



HHS Public Access

Author manuscript

Mindfulness (N Y). Author manuscript; available in PMC 2022 February 01.

Published in final edited form as:

Mindfulness (N Y). 2021 February ; 12(2): 357–369. doi:10.1007/s12671-020-01536-x.

The Longitudinal Influence of Caregiver Dispositional Mindful Attention on Mindful Parenting, Parenting Practices, and Youth Psychopathology

Justin Parent, Chelsea Dale

Center for Children and Families, Florida International University

Laura G. McKee,

Department of Psychology, Georgia State University

Alexandra D.W. Sullivan

Department of Psychological Science, University of Vermont

Abstract

Objectives: Although much research examining youth psychopathology from an ecological family systems theoretical framework has highlighted negative or pathological parental characteristics, it is important to identify and explore beneficial parent characteristics, such as mindful attention and awareness, that may be related to youth mental health. Dispositional mindfulness has been related, in cross-sectional research, to higher levels of mindful parenting, which impacts positive and negative parenting and, in turn, offspring internalizing and externalizing symptoms. The current study expands this work by examining associations among caregiver dispositional mindful attention, mindful parenting, parenting behaviors, and youth psychopathology in a short-term longitudinal model and by testing potential moderators.

Methods: A sample of 564 parents (60% mothers) of children between the ages of 3 and 17 reported on their dispositional mindful attention, mindful parenting, positive and negative parenting practices, and their youth's internalizing and externalizing symptoms at 4 time points over a 12-month period.

Terms of use and reuse: academic research for non-commercial purposes, see here for full terms. <http://www.springer.com/gb/open-access/authors-rights/aam-terms-v1>

Address correspondence to Justin Parent, 11200 S.W. 8th Street, AHC1 CCF, Miami, FL 33199 jparent@fiu.edu.

Author Contributions

JP: designed and executed the study, conducted data analyses, and wrote the paper.

CD, LM, and ADS: made substantial contributions to the writing and editing of the manuscript.

Publisher's Disclaimer: This Author Accepted Manuscript is a PDF file of an unedited peer-reviewed manuscript that has been accepted for publication but has not been copyedited or corrected. The official version of record that is published in the journal is kept up to date and so may therefore differ from this version.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Informed Consent

Informed consent was obtained from all individual participants included in the study

Ethics Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the University of Vermont Institutional Review Board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Results: The structural equation model indicated that higher levels of baseline caregiver dispositional mindful attention were related to higher levels of mindful parenting at 4 months. Higher levels of mindful parenting were associated with higher levels of positive parenting and lower levels of negative parenting practices at 8 months. Finally, lower levels of negative parenting practices were related to lower levels of internalizing and externalizing symptoms at 12 months. Moderator analyses suggested that all prospective associations in the model were equivalent for mothers and fathers, boys and girls, and children and adolescents.

Conclusions: Findings shed light on the importance of considering caregiver dispositional mindful attention as it relates to parenting behaviors and youth mental health.

Keywords

mindfulness; mindful parenting; parenting; youth internalizing; youth externalizing

The emergence of an ecological family systems approach to the study of developmental psychopathology (Cummings et al., 2002) has placed emphasis on the role of parental characteristics in the development of youth psychopathology. A family systems theoretical perspective (Cox & Paley, 1997; Minuchin, 1985) conceptualizes the family as a “complex, integrated whole” (Minuchin, 1988, p.8); individuals within the system are viewed to be fundamentally dependent on one another. By extension, family systems theory highlights how parent characteristics and psychopathology influence parent-child interactions and, in turn, youth psychosocial development. The majority of research on youth psychopathology that takes an ecological family systems approach has focused on unhelpful parental characteristics, behaviors, or symptoms. For example, research has clearly delineated the widespread impact of parental depression on children’s psychological, behavioral, and social functioning (see Goodman et al., 2011; Goodman & Tully, 2006, for reviews) via disruptions in parent-child interactions and inconsistent or reactive parenting techniques (Goodman & Gotlib, 1999). Alternatively, the positive psychology movement has focused attention on beneficial characteristics, traits, and states, yielding a growing body of work identifying those variables associated with lower levels of pathology and increased well-being (Seligman & Csikszentmihalyi, 2000). This body of research has primarily examined intrapersonal, rather than interpersonal, processes (see Fincham & Beach, 2010, for a discussion of the disconnect between relationship science and positive psychology). However, there is merit in pursuing parent characteristics that may be related to parenting behaviors and, in turn, youth mental health. Doing so provides additional targets for intervention and prevention efforts. One parental characteristic worthy of further study is parental mindful attention and awareness, integral facets of mindfulness.

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). In particular, trait, or dispositional mindfulness, refers to a *stable personal characteristic* to non-judgmentally and intentionally pay attention to different stimuli (Brown et al., 2007). Substantial empirical research on individuals, including several meta-analyses, has demonstrated that higher levels of trait mindfulness are associated with greater self-efficacy, coping, emotion regulation, motivation, and more adaptive cognitive processes (i.e., less rumination; Tomlinson et al., 2018) (e.g., Brown &

Ryan, 2003; Keng et al., 2011). Furthermore, interventions designed to increase mindfulness have demonstrated significant improvements in physical and psychological health, including reductions in depression (Alexander et al., 2018), fatigue and chronic pain (e.g., Khoury et al., 2013), as well as parental stress (e.g., Chaplin et al., 2018). 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 differences has been hypothesized to increase cognitive complexity and emotional awareness over time (e.g., Bishop et al., 2004).

Although mindfulness research to date has focused primarily on individual-level outcomes, theoretical and emerging empirical work suggests the importance of considering relational issues as well (Kabat-Zinn, 1991). Dumas (2005) theorized that parents who are mindful might be better able to regard their own and their child's behaviors nonjudgmentally, effectively distance themselves from negative emotions, and, in turn, enjoy an improved capacity to provide calm and consistent parenting. This construct is called mindful parenting, defined as providing intentional, non-judgmental, and present-centered attention to parent-child interactions (Bögels et al., 2010). Based on multiple theoretical conceptualizations (Bögels & Restifo, 2014; Dumas, 2005; Duncan et al., 2009; Kabat-Zinn & Kabat-Zinn, 1997), caregivers maintaining or increasing mindful attention during parent-child interactions may facilitate improved family health through the reduction of habitual or automatic maladaptive reaction patterns. However, because parent-child interactions can be a significant contextual stressor, some parents may instead be prone to lapses in mindful attention during parent-child interactions and then be more likely to rely on automatic hostile, coercive, and ineffective parenting behaviors. Thus, caregivers must maintain or even enhance their typical mindful attention during stressful parent-child interactions to facilitate intentional parenting practices (e.g., non-reactivity, consistent limit setting), which subsequently may lead to improved youth well-being. Although experimental data are required to determine whether changes in caregiver dispositional mindful attention impact mindful parenting, parenting practices, and, in turn, youth well-being, the current paper is designed to offer a preliminary test of this thesis using prospective longitudinal data.

Research has begun to demonstrate how dispositional caregiver mindfulness is related to parenting practices in a favorable and powerful way. Recent cross-sectional work has shown that higher levels of caregiver dispositional mindfulness appear to be indirectly related to lower levels of youth internalizing and externalizing problems (e.g., Geurtzen et al., 2015; Parent et al., 2010; Parent et al., 2016; Han et al., 2019). Potential mechanisms explaining this link, examined cross-sectionally, are parents' emotional functioning within the parent-child relationship (Turpyn & Chaplin, 2016), maternal and youth physiological stress response (Laurent et al., 2017), changes in brain regions responsible for empathy and emotion processing (May et al., 2016), positive (Han et al., 2019) and negative parenting practices (e.g., Duncan et al., 2015; Parent et al., 2010; Parent et al., 2016; Siu et al., 2016), coparenting relationship quality (Parent et al., 2014; Parent et al., 2016b), and attachment (Medeiros et al., 2016; Siu et al., 2016).

Although these findings are promising, the use of cross-sectional designs significantly constrains our ability to fully understanding the factors through which caregiver

dispositional mindful attention influences family health and youth psychosocial well-being. In particular, cross-sectional designs cannot test mediational pathways nor make inferences about the direction of effects. However, several intervention studies suggest that training in mindful parenting reduces parental stress, improves parent-adolescent relationship quality, and decreases youth psychopathology symptoms (e.g., Bögels et al., 2013; Coatsworth et al., 2010; Coatsworth et al., 2015; Meppelink et al., 2016); nevertheless, these investigations have largely focused on main effects and are only beginning to examine intervention or prevention program mechanisms (i.e., Lippold et al., 2015; Coatsworth et al., 2018). Research using prospective longitudinal designs is required to test the sequence of effects and clarify the public health implications of mindfulness practice for family and youth development. Despite this need, there have only been two studies to employ a prospective longitudinal design and neither specifically examined parental mindfulness. The first longitudinal study (Tak et al., 2015) examined the link between mindful parenting and adolescent depressive symptoms over time, finding limited support. This null finding is not surprising given cross-sectional results showing that mindful parenting may be indirectly, but not directly, associated with youth internalizing problems through adaptive parenting practices (e.g., warmth, support, behavioral control) (Parent et al., 2010; Parent et al., 2016a). The second study (McKee et al., 2018) found that higher levels of mindful parenting prospectively predicted increases in supportive emotion socialization practices but did not examine broadband parenting practices (e.g., warm, hostility, limit setting) nor youth outcomes.

The primary aim of the current study was to test a prospective longitudinal model examining the processes through which caregiver dispositional mindful attention relates to youth psychopathology, specifically testing mediational influences of mindful parenting and parenting practices on youth outcomes. This primary aim was designed to attempt to replicate past cross-sectional models (e.g., Parent et al., 2016a) using a more rigorous longitudinal panel design capable of making more robust inferences about mediational pathways. A secondary aim of the current study was to examine moderators of associations in the conceptual model to investigate for whom relationships in the model are strongest or for which support is lacking using a prospective longitudinal design. As such, the current study sought to determine whether youth gender, parent gender, and youth developmental stage moderated relationships in the conceptual model. It was hypothesized, based on prior literature (Coatsworth et al., 2015; McKee et al., 2018; Parent et al., 2016a), that prospective associations in the conceptual model would be consistent across youth developmental stages and that associations between mindful parenting and parenting practices would be larger for fathers than mothers. Given no prior research examining youth gender as a moderator of these relations, these analyses were considered exploratory.

Method

Participants

Data from 564 parents of children between the ages of 3 and 17 were included in the current study. Overall, parents were on average 36.35 years old ($SD = 8.13$) and approximately 40% were fathers. Participants were predominately White (79.0%), with an additional 9.8% who

identified as Black, 5.7% as Latino/a, 4.5% as Asian, and 1.0% as American Indian, Alaska Native, or other Pacific Islander. Parents' education level ranged from not completing high school or the H.S. equivalent (.4%), obtaining a H.S. degree or GED (12.8%), attending some college (30.5%), earning a college degree (40.6%), and attending at least some graduate school (15.9%). Most parents were employed full-time (61.7%) with 19.5% reporting employment at a part-time level, and 18.8% reporting unemployment. Reported family income was 21.7% for less than \$30,000 per year, 28.7% between \$30,000 and \$50,000, 19.5% between \$50,000 and \$70,000, 16.8% between \$70,000 and \$100,000, and 13.3% at least \$100,000. Parent marital status was organized into three categories with 17.1% reporting being single, 64.6% being married, and 18.3% being in a cohabiting relationship. Approximately half of youth were boys (54.4%) with 38.5% being an only child. Retention rates for parents were 80.7%, 67.7%, 60.6%, and 66.1% at 2-week, 4-month, 8-month, and 12-month time points, respectively. Overall retention, as defined by completing an assessment at any wave after the 2-week follow-up, was 74.6%.

Procedure

All study procedures were approved by a university Institutional Review Board (IRB). Parents consented online before beginning the survey following the approved IRB procedures. Parents were recruited online through Amazon's Mechanical Turk (MTurk) as part of a larger study on the assessment of parenting. MTurk is currently the dominant crowdsourcing application in the social sciences (Chandler et al. 2014), and prior research has demonstrated that data obtained via crowdsourcing methods are as reliable as those obtained via more traditional data collection methods for adult populations (e.g., Buhrmester et al., 2011; Casler et al., 2013; Paolacci & Chandler, 2014; Shapiro et al. 2013) as well as specifically for youth psychopathology research (Parent et al., 2017; Schleider & Weisz, 2015). Three different studies were listed on MTurk (one for each youth age range) describing a year-long study involving the completion of five surveys over the course of 12 months. Participants were compensated \$4.00, \$2.00, \$4.00, \$4.00, and \$8.00 for participating in the baseline, two-week, 4-month, 8-month, and 12-month surveys, respectively. For follow-up surveys, participants were contacted using an MTurk ID to complete surveys. One email was sent the day before the survey was available, one email was sent the day the survey became available, and two to three emails were sent subsequently if the follow-up survey had not been completed. For families with multiple children in the target age range, one child was randomly selected by a computer algorithm and measures were asked about parenting specific to this child and her/his behavior. The baseline, 4-, 8-, and 12-month follow up time points were utilized in the current study.

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 ($n = 2$) were not included in the study (i.e., their data removed from the dataset) if they had more than one incorrect response to these ten check items. Using this correction ensured that responses were not random or automated. The follow-up surveys allowed for demographic characteristics to be measured again when participants were re-contacted and for inconsistent responders to be excluded from analyses. Thus, the current

study excluded inconsistent responders from analysis based on not reporting the same youth demographic characteristics across the assessed waves. We allowed for one-time potential mistakes, such as inconsistent gender or entering the date-of-birth wrong at a single time-point but excluded participants who made such mistakes at more than one wave ($n = 51$). Although this represents a strict criterion for inclusion, it was deemed necessary, given that in-person laboratory visits were not possible.

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).

Caregiver dispositional mindful attention.—Parents completed the 15-item Mindfulness Attention and Awareness Scale (MAAS; Brown & Ryan, 2003). The MAAS is a scale that reflects a respondent's global experience of mindful awareness and attention in addition to specific daily experiences that include "...awareness of and attention to actions, interpersonal communication, thoughts, emotions, and physical states" (Brown & 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 mindful awareness. Mean levels of the MAAS in the current sample were comparable to community samples without prior mindfulness training (e.g., Mackillop & 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 ($\alpha = .80-.90$) as well as convergent and discriminant validity (Brown & Ryan, 2003). The alpha coefficient for the current study was .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., de Bruin et al., 2014; Coatsworth et al., 2010). 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 in the current study was .80 and .81 for baseline and the 4-month follow-up, respectively.

Positive and negative parenting.—The Multidimensional Assessment of Parenting Scale (MAPS; Parent & Forehand, 2017) was used for the current study to assess positive and negative parenting practices. The MAPS was developed from established measures of

parenting practices to select optimal parenting items constituting both positive and negative dimensions of warmth/hostility and behavioral control appropriate for parents of children across the developmental span from young childhood through adolescence. The MAPS has demonstrated excellent internal and test-retest reliability as well as initial longitudinal support for the validity of MAPS subscale scores (Parent & Forehand, 2017; Parent et al., 2017). Additionally, measurement invariance across youth developmental stages from young childhood to adolescent has been established for the MAPS subscales (Parent & Forehand, 2017).

The Broadband Positive Parenting subscale of the MAPS includes four narrowband subscales: Proactive Parenting which measures child-centered appropriate responding to anticipated difficulties; Positive Reinforcement which measures contingent responses to positive child behavior with praise, rewards, or displays of approval; Warmth which measures displays of affection; and Supportiveness which measures displayed interest in the child, encouragement of positive communication, and openness to a child's ideas and opinions. The Broadband Negative Parenting factor includes three narrowband subscales: Hostility which includes items representing intrusive parenting that is overcontrolling and parent-centered as well as harshness which includes coercive processes such as arguing, threats, and yelling, ineffective discipline, and irritability; Physical Control which includes items representing physical discipline both generally and specifically out of anger and frustration; and Lax Control which includes items representing permissiveness or the absence of control, easily coerced control in which the parent backs down from control attempts based on the child's behavior, and inconsistency which is the failure to follow through with control or inconsistent applying consequences. Reliability for the MAPS subscales in the current study was excellent, ranging from .81 to .91 for the baseline and 8-month follow-up.

Youth internalizing and externalizing problems.—For the current study, indicators of youth internalizing and externalizing problems latent constructs were drawn from the Brief Problem Checklist (BPC; Chorpita et al., 2010), the Revised Child Anxiety and Depression Scale 25 – parent version (RCADS-25; Chorpita & Ebesutani, 2014), the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999), and the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997).

The BPC was developed by applying item response theory and factor analysis to the Youth Self-Report and the Child Behavior Checklist (Achenbach & 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 problems in the current study were lower than those previously reported for the BPC in a sample of children diagnosed with anxiety, depressive, or disruptive behavior disorder (Chorpita et al., 2010).

The RCADS parent report short version was recently developed by Ebesutani et al. (2012) who shortened the RCADS from 47 items to 25 items using a large school-based sample and

a clinic-referred sample of youth. Findings supported the use of the 25-item RCADS for a more efficient assessment of the general problem areas of anxiety and depression. Their results revealed that all anxiety items reflected a single broad anxiety dimension, which informed the development of a 15-item total scale. The resultant Anxiety Total scale demonstrated significant correspondence with anxiety diagnostic groups based on structured clinical interviews. The scores from the 10-item Depression Total scale (retained from the original version) were also associated with good reliability in the clinic-referred and school-based samples. For the parent report version, parents are asked to indicate how often each item applies to their child on a 4-point Likert scale (0 = never, 1 = sometimes, 2 = often, 3 = always).

The ECBI is a 36-item rating scale used to assess disruptive behaviors in children ages 2 to 16. Each behavior is rated on its intensity (1 = never to 7 = always) as well as whether or not the behavior is perceived to be a problem for the parents (yes or no). The ECBI has strong reliability and validity data (see Eyberg & Pincus, 1999). Traditionally, the ECBI has been considered to be a unidimensional measure of disruptive behaviors (Eyberg, 1992); however, it has also been viewed as a multidimensional measure of disruptive behaviors (Burns & Patterson, 1991, 2000). Multiple studies have shown through exploratory and confirmatory factor analysis that the ECBI has three meaningful factors and that this three-factor model provides significantly better fit than the original one-factor model (Axberg et al., 2008; Burns & Patterson, 2000). The three factors are Oppositional Defiant Behavior Toward Adults (ODB: 10 items), Inattentive Behavior (IB; 4 items), and Conduct Problem Behavior (CPB: 8 items). Only the ODB subscale was used in the current study because it applies to all three developmental stages and, in previous research, has demonstrated high internal consistency (e.g., Axberg et al., 2008; Burns & Paterson, 2000). Furthermore, the intensity, but not the problem, subscale was used.

The parent report version of the ERC contains 24 items rated on a 4-point Likert scale (1 = Never; 2 = Sometimes; 3 = Often; 4 = Almost always) including questions regarding intensity, lability, flexibility, and appropriateness of the child's positive and negative emotions. The current study used the Negativity/Lability subscale of the ERC which assesses angry reactivity, inflexibility, dysregulation of negative affect, and mood lability (Shields & Cicchetti, 1997). Internal consistency of the Negativity/Lability subscale scores has been shown to be excellent (Shields & Cicchetti, 1997).

Overall, the BPC internalizing problems subscale and the RCADS-25 anxiety and depression subscales served as indicators for the latent youth internalizing problems construct. The BPM externalizing problems, the ECBI ODB, and the ERC negativity/lability subscales served as indicators of latent youth externalizing problems construct. Internal consistency for all subscales at baseline and the 12-month follow-up assessments ranged from .80 to .95.

Data Analyses

Evaluation of the primary model.—Longitudinal structural equation modeling was used to test the hypothesized model and was conducted with Mplus 7.0 software (Muthen & Muthen, 2012). To account for non-normal data that is typical of psychopathology

outcomes, maximum likelihood estimation with robust standard errors (MLR) was used. The following fit statistics were employed to evaluate model fit: Chi-square, χ^2 : $p > .05$ excellent, Comparative Fit Index (CFI; $> .90$ acceptable, $> .95$ excellent), Root Mean Square Error of Approximation (RMSEA; $< .08$ acceptable, $< .05$ excellent) and the Standardized Root Mean Square Residual (SRMR; $< .08$ acceptable, $< .05$ excellent) (Hu & Bentler, 1999). The mechanism of missingness was treated as missing at random, and full information maximum likelihood estimation techniques were used for inclusion of all available data.

Prior to estimation of the full structural model, the longitudinal measurement model with latent mindful parenting, positive parenting, negative parenting, youth internalizing, and youth externalizing was estimated to ensure good fit. For the longitudinal CFA model, correlated uniqueness between the same indicators of the latent variables across time (e.g., MAPS Proactive Parenting at baseline with Proactive Parenting at 8-months), could co-vary. Further, the first indicator of each latent variables was set to 1.0 to establish the metric. Next, multiple-group CFA models were employed to examine and test whether measurement invariance across parent gender, youth gender, and youth developmental stages were supported for all latent variables. Three different forms of measurement invariance were tested: configural (i.e., identical factor structure for each stage), metric (factor loadings are held equal across groups), and scalar (factor loadings and intercepts/thresholds are held equal across groups). The structural model was estimated following measurement models. Each variable in the model after baseline was regressed on that variable's value at the first wave.

Sensitivity analyses.—Although not included in the proposed conceptual model, the effects of parent education and family income 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. These demographic variables were chosen based on prior research indicating the importance of taking family income and parent education into account when examining parenting behaviors and youth psychopathology (Akee et al., 2010; Davis-Kean, 2005). 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.

Moderators.—Following initial model building and sensitivity analyses, three sets of moderator analyses were performed for parent gender, youth gender, and youth age. Building on measurement invariance tests, multiple-group structural models were employed to examine and test whether differences in the structural parameters between mothers and fathers, boys and girls, and children (ages 3 to 10) and adolescents (ages 11 to 17) were statistically significant. This youth age split was chosen to reflect the developmental shift that occurs after elementary school and to ensure sufficient sample size in each group. Testing for cross-group invariance involved comparing a model with paths constrained to be invariant across groups to one where paths were freely estimated for each group. The use of

the MLR estimator required the use of a scaled chi-square difference test (Satorra, 2000) for making comparisons among nested models.

Results

Primary Analyses

Measurement model.—The longitudinal CFA model for all latent variables combined demonstrated good model fit, $\chi^2(401, N = 564) = 873.38$, RMSEA = .046, 95% CI .042 – .050, CFI = .94, SRMR = .056. All factor loadings were significant and ranged from .71 to .82 for mindful parenting, .67 to .88 for positive parenting, .31 to .86 for negative parenting, .76 to .88 for youth internalizing problems, and .79 to .89 for youth externalizing problems.

Measurement invariance.—Measurement invariance was tested for all latent variables simultaneously for each for parent gender, youth gender, and youth developmental stage (children ages 3 to 10 and adolescents ages 11 to 17). Regarding parent gender, the chi-square difference test was nonsignificant between the configural and metric models ($p = .07$) but significant between the metric and scalar models ($p < .05$), supporting weak measurement invariance of all latent variables across parent genders. Similarly, the chi-square difference test was nonsignificant between the configural and metric models for youth gender ($p = .06$) and youth developmental stage ($p = .10$) but significant between the metric and scalar models ($ps < .05$), supporting weak measurement invariance of latent variables across youth gender and developmental stage. In practice, researchers regularly fail to find full or strong measurement invariance (Vandenberg & Lance, 2000). However, though comparison of score means across groups is not warranted based on these results, weak measurement invariance is sufficient for group comparisons of significance and directionality of longitudinal associations in the primary model (Byrne et al., 1989). Therefore, these results suggest that, overall, measurement of mindful parenting, positive and negative parenting practices, and youth psychopathology was largely equivalent across parent and youth genders as well as youth developmental stages.

Conceptual model.—The proposed model demonstrated good fit, $\chi^2(449, N = 564) = 998.83$, RMSEA = .047, 95% CI .043 – .050, CFI = .93, SRMR = .061) and is displayed in Figure 1. The standardized estimates and bias-corrected bootstrap confidence intervals for the measurement model are presented in Table 1 and for the structural model in Table 2. As predicted, higher levels of caregiver dispositional mindful attention at baseline were associated with higher levels of mindful parenting 4 months later. Next, consistent with hypotheses, higher levels of mindful parenting at 4 months were related to higher levels of positive and lower levels of negative parenting practices at 8 months. In addition, higher levels of negative parenting practices at 8 months predicted higher levels of youth internalizing and externalizing problems at 12 months. Contrary to hypotheses, positive parenting practices at 8 months were unrelated to youth psychopathology at 12 months. Further supporting the conceptual model, the addition of direct paths from (1) caregiver dispositional mindful attention to positive and negative parenting, scaled $\chi^2 = 4.45$ (2), $p = .11$, (2) caregiver dispositional mindful attention to youth internalizing and externalizing,

$\chi^2 = .21$ (2), $p = .90$, or (3) mindful parenting to youth internalizing and externalizing, $\chi^2 = .755$ (2), $p = .69$, did not significantly improve model fit.

Sensitivity Analyses.—MIMIC models tested the demographic effects of parent education level and family income on the associations in the model. All the major constructs of the model were regressed on the control variables separately. The direct paths from mindful parenting to negative parenting were reduced to marginal significance due to increased standard errors in both MIMIC models but had standardized estimates close to original values. All other paths were unaffected by the inclusion of these covariates. Thus, it was concluded that the control variables did not significantly influence the original relationships among variables in the model.

Moderator Analyses

Having shown that all latent variables met the assumption of metric measurement invariance across all three moderators (i.e., same factor structure and factor loadings), we were free to test whether differences in the structural parameters between groups were statistically significant. Seven nested model comparisons for each moderator were examined; one for each predictive pathway in the model (i.e., caregiver dispositional mindful attention to mindful parenting, mindful parenting to positive and negative parenting, and both parenting variables to each youth psychopathology outcome). Contrary to hypotheses, all models that fixed paths to be equal across mothers and fathers resulted in equivalent model fit to a freely estimated across groups model, χ^2 (1) = .08 to 1.9, $ps > .10$. Similarly, though consistent with hypotheses, all models that fixed pathways to be equal across parents of children (ages 3 to 10) and adolescents (ages 11 to 17) resulted in equivalent model fit, χ^2 (1) = .03 to .45, $ps > .10$. Lastly, all models that fixed pathways to be equal across girls and boys resulted in equivalent model fit, χ^2 (1) = .04 to 1.7, $ps > .10$. Overall, all prospective associations in Figure 1 were equivalent for mothers and fathers as well as parents of boys or girls and children or adolescents. Thus, no support for moderation was found.

Discussion

The purpose of the current study was to examine the process by which one beneficial parent characteristic, caregiver dispositional mindful attention, influences youth well-being through testing a prospective longitudinal model of key theoretical mechanisms of change. The proposed model posited that higher levels of caregiver dispositional mindful attention would facilitate adaptive youth psychosocial development through the reduction in habitual or automatic maladaptive reaction patterns in parent-child interactions. These interactions, in turn, were hypothesized to be associated with reduced reliance on hostile, coercive, and ineffective parenting behaviors and increase constructive patterns, such as warmth and clear communication, which subsequently may lead to improved youth well-being. A burgeoning area of research has begun to provide empirical support for this model, but investigations have relied on cross-sectional data. As such, the current study tested these associations using a short-term longitudinal model with the primary aim of broadening our understanding of how caregiver dispositional mindful attention is associated with favorable outcomes in families and children.

Results from the current study largely replicated a previous cross-sectional model by Parent et al. (2016a). Findings indicate that higher levels of caregiver dispositional mindful attention at baseline were associated with lower levels of youth psychopathology a year later through higher levels of mindful awareness during parenting interactions (i.e., mindful parenting) at 4-months and, in turn, lower levels of maladaptive parenting behaviors at the 8-month follow-up. Like previous cross-sectional findings (Parent et al., 2016a), the positive cascading effect of caregiver dispositional mindful attention on youth well-being functioned primarily through reductions in negative parenting behaviors, including lower levels of hostility (e.g., yelling, intrusiveness), lax control (e.g., permissiveness, inconsistency), and physical discipline. Although mindful parenting was related to positive parenting practices including warmth and positive reinforcement, there was no support for the link between positive parenting and youth mental health, which is surprising given support in prior cross-sectional studies for *observed* positive parenting (Parent et al., 2010; Turpyn & Chaplin, 2016) as a fundamental mechanism linking parent mindfulness to youth problem behavior. Future longitudinal studies should utilize multiple methods of assessment, including observations of parenting, and multiple reporters, as well as explore indicators of youth well-being, such as prosocial behavior, as outcomes to understand the role of positive parenting better.

A secondary aim of the current study was to examine parent gender, youth developmental stage, and youth gender as moderators of associations in the conceptual model to determine whether links in the model differed by important demographic factors. Regarding parent gender, all associations in the model were equivalent in strength for mothers and fathers. This finding is inconsistent with previous intervention research (Coatsworth et al., 2015), as well as with a recent study examining the link between mindful parenting and emotion socialization (McKee et al., 2018). Using a subsample of the current study, McKee et al. (2018) found that the association between mindful parenting and nonsupportive emotion socialization practices was marginally stronger for fathers than mothers. This discrepancy in findings regarding parent gender may be due to the parenting practices examined as the current study did not include parenting practices specifically in response to children's negative emotions. Future research should further explore the hypothesis that father's mindfulness is especially influential on limiting negative responses to children's emotions but is equivalent to mothers on influencing broadband parenting practices such as warmth and behavioral control. Additionally, future research on this topic will benefit from examining potential mechanisms for parent gender differences. For example, does mindful parenting facilitate interruption of automatic or habitual gendered patterns of punitive or avoidant responses in emotionally-charged parenting situations (Fuchs & Thelen, 1988; Kang, Gruber & Gray, 2013; MacDonald & Hastings, 2010)?

In regard to youth developmental stage, findings from the current study replicate and mirror previous cross-sectional results (Parent et al., 2016a; 2016b) such that associations in the model were consistent across youth developmental stages from early childhood through adolescence. These results support the notion that the relationship between caregiver dispositional mindful attention, mindful parenting, and family health and youth psychosocial well-being is equivalent for families with young children or adolescents; namely, mindful parenting is related to positive and negative parenting practices, which, in turn, are

associated with youth symptoms for toddlers to teenagers. However, these correlational data are limited; experimental data from mindfulness-based intervention or prevention programs are required to determine whether mindful parenting has an equivalent impact across youth developmental stages. Future research utilizing such designs should examine the links in the current model to determine whether (1) increasing caregiver dispositional mindfulness is more or less likely to facilitate bringing a present-centered awareness that is non-judgmental and non-reactive to interactions with their children, (2) whether those mindful parenting behaviors impact other parenting approaches, and (3) whether youth symptoms are affected, based on the developmental stage of the youth. Lastly, the current study examined whether youth gender moderated relationships in the conceptual model; no support for differential associations was found. Results from the current study are encouraging and support consistent positive effects of parental mindful awareness on girls' and boys' internalizing and externalizing problem behavior. However, given that the current study is the first to test for youth gender differences, replication of this pattern is necessary to confirm results.

Limitations and Future Research

The current study had several strengths. First and foremost, the current study used a prospective longitudinal design to examine mechanisms. Second, it utilizes a relatively large sample which powers it to test for moderators of associations. Third, it adds to the research on youth psychopathology that takes an ecological family systems approach by examining a positive parent characteristic - caregiver dispositional mindful attention. This focus on a potentially beneficial factor in an interpersonal context is relatively unique in several literatures (e.g., Fincham & Beach, 2010). However, results should be interpreted with caution in the context of a few notable limitations. First, one parent in the family provided self-report for all variables, which introduces issues around potential shared-method variance, and is not necessarily representative of the youth's lived experience or the perspective of other caregivers in the family. Second, the sample consisted of predominately White parents with at least some college education, which limits the generalizability of the current findings. It is important that future studies include multiple methods of assessment (e.g., observations of parenting, youth report) and a more diverse sample of families to increase confidence in and generalizability of results. Third, although the use of a prospective longitudinal design extends the current, primarily cross-sectional literature, experimental evidence is necessary in order to make strong claims of the causal influence of caregiver mindful attention on parent and child psychopathology. Finally, we examined caregiver mindful attention and awareness via the MAAS, one integral component of dispositional mindfulness. As such, findings are relevant only to mindful awareness and attention; future study could incorporate additional components such as non-judgmental acceptance of the present moment and nonreacting. Further, the MAAS items may instead describe absence of attentional focus which could instead be assessing general inattention (Van Dam et al., 2010) and future studies would benefit from use of alternative multidimensional mindfulness measures (e.g., five-factor mindfulness questionnaire; Baer et al., 2006).

These limitations notwithstanding, the research literature on the longitudinal mechanisms linking caregiver mindful attention to youth psychopathology is rapidly growing. Future

studies will benefit from using actor-partner interdependence models that explore the family systems impact of caregiver mindfulness thoroughly. For example, when one caregiver embodies interpersonal mindfulness during parent-child interactions, does this result in a positive spillover across other family subsystems, including coparent-child and parent-coparent interactions. Additionally, future studies would benefit from exploring how positive family environments, such as caregiver mindfulness and mindful parenting, are biologically embedded via changes in parent and child physiological systems involved in regulating stress-reactivity. Novel research methods (e.g., epigenetics) are growing our understanding of how early adversity is biologically embedded. Still, it is equally important for future research to explore how malleable positive factors like mindful parenting may help establish a biological foundation that promotes resiliency and prevents the development of psychopathology.

Acknowledgements

This research was supported by the Child and Adolescent Psychology Training and Research, Inc (CAPTR). The first author was supported by NICHD F31HD082858.

References

- Achenbach TM, & Rescorla L (2001). ASEBA school-age forms & profiles. ASEBA.
- Akee RK, Copeland WE, Keeler G, Angold A, & Costello EJ (2010). Parents' incomes and children outcomes: A quasi-experiment using transfer payments from casino profits. *American Economic Journal: Applied Economics*, 2, 86–115. doi: 10.1257/app.2.1.86 [PubMed: 20582231]
- Alexander K (2018). Integrative Review of the Relationship Between Mindfulness-Based Parenting Interventions and Depression Symptoms in Parents. *Journal of Obstetric, Gynecologic, and Neonatal Nursing: JOGNN*, 47(2), 184–190. 10.1016/j.jogn.2017.11.013
- Axberg ULF, Hanse J, & Broberg AG (2008). Parents' description of conduct problems in their children—A test of the Eyberg Child Behavior Inventory (ECBI) in a Swedish sample aged 3–10. *Scandinavian Journal of Psychology*, 49(6), 497–505. doi: 10.1111/j.1467-9450.2008.00670.x [PubMed: 18705675]
- Baer RA, Smith GT, Hopkins J, Krietemeyer J, & Toney L (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13(1), 27–45. doi: 10.1177/1073191105283504 [PubMed: 16443717]
- Bishop SR, Lau M, Shapiro S, Carlson L, Anderson ND, Carmody J, Segal ZV, Abbey S, Speca M, Velting D, & Devins G (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, 11(3), 230–241. doi: 10.1093/clipsy.bph077
- Bögels SM, Hellema J, van Deursen S, Römer M, & van der Meulen R (2013). Mindful parenting in mental health care: Effects on parental and child psychopathology, parental stress, parenting, coparenting, and marital functioning. *Mindfulness*, 5(5), 536–551. doi: 10.1007/s12671-013-0209-7
- Bögels SM, Lehtonen A & Restifo K (2010) Mindful parenting in mental health care. *Mindfulness*, 1(2), 107–120. doi: 10.1007/s12671-010-0014-5 [PubMed: 21125026]
- Bögels S, & Restifo K (2014). *Mindful parenting*. Springer.
- Brown KW, & Ryan RM (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822–848. doi: 10.1037/0022-3514.84.4.822 [PubMed: 12703651]
- Brown KW, Ryan RM, & Creswell D (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Mindfulness* 18(4), 211–237. doi: 10.1080/10478400701598298
- Buhrmester M, Kwang T, & Gosling S (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high quality, data? *Perspectives on Psychological Science*, 6, 3–5. doi:10.1177/1745691610393980 [PubMed: 26162106]

- Burns GL, & Patterson DR (1991). Factor structure of the Eyberg Child Behavior Inventory: Unidimensional or multidimensional measure of disruptive behavior? *Journal of Clinical Child and Adolescent Psychology*, 20(4), 439–444. doi: 10.1207/s15374424jccp2004_13
- Burns GL, & Patterson DR (2000). Factor structure of the Eyberg Child Behavior Inventory: A parent rating scale of oppositional defiant behavior toward adults, inattentive behavior, and conduct problem behavior. *Journal of Clinical Child Psychology*, 29(4), 569–577. [PubMed: 11126634]
- Casler K, Bickel L, & Hackett E (2013). Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing. *Computers in Human Behavior*, 29, 2156–2160. doi:10.1016/j.chb.2013.05.009
- Chaplin TM, Turpyn CC, Fischer S, Martelli AM, Ross CE, Leichtweis RN, Miller AB, & Sinha R (2021). Parenting-focused mindfulness intervention reduces stress and improves parenting in highly stressed mothers of adolescents. *Mindfulness*. doi: 10.1007/s12671-018-1026-9
- Chorpita BF, & Ebesutani C (2014). Revised children's anxiety and depression scale user's guide. Unpublished Users Guide, University of California, Los Angeles.
- Chorpita BF, Reise S, Weisz JR, Grubbs K, Becker KD, & Krull JL (2010). Evaluation of the Brief Problem Checklist: Child and caregiver interviews to measure clinical progress. *Journal of Consulting and Clinical Psychology*, 78, 526–536. doi: 10.1037/a0019602 [PubMed: 20658809]
- Coatsworth JD, Duncan LG, Greenberg MT, & Nix RL (2010). Changing parent's mindfulness, child management skills and relationship quality with their youth: Results from a randomized pilot intervention trial. *Journal of Child and Family Studies*, 19, 203–217. doi: 10.1007/s10826-009-9304-8 [PubMed: 24013587]
- Coatsworth JD, Duncan LG, Nix RL, Greenberg MT, Gayles JG, Bamberger KT, ... & Demi MA (2015). Integrating mindfulness with parent training: Effects of the mindfulness-enhanced strengthening families program. *Developmental Psychology*, 51(1), 26. doi: 10.1037/a0038212 [PubMed: 25365122]
- Coatsworth JD, Timpe Z, Nix RL, Duncan LG, & Greenberg MT (2018). Changes in mindful parenting: Associations with changes in parenting, parent-youth relationship quality, and youth behavior. *Journal of the Society for Social Work and Research*, 9(4), 511–529. doi: 10.1086/701148 [PubMed: 31588254]
- Cox MJ, & Paley B (1997). Families as systems. *Annual Review of Psychology*, 48(1), 243–267. doi: 10.1146/annurev.psych.48.1.243
- Cummings EM, & Davies PT (2002). Effects of marital conflict on children: Recent advances and emerging themes in process-oriented research. *Journal of Child Psychology and Psychiatry*, 43(1), 31–63. doi: 10.1111/1469-7610.00003 [PubMed: 11848336]
- de Bruin EI, Zijlstra BJ, Geurtzen N, van Zundert RM, van de Weijer-Bergsma E, Hartman EE, Nieuwesteeg AM, Duncan LG, & Bögels SM (2014). Mindful parenting assessed further: Psychometric properties of the Dutch version of the Interpersonal Mindfulness in Parenting Scale (IM-P). *Mindfulness*, 5, 200–212. doi: 10.1007/s12671-012-0168-4 [PubMed: 25126133]
- Davis-Kean PE (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology*, 19(2), 294–304. doi: 10.1037/0893-3200.19.2.294 [PubMed: 15982107]
- Dumas JE (2005). Mindfulness-based parent training: strategies to lessen the grip of automaticity in families with disruptive children. *Journal of Clinical Child and Adolescent Psychology*, 34, 779–791. doi:10.1207/s15374424jccp3404_20 [PubMed: 16232075]
- Duncan LG (2007). Assessment of mindful parenting among parents of early adolescents: Development and validation of the Interpersonal Mindfulness in Parenting scale. Unpublished dissertation. The Pennsylvania State University.
- Duncan LG, Coatsworth JD, & Greenberg MT (2009). A model of mindful parenting: Implications for parent-child relationships and prevention research. *Clinical Child and Family Psychology Review*, 12, 255–270. doi: 10.1007/s10567-009-0046-3 [PubMed: 19412664]
- Duncan LG, Coatsworth JD, Gayles JG, Geier MH, & Greenberg MT (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. doi: 10.1037/a0038857 [PubMed: 25844494]

- Ebesutani C, Reise SP, Chorpita BF, Ale C, Regan J, Young J, Higa-McMillan C, & Weisz JR (2012). The Revised Child Anxiety and Depression Scale-Short Version: Scale reduction via exploratory bifactor modeling of the broad anxiety factor. *Psychological Assessment*, 24(4), 833. doi: 10.1037/a0027283 [PubMed: 22329531]
- Eyberg SM (1992). Parent and teacher behavior inventories for the assessment of conduct problem behaviors in children. In VandeCreek L, Knapp S, & Jackson TL (Eds.), *Innovations in clinical practice: A source book* (Vol. 12, pp. 377–382). Professional Resource Exchange.
- Eyberg SM, & Pincus D (1999). ECBI & SESBI-R: Eyberg child behavior inventory and Sutter-Eyberg student behavior inventory-revised: Professional manual. Psychological Assessment Resources.
- Fincham FD, & Beach SRH (2010). Of memes and marriage: Toward a positive relationship science. *Journal of Family Theory & Review*, 2, 4–24. doi:10.1111/j.1756-2589.2010.00033.x
- Goodman SH, & Gotlib IH (1999). Risk for psychopathology in the children of depressed mothers: a developmental model for understanding mechanisms of transmission. *Psychological Review*, 106(3), 458. doi:10.1037/0033-295X.106.3.458 [PubMed: 10467895]
- Goodman SH, Rouse MH, Connell AM, Broth MR, Hall CM, & Heyward D (2011). Maternal depression and child psychopathology: A meta-analytic review. *Clinical Child and Family Psychology Review*, 14(1), 1–27. doi: 10.1007/s10567-010-0080-1 [PubMed: 21052833]
- Goodman SH, & Tully E (2006). Depression in women who are mothers. In Keyes CLM & Goodman SH (Eds.), *Women and depression: A handbook for the social, behavioral, and biomedical sciences*, pp. 241–280. Cambridge University.
- Gouveia MJ, Carona C, Canavarro MC, & 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. doi: 10.1007/s12671-016-0507-y
- Geurtzen N, Scholte RH, Engels RC, Tak YR, & van Zundert RM (2015). Association between mindful parenting and adolescents' internalizing problems: Non-judgmental acceptance of parenting as core element. *Journal of Child and Family Studies*, 24, 1117–1128. doi: 10.1007/s10826-014-9920-9
- Han ZR, Ahemaitijiang N, Yan J, Hu X, Parent J, Dale C, DiMarzio K, & Singh NN (2021). Parent mindfulness, parenting, and child psychopathology in China. *Mindfulness*. 10.1007/s12671-019-01111-z
- Kabat-Zinn J (1991). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. Bantam.
- Kabat-Zinn J (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10, 144–156. doi:10.1093/clipsy.bpg016
- Kabat-Zinn M, & Kabat-Zinn J (1997). *Everyday blessings: The inner work of mindful parenting*. Hyperion.
- Keng SL, Smoski MJ, & Robins CJ (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, 31, 1041–1056. doi: 10.1016/j.cpr.2011.04.006 [PubMed: 21802619]
- Khoury B, Lecomte T, Fortin G, Masse M, Therien P, Bouchard V, Chapleau M, Paquin K, & Hofmann SG (2013). Mindfulness-based therapy: A comprehensive meta-analysis. *Clinical Psychology Review*, 33, 763–771. doi: 10.1016/j.cpr.2013.05.005 [PubMed: 23796855]
- Kiken LG, Garland EL, Bluth K, Palsson OS, & Gaylord S (2015). From a state to a trait: Trajectories of state mindfulness in meditation during intervention predict changes in trait mindfulness. *Personality and Individual Differences*, 81, 41–46. 10.1016/j.paid.2014.12.044 [PubMed: 25914434]
- Laurent HK, Duncan LG, Lightcap A, & Khan F (2017). Mindful parenting predicts mothers' and infants' hypothalamic-pituitary-adrenal activity during a dyadic stressor. *Developmental Psychology*, 53(3), 417. doi: 10.1037/dev0000258 [PubMed: 27893234]
- Lippold MA, Duncan LG, Coatsworth JD, Nix RL, & Greenberg MT (2015). Understanding how mindful parenting may be linked to mother–adolescent communication. *Journal of Youth and Adolescence*, 44(9), 1663–1673. doi: 10.1007/s10964-015-0325-x [PubMed: 26162418]

- Mackillop J, & Anderson EJ (2007). Further psychometric validation of the mindful attention awareness scale (MAAS). *Journal of Psychopathology and Behavioral Assessment*, 29, 289–293. doi: 10.1007/s10862-007-9045-1
- May LM, Reinka MA, Tipsord JM, Felver JC, & Berkman ET (2016). Parenting an early adolescent: A pilot study examining neural and relationship quality changes of a mindfulness intervention. *Mindfulness*, 7(5), 1203–1213. doi: 10.1007/s12671-016-0563-3
- McKee LG, Parent J, Zachary CR, & Forehand R (2018). Mindful parenting and emotion socialization practices: Concurrent and longitudinal associations. *Family Process*, 57, 752–766. doi: 10.1111/famp.12329 [PubMed: 29090461]
- Medeiros C, Gouveia MJ, Canavarro MC, & 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. doi: 10.1007/s12671-016-0530-z
- Meppelink R, de Bruin EI, Wanders-Mulder FH, Vennik CJ, & Bögels SM (2016). Mindful parenting training in child psychiatric settings: heightened parental mindfulness reduces parents' and children's psychopathology. *Mindfulness*, 7(3), 680–689. doi: 10.1007/s12671-016-0504-1 [PubMed: 27217845]
- Minuchin P (1985). Families and individual development: Provocations from the field of family therapy. *Child Development*, 56(2), 289–302. doi: 10.2307/1129720 [PubMed: 3886321]
- Minuchin P (1988). Relationships within the family: A systems perspective on development. In Hinde RA & Hinde JS, *Relationships within families: Mutual influences*, 7–26. Oxford University Press.
- Muthen BO (1989). Latent variable modeling in heterogeneous populations. *Psychometrika*, 54, 557–585. doi: 10.1007/BF02296397
- Muthen LK, & Muthen BO (2010). *Mplus user's guide* (6th ed.). Muthen & Muthen.
- Paolacci G, & Chandler J (2014). Inside the Turk: Understanding Mechanical Turk as a participant pool. *Current Directions in Psychological Science*, 23(3), 184–188. doi: 10.1177/0963721414531598
- Parent J, Clifton J, Forehand R, Reid M, Golub A, & Pichler ER (2014). Parental mindfulness and dyadic relationship quality in Black cohabiting stepfamilies: Associations with parenting experienced by adolescents. *Couple and Family Psychology: Research & Practice*, 3, 67–82. doi: 10.1037/cfp0000020 [PubMed: 25544936]
- Parent J, & Forehand R (2017). The Multidimensional Assessment of Parenting Scale (MAPS): Development and psychometric properties. *Journal of Child and Family Studies*, 26, 2136–2151. doi: 10.1007/s10826-017-0741-5 [PubMed: 29056840]
- Parent J, Forehand R, Pomerantz H, Peisch V, & Seehuus M (2017). Father participation in child psychopathology research. *Journal of Abnormal Child Psychology*, 45, 1259–1270. doi: 10.1007/s10802-016-0254-5 [PubMed: 28058518]
- Parent J, Garai E, Forehand R, Roland E, Potts J, Haker K, Champion JE, & Compas BE (2010). Parent mindfulness and child outcome: The roles of parent depressive symptoms and parenting. *Mindfulness*, 1, 254–264. doi: 10.1007/s12671-010-0034-1
- Parent J, McKee LG, Anton M, Gonzalez M, Jones DJ, & Forehand R (2016b). Mindfulness in parenting and coparenting. *Mindfulness*, 7(2), 504–513. doi: 10.1007/s12671-015-0485-5 [PubMed: 27087862]
- Parent J, McKee LG, Rough JN, & Forehand R (2016a). The association of parent mindfulness with parenting and youth psychopathology across three developmental stages. *Journal of Abnormal Child Psychology*, 44(1), 191–202. doi: 10.1007/s10802-015-9978-x [PubMed: 25633828]
- Schleider JL, & Weisz JR (2015). Using Mechanical Turk to study family processes and youth mental health: A test of feasibility. *Journal of Child and Family Studies*, 24(11), 3235–3246. doi: 10.1007/s10826-015-0126-6
- Seligman ME, & Csikszentmihalyi M (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5–14. doi: 10.1037/0003-066X.55.1.5
- Shapiro DN, Chandler J, & Mueller PA (2013). Using Mechanical Turk to study clinical populations. *Clinical Psychological Science*, 1(2), 213–220. doi: 10.1177/2167702612469015

- Shields A & Cicchetti D (1997). Emotion regulation among school-age children: The development and validation of a new criterion Q-sort scale. *Developmental Psychology*, 33(6), 906–916. 10.1037/0012-1649.33.6.906 [PubMed: 9383613]
- Siu AF, Ma Y, & Chui FW (2016). Maternal mindfulness and child social behavior: The mediating role of the mother-child relationship. *Mindfulness*, 7(3), 577–583. doi: 10.1007/s12671-016-0491-2
- Tak YR, Van Zundert RM, Kleinjan M, & Engels RC (2015). Mindful parenting and adolescent depressive symptoms: The few associations are moderated by adolescent gender and parental depressive symptoms. *Mindfulness*, 6(4), 812–823. 10.1007/s12671-014-0324-0
- Tomlinson ER, Yousaf O, Vittersø AD, & Jones L (2018). Dispositional mindfulness and psychological health: A systematic review. *Mindfulness*, 9(1), 23–43. 10.1007/s12671-017-0762-6 [PubMed: 29387263]
- Turpyn CC, & Chaplin TM (2016). Mindful parenting and parents' emotion expression: effects on adolescent risk behaviors. *Mindfulness*, 7(1), 246–254. doi: 10.1007/s12671-015-0440-5 [PubMed: 27087861]
- Van Dam NT, Earleywine M, & Borders A (2010). Measuring mindfulness? An item response theory analysis of the Mindful Attention Awareness Scale. *Personality and Individual Differences*, 49(7), 805–810. 10.1016/j.paid.2010.07.020

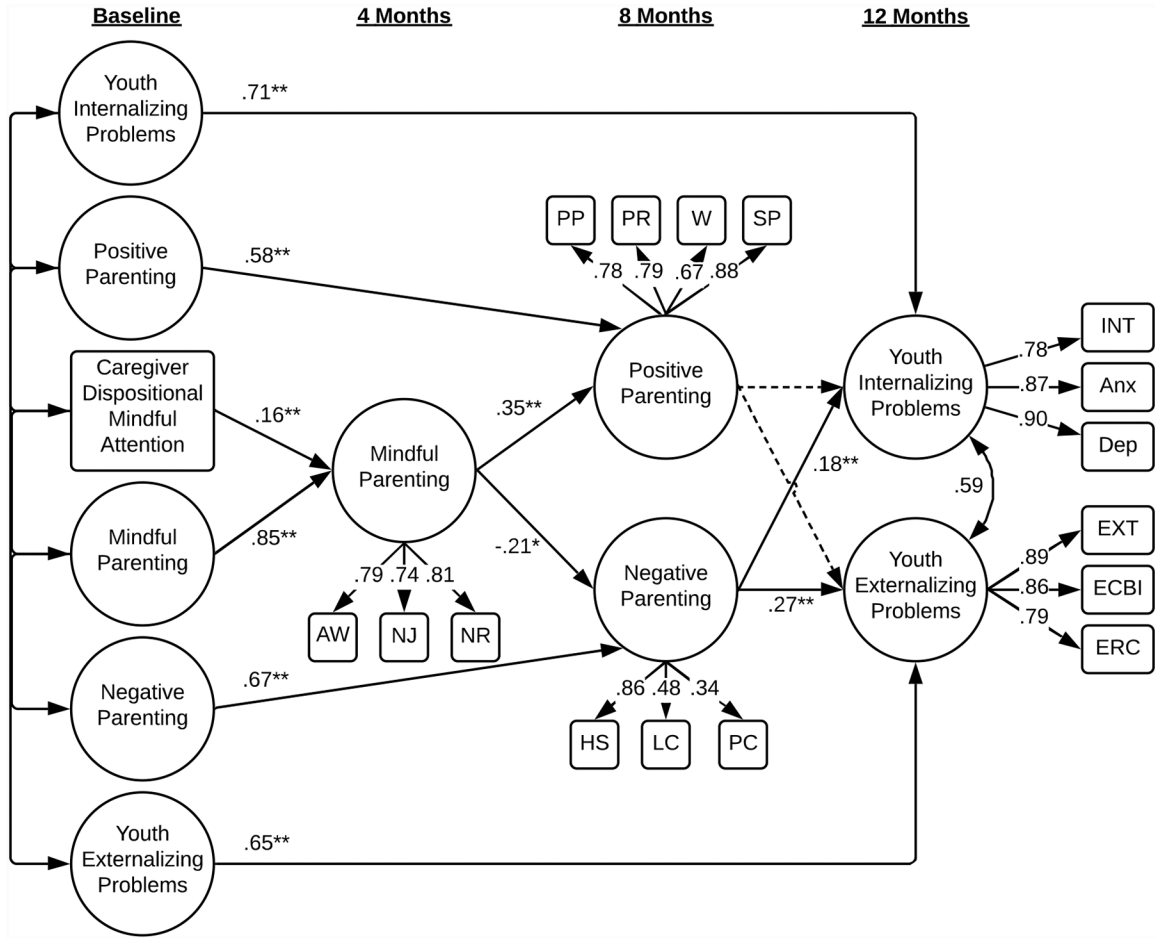


Figure 1. Final structural model with significant standardized estimates displayed
Note. PP = proactive parenting; PR = positive reinforcement; W = warmth; SP = supportiveness; HS = hostility; LC = lax control; PC = physical control; AW = awareness and parent-centered attention; NJ = non-judgmental receptivity; NR = non-reactivity; ECBI = Eyberg Child Behavior Inventory; ERC = Emotion Regulation Checklist; INT = brief problem checklist internalizing problems; EXT = brief problem checklist externalizing problems; Anx = anxiety subscale; Dep = depression subscale.

Table 1.

Measurement model

	Standardized Estimate	95 % CI
Internalizing – baseline		
BPC broadband internalizing	0.75	.69 to .81
RCADS anxiety	0.85	.80 to .90
RCADS depression	0.89	.84 to .93
Externalizing – baseline		
BPC broadband externalizing	0.87	.83 to .91
ECBI oppositional	0.88	.84 to .92
ERC negativity	0.79	.75 to .84
Mindful parenting – baseline		
IMPS awareness	0.70	.64 to .76
IMPS non-judgement	0.74	.68 to .79
IMPS non-reactive	0.74	.67 to .81
Negative parenting – baseline		
MAPS hostility	0.85	.77 to .92
MAPS lax control	0.45	.37 to .54
MAPS physical control	0.30	.20 to .39
Positive parenting – baseline		
MAPS proactive parenting	0.72	.66 to .79
MAPS positive reinforcement	0.77	.71 to .82
MAPS warmth	0.56	.49 to .63
MAPS supportiveness	0.83	.79 to .87
Mindful parenting – 4-month		
IMPS awareness	0.79	.72 to .86
IMPS non-judgement	0.72	.65 to .79
IMPS non-reactive	0.81	.75 to .87
Negative parenting – 8-month		
MAPS hostility	0.86	.78 to .95
MAPS lax control	0.48	.37 to .58
MAPS physical control	0.34	.25 to .44
Positive parenting – 8-month		
MAPS proactive parenting	0.78	.72 to .84
MAPS positive reinforcement	0.79	.72 to .85
MAPS warmth	0.67	.60 to .75
MAPS supportiveness	0.88	.84 to .92
Internalizing – 12-month		
BPC broadband internalizing	0.78	.71 to .86
RCADS anxiety	0.87	.82 to .92
RCADS depression	0.90	.85 to .94
Externalizing – 12-month		

	Standardized Estimate	95 % CI
BPC broadband externalizing	0.89	.85 to .93
ECBI oppositional	0.86	.80 to .91
ERC negativity	0.78	.74 to .84

Note: Note: BPC = Brief Problems Checklist; RCADS = Revised Child Anxiety and Depression Scale 25 – parent version; ECBI = Eyberg Child Behavior Inventory; ERC = Emotion Regulation Checklist; IMPS = Interpersonal Mindfulness in Parenting Scale; MAPS = Multidimensional Assessment of Parenting Scale

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2.

Structural model

	Standardized Estimate	95 % CI
Longitudinal Paths		
Baseline mindful parenting – 4-month mindful parenting	0.85	.76 to .94
Baseline caregiver mindfulness – 4-month mindful parenting	0.16	.06 to .27
Baseline negative parenting – 8-month negative parenting	0.67	.48 to .85
Baseline positive parenting – 8-month positive parenting	0.56	.38 to .74
Baseline negative parenting – 12-month externalizing	0.27	.12 to .41
Baseline positive parenting – 12-month externalizing	–0.01	.13 to .10
Baseline externalizing – 12-month externalizing	0.65	.52 to .77
Baseline internalizing – 12-month internalizing	0.71	.59 to .83
4-month mindful parenting – 8-month negative parenting	–0.21	.41 to .00
4-month mindful parenting – 8-month positive parenting	0.35	.18 to .51
8-month negative parenting – 12-month internalizing	0.18	.06 to .30
8-month positive parenting – 12-month internalizing	–0.01	.15 to .13
Concurrent Paths		
Baseline internalizing with baseline externalizing	0.63	.55 to .71
Baseline internalizing with baseline mindful parenting	–0.26	.36 to –.15
Baseline internalizing with baseline parental mindfulness	–0.48	.54 to –.42
Baseline internalizing with baseline negative parenting	0.57	.46 to .67
Baseline internalizing with baseline positive parenting	–0.31	.40 to –.21
Baseline mindful parenting with baseline parental mindfulness	0.43	.33 to .53
Baseline mindful parenting with baseline negative parenting	–0.58	.70 to –.46
Baseline mindful parenting with baseline positive parenting	0.80	.73 to .86
Baseline mindful parenting with baseline externalizing	–0.39	.49 to –.29
Baseline parental mindfulness with baseline negative parenting	–0.61	.69 to –.52
Baseline parental mindfulness with baseline positive parenting	0.32	.24 to .40
Baseline parental mindfulness with baseline externalizing	–0.44	.52 to –.36
Baseline negative parenting with baseline positive parenting	–0.39	.51 to –.28
Baseline negative parenting with baseline externalizing	0.69	.60 to .79
Baseline positive parenting with baseline externalizing	–0.28	.38 to –.19
Baseline internalizing with 12-month internalizing	0.41	.27 to .55
Baseline externalizing with 12-month externalizing	0.40	.24 to .56
8-month positive parenting with 8-month negative parenting	–0.16	.38 to .06
12-month internalizing with 12-month externalizing	0.59	.42 to .75