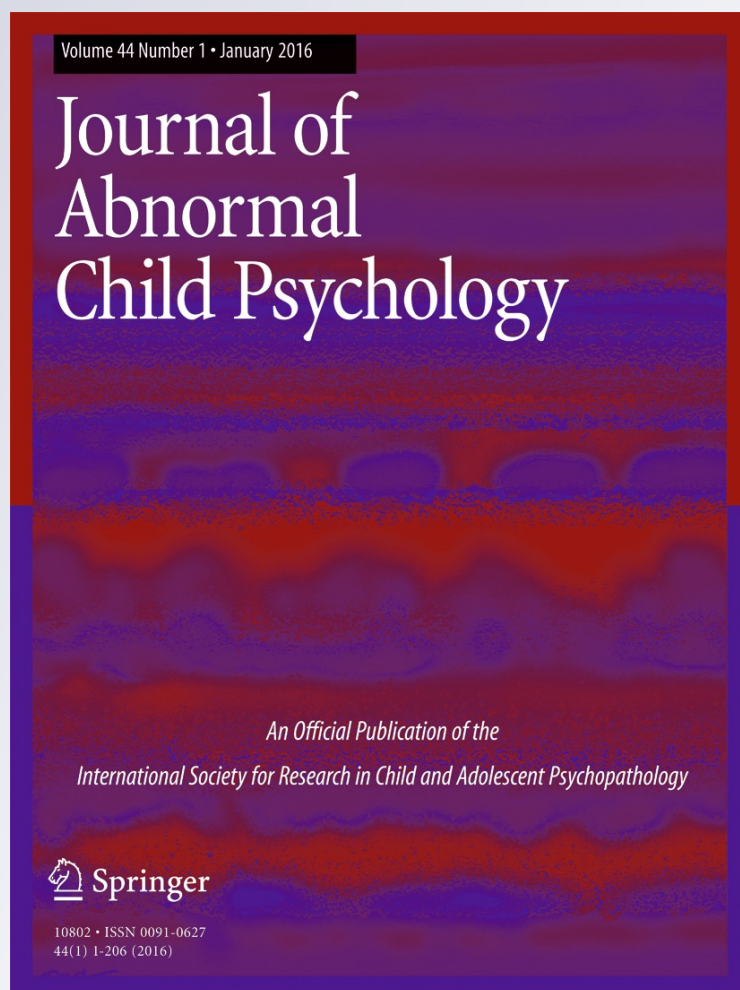
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The Association of Parent Mindfulness with Parenting and Youth Psychopathology Across Three Developmental Stages

Justin Parent · Laura G. McKee · Jennifer N. Rough · Rex Forehand

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Abstract The primary purpose of the current study was to test a model examining the process by which parent dispositional mindfulness relates to youth psychopathology through mindful parenting and parenting practices. The universality of the model across youth at three developmental stages was examined: young childhood (3–7 years; $n=210$), middle childhood (8–12 years; $n=200$), and adolescence (13–17 years; $n=205$). Overall, participants were 615 parents (55 % female) and one of their 3-to-17 year old children (45 % female). Parents reported on their dispositional mindfulness, mindful parenting, positive and negative parenting practices and their child's or adolescent's internalizing and externalizing problems. Consistent findings across all three developmental stages indicated that higher levels of parent dispositional mindfulness were indirectly related to lower levels of youth internalizing and externalizing problems through higher levels of mindful parenting and lower levels of negative parenting practices. Replication of these findings across families with children at different developmental stages lends support to the generalizability of the model.

Keywords Mindfulness · Mindful parenting · Parenting · Child internalizing · Child externalizing

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The role of parental characteristics in parenting and youth psychopathology has long been a topic of scholarly interest. In the vast majority of this research, the focus has been on negative parental characteristics (e.g., depression, anxiety) (for recent reviews, see Hammen et al. 2014; Higa-McMillan et al. 2014; Kimonis et al. 2014). Furthermore, parenting practices and problem behaviors of children have typically been examined within narrow child age ranges (e.g., 3–8 years) or across a wide age span (e.g., 3–17). The former approach limits generalization of findings while the latter approach fails to acknowledge developmental differences that may exist. In the current study we propose and test a model examining the role of a positive parental characteristic, mindfulness, in parenting and child internalizing and externalizing problems. Furthermore, we test the model with families of children in three developmental stages (young childhood, middle childhood, and adolescence) to examine its universality across age groups.

Substantial empirical research, including several meta-analytic studies, has demonstrated that mindfulness is associated with greater self-efficacy, coping, emotion regulation, and motivation (e.g., Brown and Ryan 2003; Keng et al. 2011). This construct has also been shown to improve physical and psychological health, including reductions in chronic pain, fatigue, depression, and anxiety (e.g., Khoury et al. 2013). Mindfulness is defined as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (Kabat-Zinn 2003, p. 145). The practice of mindfulness fosters the cognitive distinction between perception and situational affective responses, enhancing intentional action rather than emotional reaction. Increased awareness of cognitive, affective, and behavioral distinctions has been hypothesized to increase cognitive complexity and emotional awareness over time (e.g., Bishop et al. 2004).

Mindfulness research to date has primarily focused on outcomes for the individual. However, Kabat-Zinn (1991) proposed that mindfulness indirectly enhances interpersonal relationships via compassion for the self, which in turn leads to responsiveness to others. Recent intervention research has begun to explore mindfulness within the context of the family, providing some preliminary support for positive effects of parental mindfulness on parent–child relationship quality (Coatsworth et al. 2010), parenting stress (Bazzano et al. 2014; Bögels et al. 2013; Haydicky et al. 2015), parenting practices (Bögels et al. 2013; Van der Oord et al. 2012), and youth psychosocial well-being (Bögels et al. 2008; Haydicky et al. 2015; Neece 2013; Singh et al. 2007, 2010a, b; Van der Oord et al. 2012; Weijer-Bergsma et al. 2012). Although these studies support the influence of mindfulness-based interventions for parents on family and/or youth outcomes, the processes by which parental mindfulness enhances child development have not been empirically delineated.

The methodological limitations of much of the current literature preclude clear conclusions regarding the effective processes by which parental mindfulness may foster family and youth well-being. These limitations include the following factors: (1) Studies have often lacked scientific rigor, with many involving single-subject, non-randomized, or uncontrolled research designs, or data analyses limited to bivariate correlations; (2) Simultaneous delivery of parent and youth-focused mindfulness interventions has impeded inferences about which intervention drives the observed effect; (3) Small sample sizes (i.e., all studies used an N of less than 80, and many with less than 20) have resulted in low power precluding an examination of mechanisms of change; and (4) Use of narrow populations (e.g., parents of children with neurodevelopmental disabilities) has limited generalizability of findings to the broader population. Despite the fact that extant research has made important contributions to the literature, these factors related to study design and methodology have constrained our understanding of how parental mindfulness influences family health and youth psychosocial well-being.

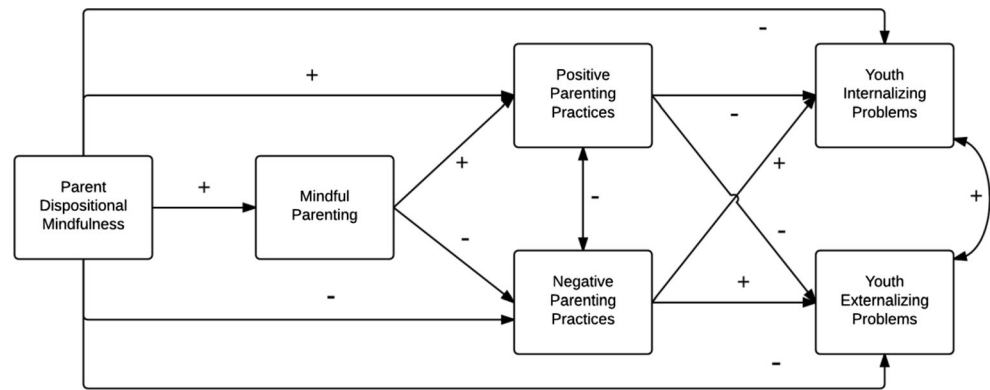
An additional limitation in prior work is the sole investigation of direct effects of parental mindfulness on youth outcomes to the exclusion of potentially meaningful indirect effects (see Parent et al. 2010, for an exception). Parental mindfulness may exert both direct and indirect effects on youth psychosocial well-being, whereby a direct effect may be partially or fully mediated by other variables (e.g., mindful parenting, adaptive parenting). For example, mindfulness has been conceptualized as enhanced coping (Kabat-Zinn 1991), applicable to managing stressful situations, such as parenting. Thus, parents who are more mindful may be better able to regard their own and their child's behaviors nonjudgmentally and to effectively distance themselves from negative emotions

(Dumas 2005); in turn, maladaptive emotional reactions may be diminished, creating an improved capacity to provide calm and consistent parenting. The mechanism for this action may be the reduction in habitual, or automatic, maladaptive reaction patterns, which in turn may reduce reliance on hostile, coercive, and ineffective parenting behaviors and increase positive patterns such as warmth and clear communication, which subsequently may lead to greater youth well-being (Bögels and Restifo 2014; Dumas 2005; Duncan et al. 2009). Elucidation of these mechanisms will broaden our knowledge regarding how families and children are affected by parental mindfulness and inform more precise public health implications.

The current study examines a model by which parental mindfulness is related to youth problem behavior through testing a hypothesized model of the mechanisms of change. The proposed theoretical process model (see Fig. 1), based on work by Bögels and Restifo (2014), Dumas (2005), Duncan et al. (2009), and Kabat-Zinn and Kabat-Zinn (1997), posits that higher levels of parental mindfulness are associated with lower levels of youth psychopathology through incorporating mindful awareness into parenting interactions (i.e., mindful parenting) and, in turn, increasing adaptive parenting behaviors (e.g., increasing positive and decreasing negative parenting practices). Theoretical work by the above-mentioned scholars contends that incorporating mindful awareness into parenting interactions can allow parents to pause and shift awareness so that they may respond to their child with intention in the moment and within the context of valuing the long-term parent–child relationship. Importantly, the distinction between mindful parenting and positive parenting practices is such that mindful parenting sets the stage for an improved capacity to use adaptive parenting practices through (1) awareness and present-centered attention during parenting interactions, (2) non-judgmental receptivity to their child's behavior, and (3) the ability to regulate their reactivity to their children's behavior. From this perspective, parent mindfulness could trigger a complex cascade in mothers and fathers that encourages mindful parenting behaviors in the moment, which in turn is related to increases in the likelihood and frequency of positive parenting behaviors (i.e., warmth and reinforcement) and decreases in the likelihood of negative parenting behaviors (i.e., harsh and ineffective discipline). Finally, these parenting practices will then be associated with lower levels of youth problem behaviors.

Facets of this theoretical model have previously been examined and serve as preliminary data providing initial support for the paths in the full model proposed here. Parental dispositional mindfulness has been shown to be associated with higher levels of mindful parenting (de Bruin et al. 2014). Mindful parenting has been shown to be inversely related to dysfunctional parenting styles (de Bruin et al. 2014) and youth internalizing problems (Geurtzen et al. 2015). Higher levels of

Fig. 1 Theoretical model delineating the indirect influence of parent dispositional mindfulness on parenting and youth psychosocial well-being



parent dispositional mindfulness have also been shown to be indirectly related to lower levels of youth internalizing and externalizing problems through higher levels of positive parenting and parental well-being (Parent et al. 2010). Within the context of prevention or intervention, programs targeting mindful parenting have been shown to be related to improvements in mindful parenting, the parent-youth relationship, parenting practices, and youth psychosocial outcomes (e.g., Bögels et al. 2013; Coatsworth et al. 2010). Lastly, significant empirical support has emerged for reliable and robust associations between positive and negative parenting practices and youth psychosocial well-being (see McKee et al. 2013, for a review) with relationships emerging for both externalizing (e.g., Pettit et al. 2001) and internalizing (e.g., Ge et al. 1994) problems.

Taken together, the preliminary findings are promising, but remain limited, since they do not test the relations in the context of the full model proposed here. The current study represents an important extension of the literature by examining a model by which a positive parental characteristic, mindfulness, is associated with youth problem behaviors within a comprehensive model. Of importance, building on Darling and Steinberg's (1993) unheeded call over 20 years ago for research on parenting across developmental stages, we examine our model in families with children at different developmental stages: young childhood (3–7 years), middle childhood (8–12 years), and adolescence (13–17 years). Although specific socialization goals (e.g., enhancing peer relationships, reducing opportunities for delinquent acts) and related parenting behaviors (e.g., monitoring) vary by developmental stage of the child, the importance of high levels of positive (e.g., warmth, positive reinforcement) and low levels of negative (e.g., over-reactivity, hostility) parenting practices that create a harmonious emotional climate likely apply across developmental stages (e.g., Darling and Steinberg 1993). Furthermore, we would propose that both parent dispositional mindfulness and mindful parenting would be important across developmental stages, with implications for effective parenting and youth problem behaviors. As a consequence, we hypothesized that similar associations between variables in our

model would be universal (i.e., emerge across children at different developmental stages). The hypothesized model, including directions of the proposed effects, is depicted in Fig. 1. Beyond direct effects, we hypothesized that higher levels of parent dispositional mindfulness would be indirectly related to parenting practices through mindful parenting and to lower levels of internalizing and externalizing problems through both mindful parenting and parenting practices.

Method

Overview

Parents were recruited online through Amazon's Mechanical Turk (MTurk) as part of a larger study on the assessment of parenting. Parents responded to a study on parenting that was listed separately for three age groups to ensure roughly equal sample sizes in these three child age ranges: young childhood (3 to 7 years old), middle childhood (8 to 12 years old), and adolescence (13 to 17 years old). As MTurk is a relatively new recruitment procedure, we describe it in detail in a subsequent section.

Participants

Data from three samples with a total of 615 parents of children between the ages of 3 and 17 were included in the current study. Sample demographics by age of youth (young childhood, middle childhood, and adolescence) are presented in Table 1.

Mechanical Turk

Mechanical Turk is currently the dominant crowdsourcing application in the social sciences and is becoming a popular method for recruiting large samples at relatively low cost (Shapiro et al. 2013). On MTurk, workers browse Human Intelligence Tasks (HITs) by title, keyword, reward, availability, and so on, and complete HITs of

Table 1 Sample demographic characteristics by study

	M (S.D.) or percentage		
	Young <i>n</i> =210	Middle <i>n</i> =200	Adolescents <i>n</i> =205
Parent age	32.61 (7.44)	34.43 (6.92)	40.54 (18.34)
Parent (% mothers)	59.0 %	51 %	53.2 %
Parent race			
White	78.4 %	72.7 %	80.5 %
Black	12.0 %	17.3 %	10.2 %
Latino/a	4.3 %	3.5 %	5.4 %
Asian	5.3 %	4.5 %	2.4 %
Other	0 %	2.0 %	1.5 %
Parent marital status			
Single	17 %	21.1 %	21.9 %
Married	60.2 %	58.3 %	58.2 %
Cohabiting	22.8 %	20.6 %	19.9 %
Parent education			
Did not complete H.S.	0.5 %	1.0 %	1.5 %
H.S. or GED	11.9 %	14.0 %	16.6 %
Some College	35.2 %	33.5 %	28.8 %
College Degree	36.2 %	36.5 %	41.5 %
>College Degree	16.2 %	15.0 %	11.8 %
Parent employment status			
Full-time	56.2 %	59.0 %	63.9 %
Half-time	20.0 %	20.5 %	23.4 %
Unemployed	23.8 %	20.5 %	12.7 %
Family income			
Under \$30,000	24.3 %	27.0 %	24.9 %
\$30,000–\$49,999	31.9 %	15.5 %	26.8 %
\$50,000–\$69,999	20.4 %	20.0 %	24.4 %
\$70,000–\$99,999	14.8 %	15 %	16.1 %
\$100,000 or more	8.6 %	12.0 %	7.8 %
Family neighborhood			
Urban	27.6 %	23.5 %	28.3 %
Suburban	51.0 %	54.0 %	53.7 %
Rural	21.4 %	22.5 %	18.0 %
Number of Children	1.75 (0.92)	1.77 (0.89)	1.83 (0.90)
Youth Age	4.75 (1.34)	9.3 (1.22)	14.42 (1.38)
Child birth order			
First Born	27.1 %	32.0 %	43.4 %
Middle Child	7.6 %	10.0 %	6.3 %
Youngest Child	25.7 %	19.5 %	20.5 %
Only Child	39.5 %	38.5 %	29.8 %
Youth Gender (% Girls)	47.1 %	45 %	37.1 %

interest. Participants are compensated by requesters upon successful completion of tasks (for an introduction to using MTurk, see Mason and Suri 2012).

There are several advantages for the use of crowdsourcing methods in clinical and developmental

research. First, relatively large samples sizes can be collected quickly (e.g., Buhrmester et al. 2011) for a minimal cost (Horton and Chilton 2010), allowing researchers to address unanswered questions, particularly about mechanisms that statistically require large sample sizes. Second, a diverse range of participants (e.g., race, SES, household composition) can be recruited from across the United States (e.g., Buhrmester et al. 2011; Casler et al. 2013; Paolacci et al. 2010). Third, prior research has convincingly demonstrated that data obtained via crowdsourcing methods are as reliable as those obtained via more traditional data collection methods (e.g., Buhrmester et al. 2011; Casler et al. 2013). Fourth, previous work has also shown that participation and data quality are unaffected by compensation rate or task length (Buhrmester et al. 2011; Shapiro et al. 2013). Fifth, as demonstrated by the current study, crowdsourcing methods afford an opportunity to recruit mothers and fathers, the latter being long underrepresented in clinical research (Phares 1992; Phares et al. 2005). Sixth, crowdsourcing methods use identification numbers, which protects respondent anonymity and prevent any individual worker from participating in a single HIT more than once (O'Neil and Penrod 2001).

Procedure

All study procedures were approved by the Institutional Review Board at the University of Vermont. Parents were consented online before beginning the survey in accordance with the approved IBR procedures. Three different studies were listed on MTurk (one for each child age range) and offered \$2.00 in compensation. For families with multiple children in the target age range, one child was randomly selected through a computer algorithm and measures were asked in reference to parenting specific to this child and child's behavior. Participants were recruited from MTurk under the restriction that they were U.S. residents and had at least a 90 % task approval rate for their previous HITs. Ten attention check items were placed throughout the online survey. These questions asked participants to enter a specific response such as "Please select the Almost Never response option" that changed throughout the survey appearing in random order within other survey items. Participants (*n*=9) were not included in the study (i.e., their data were removed from the dataset) if they had more than one incorrect response to these 10 check items to ensure that responses were not random or automated.

Measures

Demographic Information Parents responded to demographic questions about themselves (e.g., parental age, education), their families (e.g., household income), and the target child's demographic information (e.g., gender, age).

Parent Dispositional Mindfulness Parents completed the 15-item Mindfulness Attention and Awareness Scale (MAAS; Brown and Ryan 2003). The MAAS is a scale that reflects a respondent's global experience of mindfulness in addition to specific daily experiences that include "...awareness of and attention to actions, interpersonal communication, thoughts, emotions, and physical states" (Brown and Ryan 2003, p. 825). Participants indicated how frequently they had the experience described in each statement (e.g., "I find it difficult to stay focused on what's happening in the present"). Statements were scored on a Likert scale ranging from 1 (almost always) to 6 (almost never). Higher scores reflect higher levels of mindfulness. Mean levels of the MAAS in the current sample were comparable to community samples without prior mindfulness training (e.g., Mackillop and Anderson 2007) and higher than those obtained in a sample of parents with a history of depression (Parent et al. 2010). The MAAS has demonstrated good internal consistency ($\alpha=0.80-0.90$) as well as convergent and discriminant validity (Brown and Ryan 2003). The alpha coefficient averaged across all three current samples was 0.91.

Mindful Parenting The Interpersonal Mindfulness in Parenting scale (IMPS; Duncan 2007) consisted of 8 items reflecting parents' ability to maintain: (1) awareness and present-centered attention during parenting interactions (e.g., reverse-coded: "I rush through activities with my child without being really attentive to him/her."); (2) non-judgmental receptivity to their child's articulation of thoughts and displays of emotion (e.g., "I listen carefully to my child's ideas, even when I disagree with them."); and (3) the ability to regulate their reactivity to their children's behavior (e.g., "When I'm upset with my child, I notice how I am feeling before I take action"). Parents responded to each item on a 5-point Likert rating scale with higher scores reflecting higher levels of mindful parenting. Previous studies have demonstrated the concurrent and discriminant validity of the IMPS (e.g., Coatsworth et al. 2010; de Bruin et al. 2014). Mean levels of the IMPS in the current sample were comparable to the community sample from the original validation sample (Duncan 2007). Reliability for this scale averaged across the three samples in the current study was 0.80.

Positive and Negative Parenting Practices The Multidimensional Assessment of Parenting Scale (MAPS; Parent and Forehand 2014) was used for the current study. MAPS items were selected and adapted from several well-established parenting scales: The Alabama Parenting Questionnaire (APQ; Frick 1991), the Parenting Practices Questionnaire (PPQ; Block 1965; Robinson et al. 1995), the Parenting Scale (PS; Arnold et al. 1993), the Management of Children's Behavior Inventory (MCBS; Perepletchikova and Kazdin 2004), the parent report version of the Children's Report of Parenting

Behavior Inventory (CRPBI; Schaefer 1965; Schludermann and Schludermann 1988), the Parent Behavior Inventory (PBI; Lovejoy et al. 1999), the Parenting Young Children scale (PARYC; McEachern et al. 2012), and the Parental Monitoring scale (PM; Stattin and Kerr 2000).

The 11-item positive parenting subscale included items representing expressions of warmth and affection (e.g., "I express affection by hugging, kissing, and holding my child"), use of positive reinforcement (e.g., "If I give my child a request and she/he carries out the request, I praise her/him for listening and complying"), using clear instructions [e.g., "I give reasons for my requests (such as "We must leave in 5 min, so it's time to clean up.")], and facilitating supportive parent-child communication (e.g., "I encourage my child to talk about her/his troubles"). The 7-item negative parenting subscale included items representing reactive (e.g., "I lose my temper when my child doesn't do something I ask him/her to do") or intrusive parenting (e.g., "When I am upset or under stress, I am picky and on my child's back"), coercive disciplinary tactics (e.g., "I yell or shout when my child misbehaves"), ineffective discipline (e.g., "I use threats as punishment with little or no justification"), and high levels of expressed hostility (e.g., "I explode in anger toward my child"). Averaged across the three samples, the reliability of the positive ($\alpha=0.90$) and negative ($\alpha=0.83$) parenting subscales was excellent.

Youth Internalizing and Externalizing Problems The caregiver form of the 12-item Brief Problem Checklist (BPC; Chorpita et al. 2010) was used in the current study to measure youth internalizing and externalizing problems. The BPC was developed by applying item response theory and factor analysis to the Youth Self-Report and the Child Behavior Checklist (Achenbach and Rescorla 2001). Chorpita et al. (2010) found that the internal consistency and test-retest reliability of the BPC were excellent, and factor analyses yielded one internalizing and one externalizing factor. Furthermore, validity tests showed large correlations with corresponding scales of the CBCL and YSR as well as with diagnoses obtained from a structured diagnostic interview (Chorpita et al. 2010). Mean levels of internalizing and externalizing problem in the current study were lower than those previously reported for the BPC in a sample of children diagnosed with an anxiety, depressive, or disruptive behavior disorder (Chorpita et al. 2010). The alpha coefficients for internalizing and externalizing problems averaged across the three samples for the current study were 0.80 and 0.84, respectively.

Data Analytic Plan

Preliminary Analysis of Demographic and Study Variables The effect of categorical (e.g., youth gender) and continuous demographic variables (e.g., parent age) on the

primary outcomes was examined using analysis of variance and bivariate correlations, respectively. If significant associations emerged between demographic variables and primary model variables, those demographic variables were controlled for in primary analyses.

Evaluation of the Structural Model Path analysis to test the hypothesized structural model was conducted with Mplus 6.0 software (Muthen and Muthen 2010). To account for skewed data, maximum likelihood estimation with robust standard errors (MLR) was used. The following fit statistics were employed to evaluate model fit: Chi-square, χ^2 : $p > 0.05$ excellent, Comparative Fit Index (CFI; > 0.90 acceptable, > 0.95 excellent), Root Mean Square Error of Approximation (RMSEA; < 0.08 acceptable, < 0.05 excellent) and the Standardized Root Mean Square Residual (SRMR; < 0.08 acceptable, < 0.05 excellent) (Hu and Bentler 1999). As missing data were less than 1 % overall for all core variables, the mechanism of missingness was treated as ignorable (missing at random) and full information maximum likelihood estimation techniques were used for inclusion of all available data. A series of model comparisons were conducted with the goal of moving to more parsimonious models. The use of the MLR estimator required the use of a scaled chi-square difference test (Satorra 2000) for making key comparisons among nested models.

Although not included in the proposed conceptual model presented in Fig. 1, the effects of control variables (e.g., parent gender, race/ethnicity) on the model were examined by running a multiple-indicator/multiple-cause (MIMIC; Muthen 1989) model in which all major constructs of the final structural model were regressed on the covariates separately. If paths in the structural model remained significant with the inclusion of these covariates, it was concluded that the control variables did not influence the relationships among variables in the model. Additionally, to test the significance of the indirect effect, the Model Indirect command in Mplus was utilized to calculate a standardized indirect effect parameter and biased-corrected bootstrap confidence intervals. Additionally, the ratio of the indirect effect to the total effect (ab/c; Preacher and Kelley 2011) for each significant indirect effect test was calculated.

Results

Preliminary Analysis

Preliminary analyses combined all three samples in order to limit the number of analyses conducted. All bivariate correlations among study variables were significant and in the expected directions (see Table 2). Prior to analyses, three demographic variables were dichotomized based on sample size in

groups and inspection of the means. Race was dichotomized to White (1) or Person of Color (2), marital status was dichotomized to single (1) or in a relationship (2), and parent education was dichotomized to some college or less (1) or college degree or more (2).

None of the key study variables significantly differed by parent race, family income, or youth gender. Therefore these variables were not controlled for in the primary analyses. Positive parenting, $F [1, 604] = 16.26, p < 0.001$, and mindful parenting, $F [1, 603] = 4.83, p < 0.05$, differed significantly by parent marital status such that lower levels of positive parenting and mindful parenting were observed for single parents as compared to two-parent families. Additionally, positive parenting, $F [1, 613] = 61.76, p < 0.001$, and mindful parenting, $F [1, 612] = 22.31, p < 0.001$, differed significantly by parent gender such that higher levels of positive parenting and mindful parenting were observed for mothers as compared to fathers.

Negative parenting, $F [1, 613] = 10.67, p < 0.01$, significantly differed by parent education level such that lower levels of negative parenting were observed for parents with at least a college education as compared to parents with less education attainment. Lastly, parent age was significantly related to positive parenting, $r = 0.11, p < 0.01$, and mindful parenting, $r = 0.10, p < 0.01$, such that higher levels of positive parenting and mindful parenting were observed for older parents. Thus, for the primary analyses, parent age, marital status, parent education level, and parent gender served as covariates.

Primary Analyses

The multiple-group function in Mplus was used to determine model fit across all three samples, but paths in the model were freely estimated by youth developmental stage. The proposed model (Model 1) demonstrated excellent fit, $\chi^2 (6, N=615) = 4.36, p > 0.15$, RMSEA=0.00, 95 % CI 0.00–0.075, CFI=1.0, SRMR=0.01, and is displayed separately by child developmental stage, see Fig. 2. Next, nested model comparisons were tested using a series of scaled chi-square difference tests. The first nested model compared the above model with one that removed direct paths from parent dispositional mindfulness to positive and negative parenting (Model 2). Model fit significantly deteriorated with the exclusion of these paths, $\Delta \chi^2 (5) = 108.18, p > 0.10$, which suggests that the less parsimonious Model 1 is preferred. The next nested model comparison evaluated Model 1 against an alternative model that removed direct paths from parent dispositional mindfulness to youth internalizing and externalizing problems but retained the paths from parent dispositional mindfulness to positive and negative parenting (Model 3). Model fit also significantly deteriorated with the exclusion of these paths, $\Delta \chi^2 (5) = 31.36, p > 0.10$; again, Model 1 is preferred. Next, the nested model compared Model 1 with one that removed direct paths from

Table 2 Descriptive data and bivariate correlations among study variables

Young childhood	M (SD)	Range	2	3	4	5	6
1. Parent mindfulness	66.88 (13.0)	15–90	0.42**	0.24**	–0.50**	–0.37**	–0.33**
2. Mindful parenting	29.79 (4.9)	8–40	–	0.66**	–0.44**	–0.26**	–0.25**
3. Positive parenting	45.54 (7.6)	11–55	–	–	–0.35**	–0.23**	–0.17**
4. Negative parenting	11.78 (3.8)	6–35	–	–	–	0.40**	0.43**
5. Youth internalizing	1.18 (1.8)	0–12	–	–	–	–	0.50**
6. Youth externalizing	1.96 (2.3)	0–12	–	–	–	–	–

Note: ** $p < 0.001$

parent dispositional mindfulness to youth internalizing and externalizing problems and from parent mindfulness to positive and negative parenting. Not unexpectedly, model fit also significantly deteriorated with the exclusion of these paths, $\Delta \chi^2(12) = 135.8, p > 0.10$. Thus, Model 1 was adopted based on overall fit to the data and theoretical interpretability. The standardized estimates of direct and indirect effects are presented in Table 3 along with bias-corrected bootstrap confidence intervals for all effects in the model results for each of the three samples. Figure 2 displays significant standardized estimates for the young childhood, middle childhood, and adolescence samples, respectively.

MIMIC models tested the demographic effects of parent gender, parent age, parent marital status, and parent education level on the associations in Model 1 for each age group. All the major constructs of Model 1 were regressed on the control variables separately. The direct paths from parent dispositional mindfulness to youth internalizing and externalizing problems were reduced to marginal significance due to increased standard errors in many of the MIMIC models but had standardized estimates close to original values. Overall, all paths in the structural model across all three samples were largely unaffected by the inclusion of these control variables; thus, it was concluded that the control variables did not influence the original relationships among variables in the model.

The statistically significant standardized estimates of pathways in the model (Fig. 2) were generally consistent across all three samples. Direct paths will be reviewed first. As predicted, higher levels of parent dispositional mindfulness were associated with higher levels of mindful parenting. Next, consistent with hypotheses, higher levels of mindful parenting were related to higher levels of positive parenting practices and lower levels of negative parenting practices. Contrary to hypotheses, higher levels of positive parenting were not inversely related to internalizing problems of middle childhood or adolescent youth and were not associated with youth externalizing problems in any of the three samples. As hypothesized, higher levels of negative parenting practices were related to higher levels of youth internalizing and externalizing problems in all three samples. Consistent with hypotheses, direct effects emerged for the path between parent

mindfulness and negative parenting, youth internalizing, and youth externalizing problems, whereby higher levels of parent mindfulness were associated with lower levels of negative parenting, youth internalizing, and youth externalizing problems. Yet, contrary to hypotheses, no direct effect emerged between parent mindfulness and positive parenting nor between mindful parenting and either youth internalizing or externalizing problems.

In regard to indirect effects, all findings were consistent across the three samples and in support of hypotheses (see Table 3 for the total indirect effects). Parent dispositional mindfulness was indirectly related to positive and negative parenting practices through mindful parenting. The ratio of the indirect effect to the total effect for parent dispositional mindfulness on positive parenting for the young, middle, and adolescent samples was 77, 97, and 75 %, respectively. The ratio of the indirect effect to the total effect for parent dispositional mindfulness on negative parenting for the young, middle, and adolescent samples was 22, 20, and 28 %, respectively. Furthermore, parent dispositional mindfulness was indirectly related to youth internalizing and externalizing problems through negative parenting practices and mindful parenting. The ratio of the indirect effect to the total effect for parent mindfulness on youth internalizing for the young, middle childhood, and adolescent samples was 48, 28, and 36 %, respectively. Lastly, the ratio of the indirect effect to the total effect for parent dispositional mindfulness on youth externalizing for the young, middle childhood, and adolescent samples was 56, 44, and 57 %, respectively. All total indirect effects and specific indirect effects were statistically significant.

Discussion

The purpose of the current study was to propose and test a model of how one characteristic of parents – mindfulness – is associated with youth psychopathology through mindful parenting and parenting practices. Of importance, in response to a call for research by Darling and Steinberg

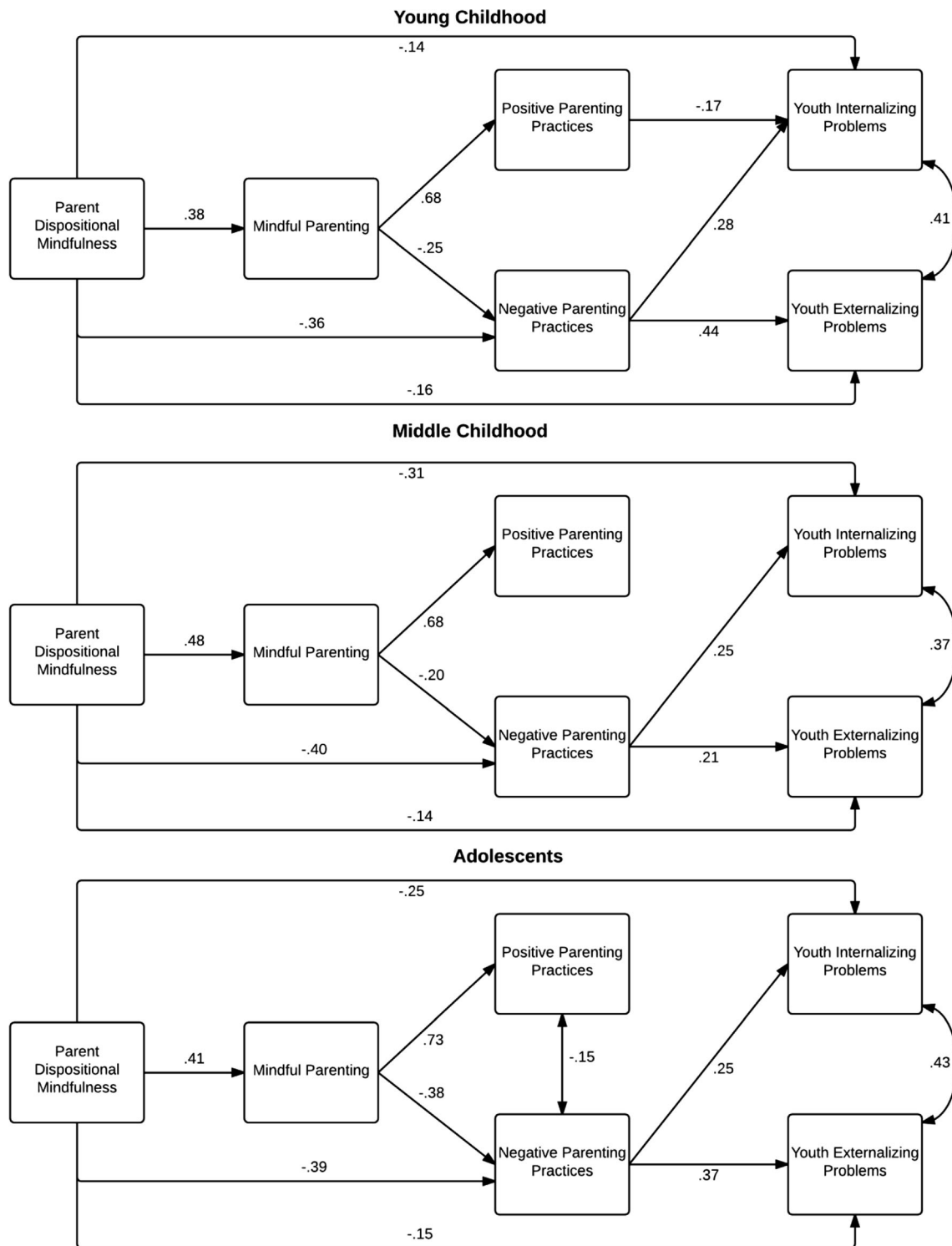


Fig. 2 Final structural model with significant standardized estimates displayed for each sample

(1993) over 20 years ago, we examined the model in families with children in three developmental stages to determine if the model was universal or restricted to a particular stage of development. Findings indicated that, regardless of the developmental stage of the youth, parent dispositional mindfulness was associated with mindful parenting, which, in turn, was

linked to positive and negative parenting practices. In the final link in the model, negative parenting practices were related to youth internalizing and externalizing problems.

The consistency of the findings for the proposed model across developmental stages ranging in age from 3 to 17 provides substantial support for the roles of parental dispositional

Table 3 Direct and indirect effects from the final structural model by study sample

Paths in the model	Standardized estimate [95 % CI]		
	Young $n=210$	Middle $n=200$	Adolescents $n=205$
Direct effects			
Mindfulness – mindful parenting	0.38 [0.23–0.53]	0.48 [0.38–0.59]	0.41 [0.27–0.55]
Mindfulness – positive parenting	–0.08 [–0.21–0.04]	0.01 [–0.12–0.13]	–0.10 [–0.21–0.02]
Mindfulness – negative parenting	–0.36 [–0.49–0.23]	–0.40 [–0.54–0.26]	–0.39 [–0.50–0.29]
Mindfulness – youth internalizing	–0.14 [–0.30–0.01]	–0.31 [–0.44–0.18]	–0.25 [–0.39–0.11]
Mindfulness – youth externalizing	–0.16 [–0.30–0.01]	–0.14 [–0.27–0.01]	–0.15 [–0.32–0.01]
Mindful parenting – positive parenting	0.68 [0.57–0.78]	0.68 [0.59–0.78]	0.73 [0.63–0.83]
Mindful parenting – negative parenting	–0.25 [–0.38–0.13]	–0.20 [–0.35–0.06]	–0.38 [–0.48–0.27]
Positive parenting – youth internalizing	–0.17 [–0.30–0.03]	0.03 [–0.10–0.17]	–0.06 [–0.18–0.06]
Positive parenting – youth externalizing	0.05 [–0.05–0.16]	–0.09 [–0.24–0.06]	–0.04 [–0.19–0.10]
Negative parenting – youth internalizing	0.28 [0.14–0.42]	0.25 [0.10–0.40]	0.25 [0.10–0.39]
Negative parenting – youth externalizing	0.44 [0.31–0.58]	0.21 [0.07–0.36]	0.37 [0.23–0.52]
Correlations			
Negative parenting with positive parenting	–0.07 [–0.23–0.08]	–0.11 [–0.26–0.03]	–0.15 [–0.29–0.01]
Youth internalizing with youth externalizing	0.41 [0.26–0.56]	0.37 [0.23–0.50]	0.43 [0.25–0.61]
Indirect effects			
Mindfulness – positive parenting	0.26 [0.37–0.14]	0.33 [0.24–0.40]	0.30 [0.18–0.42]
Mindfulness – negative parenting	–0.10 [–0.17–0.03]	–0.10 [–0.17–0.03]	–0.15 [–0.22–0.09]
Mindfulness – youth internalizing	–0.13 [–0.20–0.06]	–0.12 [–0.20–0.04]	–0.14 [–0.22–0.05]
Mindfulness – youth externalizing	–0.20 [–0.28–0.12]	–0.11 [–0.18–0.03]	–0.20 [–0.30–0.11]

mindfulness, mindful parenting, and negative parenting in youth internalizing and externalizing problems. Not only were there significant direct links between each adjacent pair of these constructs as proposed in our model but the effect size of the indirect effect from parental dispositional mindfulness to both types of child problem behavior was substantial at each developmental stage. The findings suggest that mindfulness, mindful parenting, and negative parenting are similarly associated with child psychopathology across ages. As we examined children in three different age groups cross-sectionally, it is not possible to address causality from our data. Nevertheless, our findings are among the first to speak to the universal relationship of parental mindfulness to child problem behaviors across youth developmental stages and to begin to elucidate the potential mechanisms that may account for this relationship.

As we noted earlier, the individual links in our model have been demonstrated in previous research. However, the current study is the first to delineate and test a comprehensive model. Turning to individual pathways in the model, not surprisingly, the dispositional capacity to maintain present-moment focus and attention (i.e., mindfulness) is positively associated with the ability to parent in similar ways; that is, providing attention to the child in a non-judgmental way while being self-regulated during interactions with the child. In turn, mindful parenting is associated with lower levels of coercive and

ineffective discipline and higher levels of warmth and reinforcement. The former, but not the latter, is associated in the expected direction with both internalizing and externalizing problems of youth.

Parent mindfulness was *directly* associated with negative parenting practices and *directly* associated with youth internalizing and externalizing symptoms. It is likely that present-moment awareness is related to other intermediate variables that influence negative parenting and child psychopathology but that were not assessed in the current model. For example, Bögels and Restifo (2014) suggest that when parents are taught mindfulness skills, they are likely to experience reduced parental stress and impulsivity, and improvement in marital relationships and coparenting (Parent et al. 2014), each of which has been associated with parenting quality and youth psychopathology (e.g., Cummings and Davies 2010; Parent et al. 2013). Other research indicates that parent depressive symptoms mediate the association between mindfulness and parenting behavior (Parent et al. 2010), and parent depression has systematically been linked to elevated youth symptoms (see Goodman 2007, for a review). As such, it is possible that direct associations in the current sample between parent dispositional mindfulness and parenting practices, as well as between parent dispositional mindfulness and youth internalizing and externalizing problems, could be explained by additional third variables such as parent psychopathology, stress, or interparental relationship quality.

Contrary to expectation, positive parenting practices were not directly associated with youth externalizing symptoms in any of the models and were associated with youth internalizing symptoms in parents of young children only. This was an unexpected finding given the prior evidence for robust associations between parental warmth, positive reinforcement, clear instructions, and youth psychopathology in both clinical (e.g., McKee et al. 2008) and community samples (e.g., Jones et al. 2008) with children in age ranges that overlap with those in the current study: 9–15 (McKee et al., and 6–11 (Jones et al.). Yet, these findings are congruent with recent research by Borden et al. (2014) that, similar to the current study, involved a direct comparison of the association of negative and positive parenting with child outcome. In addition, some of the intervention literature indicates that negative, but not positive, parenting serves as a mediator of child behavior problem change (Beauchaine et al. 2005; Fossum et al. 2009). Our findings, as well as those of Borden et al. and the intervention studies just noted, emphasize the importance of reducing reactive, harsh, or critical parenting and coercive disciplinary tactics. However, it is important to note that two methodological considerations may account for why negative, but not positive, parenting related to youth problem behaviors. First, parents reported on parenting practices and youth psychopathology. If parents have negative perceptual biases, this may inflate the relation between negative parenting and youth problem behaviors. Second, the data were cross-sectional; as a consequence, youth problem behaviors could lead to parents being more negative with their children (e.g., Bradley and Corwyn 2013) rather than negative parenting leading to child problem behaviors as proposed in our model. Multiple informants and longitudinal data can help address these issues in future research.

There are several limitations of the current study that should be noted. First, as we have noted, the data are cross-sectional, raising questions about the direction of effects and temporal precedence that are better addressed by longitudinal designs. Caution should be used when interpreting causal pathways in the current model, and future research examining similar questions should utilize longitudinal designs. Second, due to the crowdsourcing methodology, all variables in the model were from a single reporter. As this is a potential issue of shared method variance, the use of multiple reporters on constructs of interest could strengthen confidence of findings in future work. Third, the current investigation assessed only one facet of mindfulness. Future work should examine the influence of multiple facets of mindfulness (e.g., observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience) on parenting and youth psychosocial development. Fourth, our measure of child psychosocial adjustment was a brief measure. Although the Brief Problem Checklist is highly correlated with more comprehensive measures (i.e., CBCL; Chorpita et al.

2010), different results may have emerged if a more comprehensive measure was utilized. Fifth, community norms are not yet available for the measures of parenting and youth problem behaviors used in this study. This potentially limits generalizability of findings. Lastly, we did not explicitly assess mindfulness practices (i.e., meditation) or prior mindfulness training. Future research should examine whether experimentally increasing parents' mindfulness results in enhanced parenting, and, in turn, leads to healthy youth psychosocial development.

The current study also had several significant strengths that should be noted. First, we utilized three separate samples of parents with children in three distinct developmental stages, and findings were replicated across samples. Furthermore, the sample was constituted by over 45 % father participants, a group which is most often underrepresented in clinical child and adolescent research (Phares 1992; Phares et al. 2005). Such a developmentally-informed approach with a large sample of mothers and fathers greatly enhances the confidence in our findings regarding potential mechanisms of interest and extends their generalizability to broader family contexts and child developmental stages. Lastly, although many of the hypothesized associations had been documented in prior empirical investigations, this was the first to test the effects in one comprehensive model and to examine mediators of the association between parental mindfulness and youth psychosocial outcomes. Furthermore, the current study is the first to demonstrate that parental mindfulness is associated with parenting and youth problem behavior similarly across three distinct youth developmental stages.

In addition to using longitudinal data and multiple informants, future research should begin to examine specific aspects of positive and negative parenting. For example, as Darling and Steinberg (1993) have noted, the type of parental monitoring required during adolescence is substantially different than that required to facilitate the safety of a preschool child. Examining specific parenting skills associated with youth psychopathology at different developmental levels will enhance our understanding of the role of parental characteristics such as mindfulness in children's development. Lastly, an area warranting further inquiry is the potential application of Acceptance and Commitment Therapy (ACT; Hayes 2004) principles, such as psychological flexibility, to help address emotional distress experienced by parents in order to facilitate them taking a more active and mindful approach to their role as a parent.

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Conflict of Interest The authors declare that they have no conflicts of interest.

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