

THESIS

EXAMINING PARENTS' COGNITIVE COPING AS A MEDIATOR OR MODERATOR OF
PARENTS' TRAIT MINDFULNESS AND CHILDREN'S BEHAVIOR

Submitted by

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ABSTRACT

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Children's behavior problems, whether internalizing or externalizing, are a risk factor for later mental, emotional, and behavioral health problems, and can be seen as the onset of a negative developmental cascade for both parents and children. Parent's mindfulness has been associated with lower levels of behavior problems, though the processes by which this pathway operates have yet to be thoroughly examined, let alone in diverse populations. One pathway through which mindfulness might operate is parents' cognitive coping; mindful parents are better able to maintain present moment awareness and nonjudgment, and thus are better able to cope with the stressors of being a parent, and thereby have better behaved children. This study sought to investigate this pathway and examine patterns in coping behaviors in a sample typically excluded from research: welfare-adjacent families with elevated levels of risk. Analyses revealed that cognitive coping could be characterized by four factors: adaptive, maladaptive, positive refocusing, and self-blame. Contrary to the hypotheses of the study, the adaptive and maladaptive coping factors did not act as a mediator or moderator. However, the study did replicate findings of an association between parents' trait mindfulness and children's behavior, such that parents who are more mindful report children with fewer internalizing and externalizing problems. Limitations and implications for research and practice are discussed.

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CHAPTER 1

INTRODUCTION

Children's behavior problems, whether internalizing or externalizing, are a risk factor for later mental, emotional, and behavioral health problems. For example, conduct problems in childhood have been associated later in life with early initiation of substance use, risky sexual activity, and antisocial behavior (Conduct Problems Prevention Research Group, 2014). Behavior problems in childhood are associated with lower academic achievement (Agnafors et al., 2021), deficits in self-regulation (Holtmann et al., 2011), as well as parenting stress (Williford et al., 2007). Several studies have found evidence that behavioral problems persist over time due to a reciprocal relationship between parental stress and children's behavior (e.g., Heberle & Chazon-Cohen, 2022; Mackler et al., 2015). Therefore, child behavior problems may indicate the onset of a negative developmental cascade and understanding their etiology should be a priority for researchers. Certain characteristics of parents may better allow them to cope with the stress caused by their children's behavior problems, thus interrupting the pathway between stress and behavior problems. Parental mindfulness may be particularly beneficial as a stress-buffer. Mindfulness, or the ability to pay attention to the present moment with nonjudgment and curiosity (Kabat-Zinn, 1994), has been associated with lower rates of depression, rumination, and anxiety (Chambers et al., 2008), increased persistence when facing adversity (Collins et al., 2016), and measures of inhibition and working memory (Geronimi et

al., 2020). Studies of mindfulness in parents have provided empirical evidence of its associations with lower levels of both internalizing and externalizing behaviors in youth across developmental stages (Parent et al., 2016). Mindfulness interventions designed specifically for parents often include an outcome measure of children's behavior and report significant improvements post intervention (e.g., Jespersen et al., 2021, Mouton et al., 2018, Neece, 2014).

Despite these findings, few studies have considered the processes by which parental mindfulness and children's behavior problems are associated. Even fewer have evaluated the association in the context of high-risk families, who may be particularly vulnerable to stress (Alexander et al., 2001). One potential explanation of the association is that parents who are mindful may use more adaptive coping skills that inhibit stress from disrupting their parenting and, therefore, prevent aversive interactions between parent-child dyads leading to fewer behavior problems (e.g., the association between mindfulness and behavior problems may be mediated by parental coping). Another possibility is that adaptive styles of coping temper the association between parental mindfulness and children's behavior problems such that adaptive coping buffers against the negative effects of low levels of parental mindfulness (e.g., the association between mindfulness and behavior problems may be moderated by parental coping). Cognitive coping, or the mental strategies an individual employs after a negative event to regulate their emotions or behavior, may therefore mediate or moderate the association between parents' mindfulness and their children's behavior problems. The present study seeks to test this association as reported on baseline assessments in a population of high-risk, welfare-adjacent parents and fills a gap in the field's understanding of the processes that underlie parental mindfulness and children's behavior.

CHAPTER 2

LITERATURE REVIEW

The Benefits of Parental Mindfulness for Parents and Children

Developmental psychopathology posits that individuals are part of a larger system in which their interactions and experiences with others are fundamental to their growth, and thus their development is dependent upon multidirectional and multidimensional relationships (Baltes, 1987). Consequently, a parent and child influence one another as they age; each is an active participant in the relationship and their outcomes are linked to their interactions as well as how they intertwine with their genetics and environment. One implication of this is that the causes of behavior problems in children are plentiful and varied. An example of this bidirectional relationship is a parent's ability to self-regulate and manage stress, which directly impacts their child's developing executive function and emotion regulation (Thompson, 2015) that therefore has implications for children's behavior.

There are several models theorizing the pathway between parenting behaviors and children's outcomes. The Family Stress Model (FSM) suggests that a hardship or major stressor disrupts the family and generates pressure, leading to parental psychological distress, interpersonal problems, disrupted parenting, and ultimately, child adjustment issues (Masarik & Conger, 2017). Disrupted parenting often manifests as harsh or inconsistent caregiving, which, in a meta-analysis of 971 studies in 76 countries, was associated with both internalizing and externalizing symptoms, regardless of ethnicity (Pinquart, 2021). See Figure 1a for a visual of how these concepts are connected. Internalizing problems typically present as anxious or depressive symptoms whereas externalizing problems often involve oppositional or aggressive

behavior (Göbel et al., 2016). As such, based on the FSM, interrupting the pathway between parental stress and disrupted parenting could, in theory, prevent maladjustment.

Belsky (1984) proposed a model in which three domains are identified as major determinants of parenting behaviors, suggesting possible targets for interrupting this pathway: the parent's psychological resources, the child's characteristics, and the parent's sources of stress and support. Stressors may impact parenting directly (e.g., through needing to work additional shifts for financial reasons), or indirectly (e.g., through causing psychological distress beyond the parent's psychological resources). The model proposes a hierarchy for the importance of these influences on parenting behaviors, with the parent's personal resources as most influential, followed by contextual supports or stressors, and lastly, the child's characteristics (Belsky, 1984). Together, the FSM (Masarik & Conger, 2017) and Belsky's (1984) determinants of parenting convey that a parent's psychological resources are critical in disrupting the pathway between a stressor and its effect on parenting behaviors and child behavior problems (see Figure 1b).

Extant research points to parental mindfulness as a potential key psychological resource. Mindfulness has been associated with many benefits, among which include improved emotion regulation capabilities (de Carvalho et al., 2021), increased psychological flexibility, and reduced stress perceptions (Kinman et al., 2020). The mindfulness stress buffering hypothesis (Creswell & Lindsay, 2014) supports this logic, proposing that mindfulness and mindfulness training reduce perceptions of stress and in turn reduce the body's biological response. Mounting empirical evidence yields support for this hypothesis. Mindfulness can serve as an effective buffer against stressors both proximal, such as coping with substance use cravings (Mutumba et al., 2021) or mental fatigue from multitasking (Kudesia et al., 2022), and distal, by reducing

perceptions of and reactions to stress over time (Creswell & Lindsay, 2014). Trait mindfulness has been positively associated with numerous health behaviors, such as physical activity, healthy eating, and sleep (Sala et al., 2020) as well as improved emotional skills and empathy (Vilaverde et al., 2020). Therefore, parents with higher levels of trait mindfulness may be better at maintaining their physical and mental health as well as connecting with their children.

In addition to consistent links between parental mindfulness and their own well-being, there is evidence that greater parental trait mindfulness is related to better outcomes for their children. For instance, in a cross-sectional study of parents with children ages 3 to 17, parents' dispositional mindfulness was associated with fewer internalizing and externalizing symptoms, an association that operated indirectly through higher levels of mindful parenting and lower levels of negative parenting practices (Parent et al., 2016). These findings were replicated in another study showing that parental dispositional mindfulness was negatively associated with behavior problems through mindful parenting and positive parenting practices (Han et al., 2021). This pattern supports the logic that parents who are mindful or those who practice mindful parenting may be better equipped to regulate their own emotions and respond sensitively to the emotional cues and needs of their children (see Figure 1c). They may be less reactive to stressful situations and more likely to practice self-compassion, serving as an effective model of how to respond to life's inevitable stressors. It follows that when faced with challenging behavior from their children, mindful parents may better be able to deescalate situations rather than beginning the mutual escalation of parental stress and children's behavior problems. These parents may also be less likely to exhibit reactive parenting when faced with stressors unrelated to their child. Though these past studies are cross-sectional, they provide a strong rationale for future research into the relationship between mindfulness, parenting, and children's outcomes. Further process-

oriented research is needed to untangle how and why parental mindfulness is related to fewer behavior problems.

The Benefits of Parental Mindfulness on and Potential Role of Cognitive Coping

One process that may play a significant role in the association between parents' mindfulness and children's behavior is parental cognitive coping strategies. Broadly, an individual's cognitive appraisal of a situation influences the initiation and choice of coping efforts (Lazarus & Folkman, 1984), as well as their emotional response (Kalisch et al., 2015). By allowing individuals to remain nonjudgmental and grounded, mindfulness may allow more adaptive cognitive appraisals of stressors. There is empirical evidence to support these theoretical predictions. For example, in a longitudinal study of participants who participated in a 7-week mindfulness-based course, participants who received the mindfulness training showed increases in problem-focused coping that predicted increases in well-being, despite low levels of formal mindfulness practice (de Vibe et al., 2018). Studies of trait mindfulness have yielded similar findings. One study in adults found that awareness of the present moment was positively associated with adaptive coping strategies (Göttmann & Bechtoldt, 2021). Therefore, mindfulness may be associated with more adaptive coping as it promotes present moment awareness and nonjudgment, thereby influencing their cognitive appraisal of and response to a distressing situation (see Figure 1d).

Coping processes are not inherently good or bad and, ideally, should be evaluated within the time and context in which they occur (Folkman & Moskowitz, 2004; Kalisch et al., 2015, Lazarus & Folkman, 1984;). However coping strategies are often broadly categorized as either adaptive or maladaptive and this bifurcated terminology is frequent in the literature. For example, adaptive coping processes have been associated with lower depressive symptoms

(Almeida et al., 2021) and maladaptive coping with greater stress and less parental efficacy in parents of children with autism (Benson, 2010). Despite the logical flaws of the dichotomy, broader analysis of coping strategies beyond the specific strategy or individual subscale may be useful in determining what patterns there are across facets of coping and for which individuals. The positive appraisal style theory of resilience (PASTOR; Kalisch et al., 2015) lends support to the importance of this concept, arguing that how an individual typically responds to stress and aversive stimuli is a key influence in their resilience and mental health. Some studies have grouped subscales of coping measures into two categories and created a composite score for adaptive or maladaptive coping (e.g., Hamama-Raz et al., 2016; Salgó et al., 2021). At least one study has used confirmatory factor analysis with eight of the nine subscales on the Cognitive Emotion Regulation Questionnaire (CERQ) to identify a bifactor pattern in the data, resulting in an adaptive and maladaptive factor (de Kruijff et al., 2019). In other words, though coping is time and context dependent, individuals may have a typical response to stress that plays an important role in their resilience and mental health, and positive or adaptive styles of coping may promote parental resilience and psychological well-being, and therefore have a positive influence on children's behavior.

The Role of Parental Cognitive Coping in Children's Outcomes

Two processes by which adaptive cognitive appraisals of aversive stimuli can promote psychological well-being are by (1) reappraising or reframing situations and (2) inhibiting negative appraisals and the emotional reactions that coincide with them (Kalisch et al., 2015). The implication is that for parents, positive appraisals promote their mental health and prevent aversive parent-child interactions by inhibiting mutual escalation in times of stress. Thereby, positive parent appraisals can potentially reduce harsh parenting. PASTOR argues that positive

subjective cognitive appraisals are the proximal mediator for resilience in that cognitive appraisals precede emotional responses (Kalisch et al., 2015). That is, parental cognitive coping strategies directly influence their emotional responses to their children and thus, influence their interactions and children's outcomes for the better or worse. Dix's (1993) work on the role of parent attributions and children's development is in line with this assertion; he posits that a parent's reasoning for their children's behavior influences their interactions with them and thereby their children's view of themselves and how they should act. Relatedly, the Double ABC-X model (McCubbin & Patterson, 1983) places emphasis on how the parent's or family's understanding of events can produce or influence their experiences of events. This model suggests that as stress or negative events pile up, the family's ability to cope is influenced by their resources and their perceptions (i.e., cognitive appraisals) of the situation, and in turn, this influences how well they adapt. Therefore, it follows that parents who cope in more positive or adaptive ways should have children who exhibit fewer behavior problems as an indicator of their adaptation.

Prior empirical research supports this assertion. Studies have found evidence of an association between parents' coping strategies and children's behavior (e.g., Allostaz et al., 2022) including in dyads in which the child has attention-deficit/hyperactivity disorder (ADHD; e.g., Craig et al., 2020, Taghizade et al., 2022). Certain coping styles have been associated with reductions in mental, emotional, and behavioral symptoms whereas other coping styles were iatrogenic and increased children's internalizing symptoms (Sell et al., 2021). Recently, adaptive coping was found to moderate the association between supportive parent interactions and children's behavior problems in a sample of children with autism spectrum disorder (ASD; Allostaz et al., 2022). High levels of adaptive coping buffered against the effect of externalizing

behaviors on supportive parent reactions. In another study, parental coping strategies were a protective factor against family-related violence (Timshel et al., 2017) and other research has found that a greater parental internal locus of control (i.e., a greater sense of control over personal outcomes, including the development of their child) is associated with decreases in child behavior problems and increases in children's coping competence (Moreland et al., 2016). Taken together, these findings underline the connection between parent cognitions and child outcomes and lend support to social learning theory (Bandura, 1971) in that a parent's internal locus of control may result in them modeling appropriate coping processes which can then be employed by the child, resulting in better behavior. Figure 1e lays out the theoretical basis for the model, with key study variables outlined.

The Importance of Studying Families with Elevated Levels of Risk

It is well documented that most research happens with WEIRD (White, educated, industrialized, rich, democratic) populations, which has resulted in bias in developmental research (e.g., Henrich et al., 2010, Nielsen et al., 2017). Recruiting diverse research samples needs to be a priority for those in the field so more can be learned about the ways in which cultures and individuals differ from what has already been established in the literature as fact. For example, if findings from WEIRD populations are being incorrectly misattributed to all cultures as universal paradigms, researchers may be misunderstanding key processes, failing to investigate other key variables, or develop an intervention that has iatrogenic effects for some populations (Nielsen et al., 2017). Thus, it is crucial to expand research populations. Families with elevated levels of risk refers to families that have a high number of risk factors, such as involvement with human services, being a single-parent home or otherwise socially isolated, living in poverty, or having substance-use issues (Bang, 1995). These families have largely been

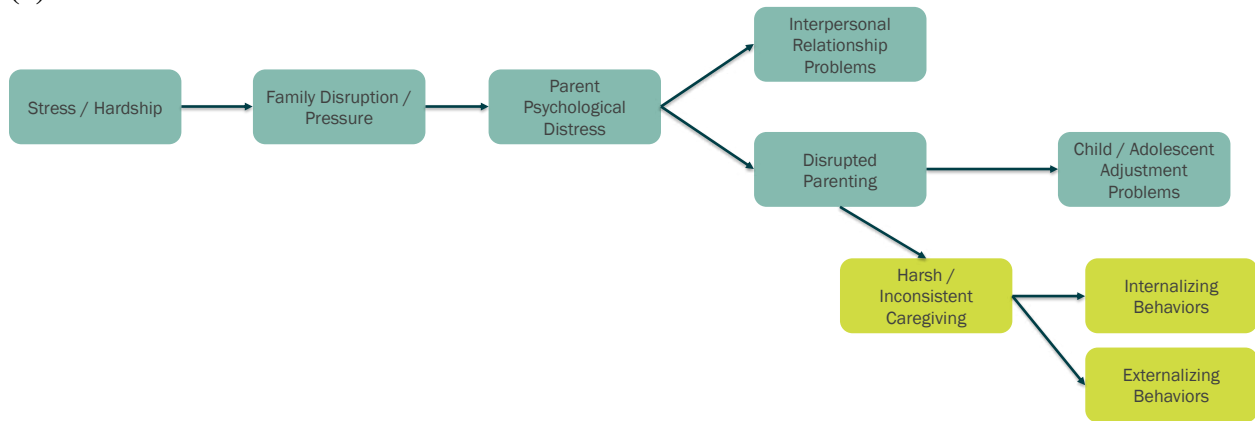
ignored in research and are at greater risk of poor outcomes such as child maltreatment (Rodriguez-Jenkins & Marcenko, 2014), intimate-partner violence (Jennings et al., 2012), and mental health problems (Deighton et al., 2019). Diverse families with elevated levels of risk may be particularly beneficial to study in that risk factors tend to be bundled together, and greater risk is associated with greater levels of stress (Alexander et al., 2001). Therefore, these populations may be particularly well-suited to benefit from mindfulness.

In summation, the literature suggests that cognitive coping may explain the association between parental mindfulness and children's behavior problems; parents who exhibit more trait mindfulness should be more likely to practice adaptive coping skills and thus, better able to handle stress experienced in parenthood. Mindful parents may be better able to maintain present-moment awareness, regulate their own emotions, and respond sensitively to the emotional cues and needs of their children. Therefore, parents who exhibit greater trait mindfulness may have more adaptive coping processes leading them to be less impacted by stress and negative events, less likely to have their parenting behaviors and parent-child interactions diminished, and more likely to report children with fewer behavior problems. Another possibility is that adaptive coping is protective and buffers against the negative effects of low mindfulness on children's behavior such that parents with low mindfulness who use more adaptive coping strategies may report fewer behavior problems than those who use more maladaptive strategies. These parents may appropriately model coping strategies that their children then employ, rather than engaging in internalizing or externalizing behaviors. Examining these associations in families with elevated risk will provide crucial insight into an under-studied population.

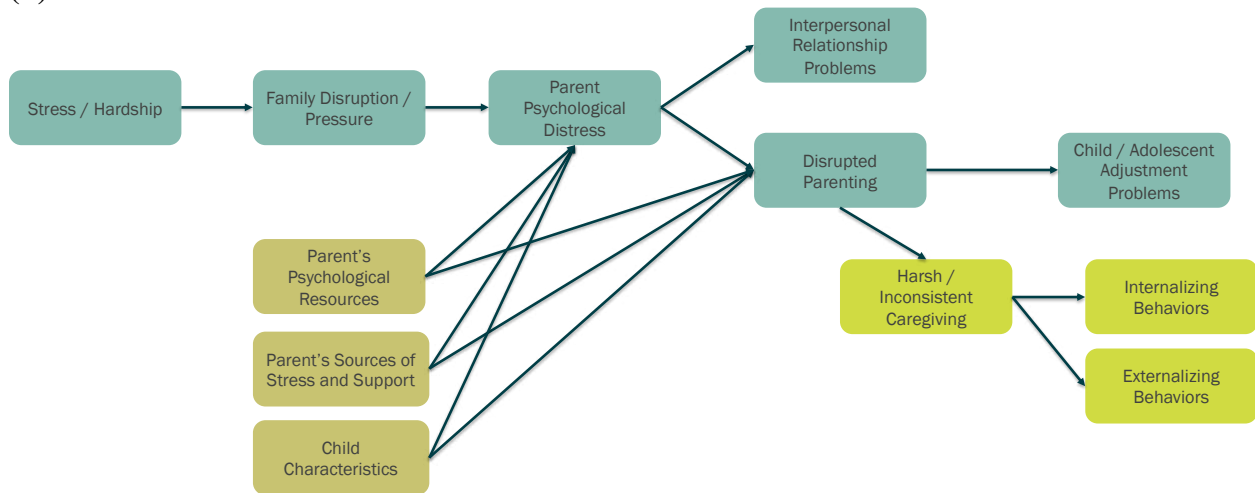
The Present Study

The present study had dual aims: (1) to test whether a bifactor model of a cognitive coping measure adequately captured parental coping, with resulting adaptive and maladaptive factors, and (2) to examine whether parents' cognitive coping acted as a mediator or moderator of the association between parents' dispositional mindfulness and children's behavior problems in families with elevated levels of risk. It was hypothesized that (a) a confirmatory factor analysis would reveal two latent factors in the data that represent adaptive coping mechanisms and the other maladaptive coping mechanisms (see Figure 2) and (b) there is a negative association between parents' trait mindfulness and children's behavior problems that is partially mediated by parents' cognitive coping strategies, with parents who are more mindful using more adaptive coping strategies and reporting children with fewer behavior problems or (c) that the association is moderated by cognitive coping, such that the association is attenuated for individuals with high levels of adaptive coping (see Figure 3). Because mindfulness is associated with present-moment engagement and awareness of one's emotions, both of which are necessary for adaptive coping, it is predicted that mindfulness precedes adaptive coping as opposed to coping preceding mindfulness. Studying these associations in high-risk families is imperative to generalize findings, as little mindfulness research has been conducted on non-White, middle-class families. These findings may benefit other high-risk populations that are vulnerable to the pernicious effects of both parental stress and children's behavior problems. Findings may also yield evidence that the patterns of stress, mindfulness, and children's behavior evinced with other populations are different in families with elevated risk.

(a)



(b)



(c)

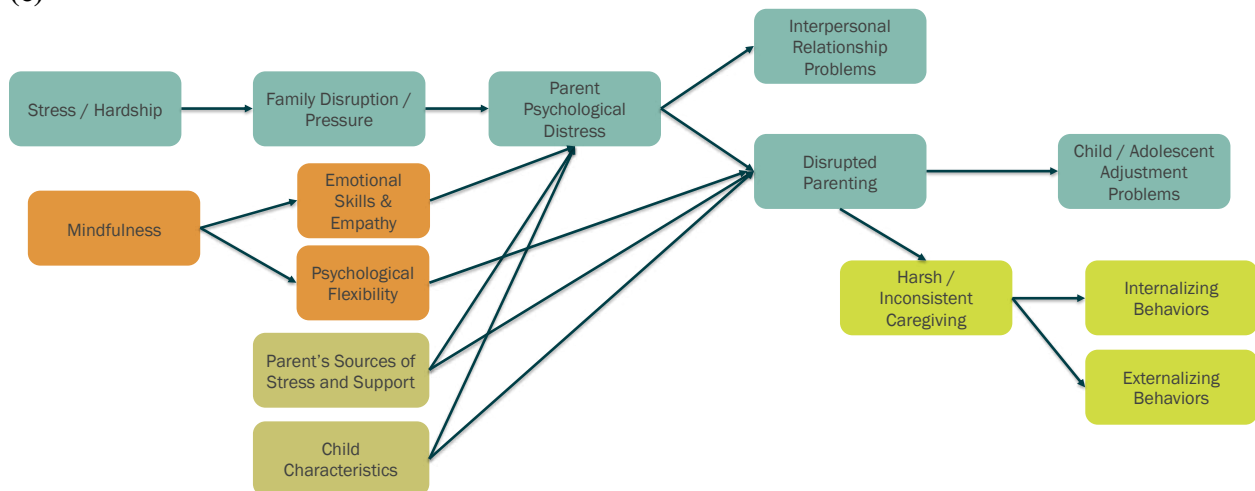
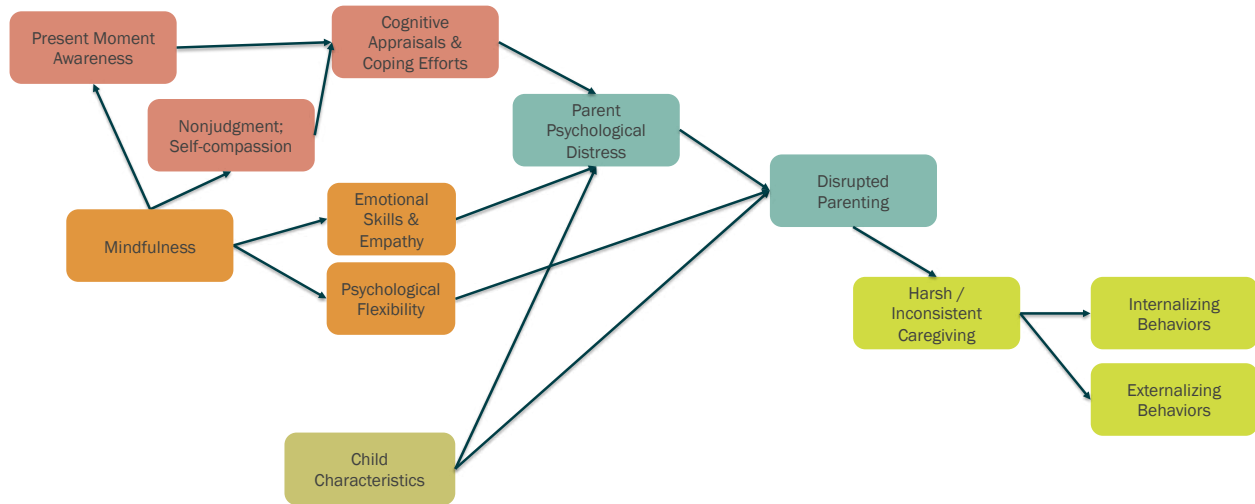


Figure 1
Theoretical Base for Analyses

(d)



(e)

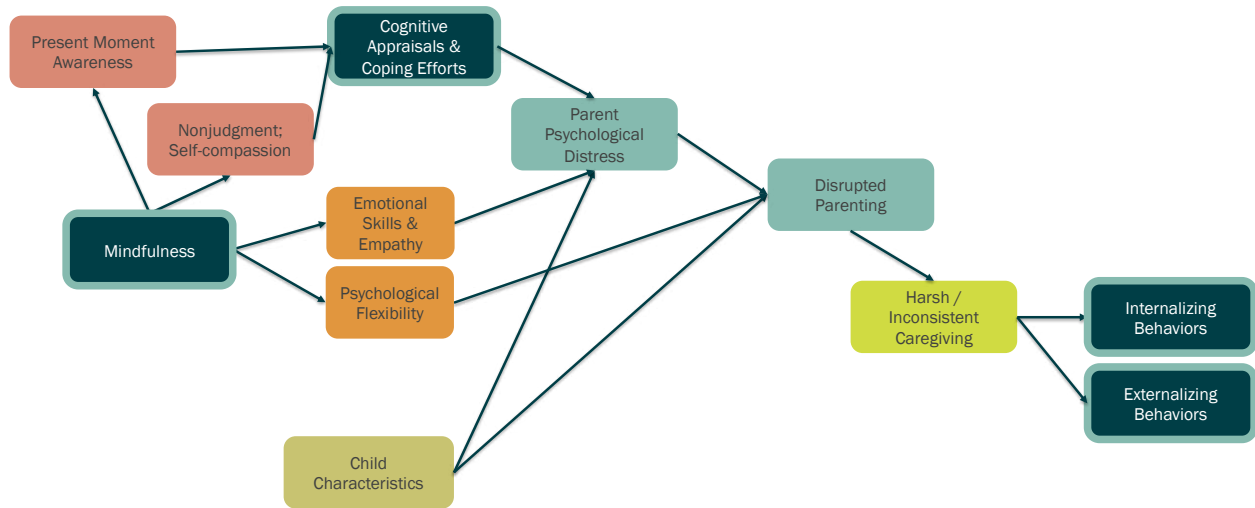


Figure 1 Continued
Theoretical Base for Analyses

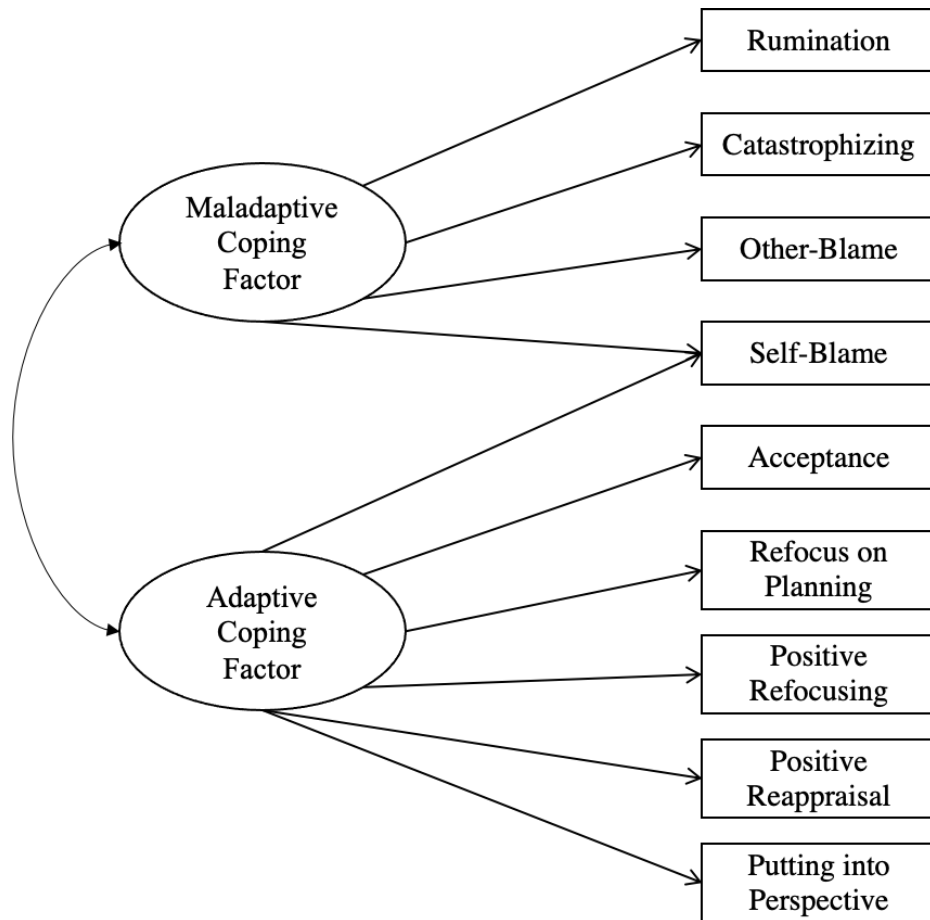


Figure 2
Conceptual Model of Confirmatory Factor Analysis

A hypothesized confirmatory factor analysis resulting from the nine subscales of the Cognitive Emotion Regulation Questionnaire (CERQ) to create two factors, one indicating maladaptive coping and the other adaptive coping.

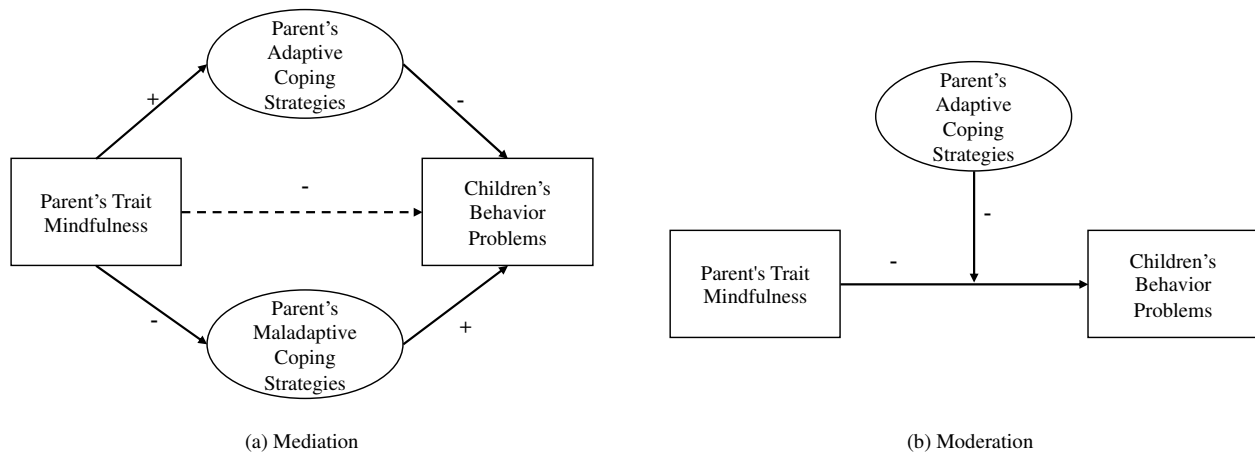


Figure 3
Hypothesized Conceptual Models of Analyses

Two models to be tested in this study: (a) a mediation model where parents who are more mindful engage with more adaptive coping and thus have children with fewer behavior problems and where parents with more maladaptive coping strategies have children with more behavior problems and (b) a moderation model where adaptive coping attenuates the association between mindfulness and children's behavior problems, so that adaptive coping buffers against the negative effects of low parental mindfulness on children's behavior

CHAPTER 3

METHOD

The data for the present study were taken from baseline assessments of participants recruited for two pilot studies completed in Northern Colorado, USA. Though eligibility and the intervention itself varied slightly between the two studies, both targeted similar populations and emphasized mindfulness and problem-solving skills. Meaningful differences between the two pilots are noted where applicable. Hereon they will be referred to as cohort 1 and cohort 2.

Participants

Participants for both cohorts were recruited using convenience purposive sampling methods with families involved with the Colorado Department of Human Services. Across the two cohorts, parents and guardians were eligible if they could speak and understand English, as both study measures and intervention materials were normed for and delivered in English. Another criterion for eligibility across both cohorts was that the parent or guardian lived with a child or had regular, weekly visitation with a child (Brown et al., 2021).

Eligibility criteria for cohort 1 included being involved with the child-welfare system (i.e., the family had been referred to or had an open case with child protective services) with evidence of substance misuse (Brown et al., 2021). Families were recruited during regular visits by child welfare caseworkers and home-visitation nurses from the health department who pitched the study to the parent or guardian. The participant then gave permission to the caseworker or nurse for the principal investigator (PI) of the study to contact them.

The research team expanded eligibility criteria for cohort 2 as a response to feedback from cohort 1, dropping the requirement of evidence of substance misuse to be more inclusive.

Like cohort 1, participants for cohort 2 were recruited through the human service system by child welfare caseworkers and home-visitation nurses.

Participant Characteristics

Across the two pilot studies, the total sample of parents was 55, with 28 participants in cohort 1 and 27 participants in cohort 2. Parents or guardians were between the ages of 21 and 53, with an average age of 30.8 ($SD=7.6$). Target children were between 0 and 16 years old, with an average age of 5.6 ($SD=4.5$). On average, families had 2.6 ($SD=1.4$) children in the home. Parent's gender was measured using a binary scale, and the sample was overly representative of females (90.9%). Most participants (63.6%) had no spouse or cohabitating partner.

The sample of parents was somewhat racially and ethnically diverse. About half of the sample (49.1%) was White, 21.8% of participants were Black or African American, and 18.2% were Latinx. A small portion of the population identified as biracial (7.3%), American Indian/Alaskan Native (1.8%), or selected "Other" (1.8%).

Notably, only about half (49.1%) of the sample was employed and a majority (71.7%) earned \$20k annually or less. Only 5.7% of participants made \$50k annually or more. Although most parents had completed high school or some college (76.4%), just 9.1% were college graduates. About 1 in 7 (14.5%) participants had less than a high school diploma. Just over half of participants (52.7%) had prior involvement with the Colorado Department of Human Services.

Procedures

The pilot studies were conducted using a pretest-posttest randomized control group design. After participants gave permission to the caseworker or home nurse to pass along their contact info to the PI (the first author of Brown et al., 2021), she contacted potential participants by phone to confirm their eligibility. Participants were made aware of the study procedure and

potential risks and benefits before giving written informed consent to participate. If eligible and interested, the PI scheduled a 2-hour visit at the participant's home or a neutral location to conduct the pre-assessment. The PI completed a psychophysiological assessment protocol and administered a battery of self-report measures described in further detail in Brown et al. (2021) and in a forthcoming paper from the authors. In families with multiple parents or guardians or multiple children, respondents were asked to choose a single target parent and target child to serve as reference points for surveys. The present study is focused on the baseline measures of parents' trait mindfulness, parents' cognitive coping strategies, and children's behavior problems.

Measures

Parent's Trait Mindfulness

Parent's trait mindfulness was measured using the *Five Facets of Mindfulness Questionnaire* (FFMQ; Baer et al., 2006), which yields a single omnibus score for trait mindfulness. Participants used a five-point Likert-type scale to report on 39 items making up five subscales (Observing/Noticing, Describing, Acting with Awareness, Non-Reactivity to Inner Experience, and Non-Judging of Inner Experience). Participant responses ranged from 1 (*never or very rarely true*) to 5 (*very often or always true*) for statements describing themselves over the past 6 weeks. Items included, "I am easily distracted," "I think before reacting under stressful situations," and "I pay attention to sensations, such as the wind in my hair or sun on my face." (Baer et al., 2006). The FFMQ has proved reliable with a Cronbach's alpha ranging from .86 to .93 and demonstrated convergent and discriminant validity (see Christopher et al., 2012). Prior analysis of the factor structure of the FFMQ indicated that four subscales (Describing, Acting with Awareness, Non-Reactivity to Inner Experience, and Non-Judging of Inner Experience)

may be combined into a global mindfulness score (Baer et al., 2006). More recent research has replicated these findings, specifying that the fifth subscale, Observing/Noticing, should only be included in composite scores of mindfulness if used in a sample of practiced meditators as there is evidence this facet does not load onto a global mindfulness score in samples of nonmeditators (Williams et al., 2014). Therefore, to account for potential differences in parents' meditation experience, a composite trait mindfulness score was used, excluding the Observing/Noticing subscale, which resulted in a functionally interval-ratio variable with higher scores indicating higher levels of trait mindfulness (Baer et al., 2006). Sensitivity analyses were conducted using a composite of all five subscales.

Parent's Cognitive Coping

Parent's cognitive coping was measured using the short version of the *Cognitive and Emotion Regulation Questionnaire* (CERQ; Garnefski & Kraaij, 2006). Participants were asked to indicate on a scale from 1 (*almost never*) to 5 (*almost always*) how they generally think after a negative or unpleasant event with items such as, "I feel that I am the one who is responsible for what has happened," and "I think I can learn something from the situation." Results include scores on nine different subscales (Self-blame, Acceptance, Rumination, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting into Perspective, Catastrophizing, and Other-blame) with no composite or total score. The CERQ has demonstrated strong internal consistency, with Cronbach's alpha for the subscales on the short form ranging from .62 to .85 (Garnefski & Kraaij, 2006). In line with the study's first aim, a confirmatory factor analysis of the data was computed to test whether two latent factors, broadly representing adaptive and maladaptive coping, are an appropriate structure for the data (as modeled in Figure 2). Follow-up

exploratory analyses were conducted following poor initial model fit, and the resulting latent factor solution was used in the mediation and moderation analyses.

Children's Behavior

The Achenbach System of Empirically Based Assessments (ASEBA) was designed to detect emotional and behavioral problems in children and adolescents using multiple informants (Achenbach & Rescorla, 2000, 2001). The *Child Behavior Checklist* (CBCL), a single component of the ASEBA, is completed using parent self-report with versions for different ages. This study utilized the preschool forms for children aged 0-5 years old and the school aged forms for children aged 6-18. Both forms asked parents to rate the degree (0=*not true*, 1=*sometimes true*, 2=*very true*) to which a statement (i.e., “demands a lot of attention,” “feels worthless or inferior,” “threatens people”) best describes their children’s emotions or behaviors. The preschool form consists of 99 items and focuses on the child’s behavior now or in the past 2 months whereas the school-age form consists of 112 items assessing the child’s behavior now or in the past 6 months (Achenbach & Rescorla, 2000). The CBCL has strong reliability; test-retest reliability for total problems was very high at .94 and Cronbach’s alpha for total problems was .97 (Achenbach & Rescorla, 2001). Various subscales can be derived from the form, though this study utilized the composite score for total behavior problems. Total behavior problems are positively correlated with clinical diagnoses (Achenbach & Rescorla, 2000, 2001) and may be a better representation of the parent’s perceptions of their children’s behavior than a specific subscale. The score for total problems, encompassing both internalizing and externalizing problems, was calculated by summing all items of the CBCL, with higher scores indicating more parent-reported behavior problems.

Covariates

Considering these are multifaceted constructs that operate within complex family systems, it is imperative to consider covariates in the statistical analyses. Two covariates are of particular interest in this study: socio-economic status (SES) and child's gender. Low SES has been associated with higher levels of chronic stress and prevalence of mental health problems (Baum et al., 1999), both of which may have an impact on the study's conceptual model. For this study, SES was measured using a composite variable consisting of household income (measured on a scale from 0=*Less than \$15,000* to 8=*\$75,000 or more*), parent's occupational status (a binary variable), and parent's education level (measured on a scale from 0=*less than high school* to 5=*post-graduate*). Each item was scaled, and an average was taken of all three with higher values indicating higher SES. Including the child's gender as a covariate is necessary given that behavior problems often vary by gender (Marçal, 2020). Gender was reported by parents using a binary scale.

Data Analysis

All data analyses were conducted using R Statistical Software (v4.0.2; R Core Team, 2022). In examining the data, I first assessed if the data met the assumptions of structural equation modeling (SEM) and then conducted a test of sphericity on the CERQ data to determine if it was appropriate for factor analysis. A correlated two-factor confirmatory factor analysis (CFA) using reference variable constraints was specified using the CERQ subscales as indicated in Figure 2. Follow-up exploratory factor analyses (EFA) were conducted to determine the underlying data structure following the poor fit of the CFA. Both a scree plot and direct model comparisons using fit statistics were used to select an appropriate model.

Atemporal mediation and moderation analyses were conducted using the resulting latent factors in SEM in R (R Core Team, 2022). Initial screening indicated some deviations from multivariate normality (i.e., the data violated the skewness assumption of Mardia's test), and as such each model was computed with 500 bootstraps. For mediation, all paths were simultaneously estimated. The model included parents' trait mindfulness as an exogenous variable, parents' cognitive coping as a latent mediator, and children's behavior problems as an endogenous variable. Child's gender and family SES were included in the model as covariates. For moderation analysis, double-mean-centering (DMC) was used to create multiplicative interaction terms to test moderation in a method similar to multiple regression. Because the moderator variable was continuous, this was preferable over multigroup analysis. The model was fit following the technique outlined by Lin et al., 2010, such that a model was first fit and examined without interaction term. The same exogenous variables, endogenous variables, and covariates were included in the moderation model. Significant interaction terms were investigated with simple slopes testing. In line with the new statistics (Cumming, 2014), Cohen's f^2 effect sizes were calculated from r^2 and bootstrapped confidence intervals using lavaan (Rosseel, 2012) were examined to consider significance beyond p -values.

CHAPTER 4

RESULTS

Initial Data Screening

To ensure the data met the assumptions of SEM, data were screened for multivariate normality, evidence of a linear relationship, and potential outliers. The QuantPsyc package was used (v1.6; Fletcher, 2022) to compute Mardia's test, which indicated the data violated the assumption of skewness ($p = .03$) and thus was nonnormal. To evaluate if there was evidence of a linear relationship, a bivariate correlation was computed between parent's mindfulness and children's behavior problems that indicated that these variables were moderately correlated ($r(46) = -.30, p = .04$). A visual inspection of boxplots from base R (R Core Team, 2022) and Grubbs' test done via the outliers package (v.0.15; Komsta, 2022) indicated there were no outliers in the data. There was no evidence of range restriction in the variables of interest, a potential problem when working with a nonrandom sample (Sackett & Yang, 2000). Descriptive statistics for observed study variables are in Table 1.

Table 1

Descriptive Statistics for Key Observed Study Variables

Variable	<i>M</i>	<i>SD</i>	<i>Range</i>
Parent's Age	30.78	7.56	21-53
Child's Age	5.65	4.49	0-16
Parent's Mindfulness	92.31	10.73	68-115
Children's Behavior Problems	63.25	10.09	38-83
Family SES	0.02	0.68	-1.22-1.67

Factor Analysis

Additional screening indicated the CERQ data were adequate for factor analyses. The Kaiser, Meyer, Olkin (KMO) measure of sampling adequacy was sufficient ($KMO = .061$), and Bartlett's test of sphericity suggested there was sufficient significant correlation in the data for factor analysis ($\chi^2 (153) = 393.66, p < .001$). Both tests were computed using the parameters package (v0.18.1; Lüdtke et al., 2020) in R (R Core Team, 2022).

Confirmatory Factor Analysis

Data from two participants were excluded due to missingness, and thus 53 participants were included in the analysis. The correlated confirmatory factor analysis was conducted as hypothesized (see Figure 2) with two latent constructs: (a) adaptive coping, as indicated by the items on the subscales self-blame, acceptance, refocus on planning, positive refocusing, positive reappraisal, and putting into perspective; and (b) maladaptive coping, as indicated by items on the self-blame, other-blame, catastrophizing, and rumination subscales. Self-blame was dually loaded on both factors. Fit criteria were evaluated using goodness-of-fit indices as recommended by Hu and Bentler (1999). Initial fit was poor ($\chi^2 (132) = 278.71, CFI=.53, RMSEA=.15[.12,.17], SRMR=.14$) and approximately half of the standardized loadings were less than satisfactory ($< .35$). The two factors were allowed to correlate in the model but were not at all correlated ($r^2 = .02$).

Exploratory Factor Analysis

To examine the underlying structure of the data, an EFA was conducted following the poor fit of the CFA. Initial communalities were moderate (all but two items $> .4$). A scree plot using base R indicated three to five factors whereas a parallel analysis using the psych package (v2.2.9; Revelle, 2022) suggested three factors was the best fit. Three EFAs were computed

using maximum likelihood (ML) to compare the fit with three to five factors. Analyses indicated that four factors were a marginal yet significant improvement over three ($\Delta TLI=.09$, $\Delta RMSEA=.04$, $p=.01$), and that a five-factor solution was marginally better than four ($\Delta TLI=.06$, $\Delta RMSEA=.04$), but not significantly so ($p=.08$). Therefore, to maximize parsimony and interpretability, the four-factor solution was selected and an oblimin rotation ($\gamma = 0$) was applied to allow the factors to correlate using the GPARotation package (v2023.3.1; Bernaards & Jennrich, 2005).

The resulting model ($\chi^2 (87) = 94.7$, $CFI=.96$, $RMSEA=.04[0,.09]$, $SRMR=.06$) was partially consistent with what was originally hypothesized; there were two factors indicative of a generally adaptive and generally maladaptive cognitive coping strategies, and two factors that matched the CERQ subscales self-blame and positive refocusing. One item did not load strongly (i.e., $\geq .4$) onto any factor (“You think that you have to accept that this negative situation has happened”) from the Acceptance subscale. The four factors were weakly correlated (all $\leq .27$), and the mean complexity index was 1.6; thus, they appear to represent discrete constructs. See Table 2 for the resulting factor loadings and Table 3 for inter-factor correlations. I then computed a measurement model using the two factors indicative of the constructs initially hypothesized: (1) maladaptive and (2) adaptive cognitive coping, loading only the four strongest items (see annotations in Table 2) given the latent variables were overidentified. The fit for the measurement model was good ($\chi^2 (19) = 25.85$, $CFI=.94$, $RMSEA=.08[0,.16]$, $SRMR=.09$).

Mediation

The lavaan package (v0.6.12; Rosseel, 2012) was used for all SEM analyses testing mediation and moderation. A parallel mediation was conducted with parent’s trait mindfulness as an exogenous variable, children’s behavior problems as an endogenous variable, and the

Table 2*Item-Factor Loadings from Exploratory Factor Analysis*

<i>Subscale</i> Survey item	Factors			
	1	2	3	4
<i>Self-Blame</i>				
You feel that you're the one who is responsible for what happened	.00	.05	1.00	.05
You think that basically the cause must lie within yourself	.07	-.03	.73	-.15
<i>Acceptance</i>				
You think that you have to accept that this negative situation has happened. ^a	.18	.19	.14	.12
You think that you have to accept the situation. ^b	.13	.53	.34	-.06
<i>Focus on thought/Rumination</i>				
You often think about how you feel about what you have experienced.	.49	.07	.08	.22
You're preoccupied with what you think and feel about what you have experienced. ^c	.63	-.26	.13	.11
<i>Positive Refocusing</i>				
You think of pleasant things that have nothing to do with it.	-.01	.01	.02	.90
You think of something nice instead of what has happened.	.05	-.01	-.12	.64
<i>Refocus on Planning</i>				
You think about how to change the situation.	.26	.40	.13	.25
You think about a plan of what you can do best. ^b	.08	.63	.04	-.02
<i>Positive Reappraisal</i>				
You think you can learn something from the situation. ^b	-.05	.84	.04	.00
You think you can become a stronger person as a result of what has happened. ^b	.00	.76	-.07	.04
<i>Putting into Perspective</i>				
You think it hasn't been too bad compared to other things.	-.43	.17	.15	.29
You tell yourself there are worse things in life.	-.21	.47	-.11	.14
<i>Catastrophizing</i>				
You keep thinking about how terrible it is what you have experienced. ^c	.68	-.05	.22	.07
You continually think how horrible the situation has been. ^c	.71	-.06	.23	-.20
<i>Other-Blame</i>				
You feel that others are responsible for what has happened. ^c	.76	.20	-.39	-.05
You feel that basically the cause lies with others	.57	.14	-.04	.03

^a Item did not load strongly onto any factor; ^b Item included in Adaptive coping latent variable;^c Item included in Maladaptive coping latent variable.

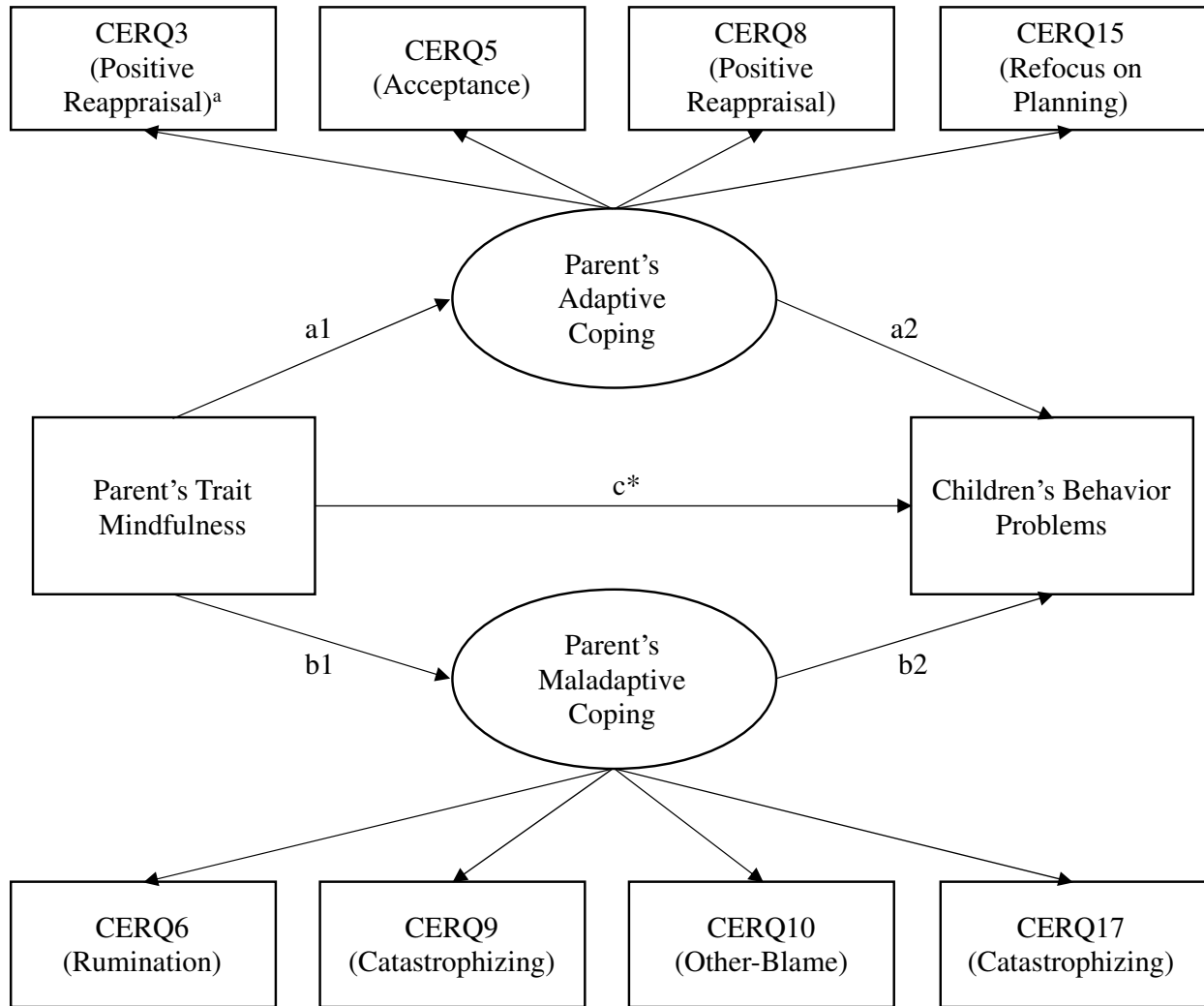
Table 3
Inter-Factor Correlations

Factors	1	2	3	4
1: Generally Maladaptive	1.00			
2: Generally Adaptive	.10	1.00		
3: Self-Blame	.09	-.07	1.00	
4: Positive Refocusing	-.15	.27	.01	1.00

measurement model with the two latent factors of adaptive and maladaptive coping as the mediator, as specified in Figure 4. Child's gender and the composite SES variable were included as covariates in the model. Model fit was good ($\chi^2(50) = 55.06$, $CFI=.96$, $RMSEA=.04[0,.10]$, $SRMR=.09$) with 500 bootstraps; however, neither of the mediation pathways of interest to the study were significant (see Table 4). Mindfulness was not predictive of adaptive coping ($p=.77$, $f^2<.01$) or maladaptive coping ($p=.16$, $f^2=.10$). Similarly, neither adaptive ($p=.23$, $f^2=.05$) nor maladaptive ($p=.94$, $f^2<.01$) coping were predictive of children's behavior problems. Despite the lack of statistical significance, some of the effect size estimates of model pathways were small-to-medium per Cohen's (1992) guidelines. The total effect of parents' trait mindfulness on children's behavior problems was statistically significant in models that did and did not include covariates, as well as in the sensitivity analyses that included the composite of all five subscales of the FFMQ in each model; there was a strong association between parents' trait mindfulness and children's behavior problems ($f^2 = .15$). Parents who reported greater levels of trait mindfulness reported that their children had fewer total behavior problems.

In additional follow-up exploratory analysis, all four factors from the EFA (adaptive, maladaptive, positive refocusing, self-blame) were included in the mediation model and estimated simultaneously. Results were as above. The model fit was adequate ($\chi^2(96) = 128.83$,

$CFI=.92$, $RMSEA=.08[.04,.11]$, $SRMR=.11$), however only the total effect of mindfulness on children's behavior was statistically significant, and almost all indirect pathways had high p-values (i.e., all but one $>.15$). The pathway from self-blame to children's behavior neared significance ($p=.06$, $f^2=.13$) and the effect size indicates a potential avenue for future research.



^aNumber refers to the survey item number on the CERQ; subscale in parentheses

* $p<.05$

Figure 4

Atemporal Parallel Mediation between Parent's Mindfulness and Children's Behavior

A parallel mediation model with parents' adaptive and maladaptive coping measured as a latent variable with four indicators from a cognitive coping measure. The only significant pathway is that from parents' mindfulness to children's behavior problems, such that parents who are more mindful report fewer behavior problems with their children.

Table 4*Defined Mediation Model Parameters*

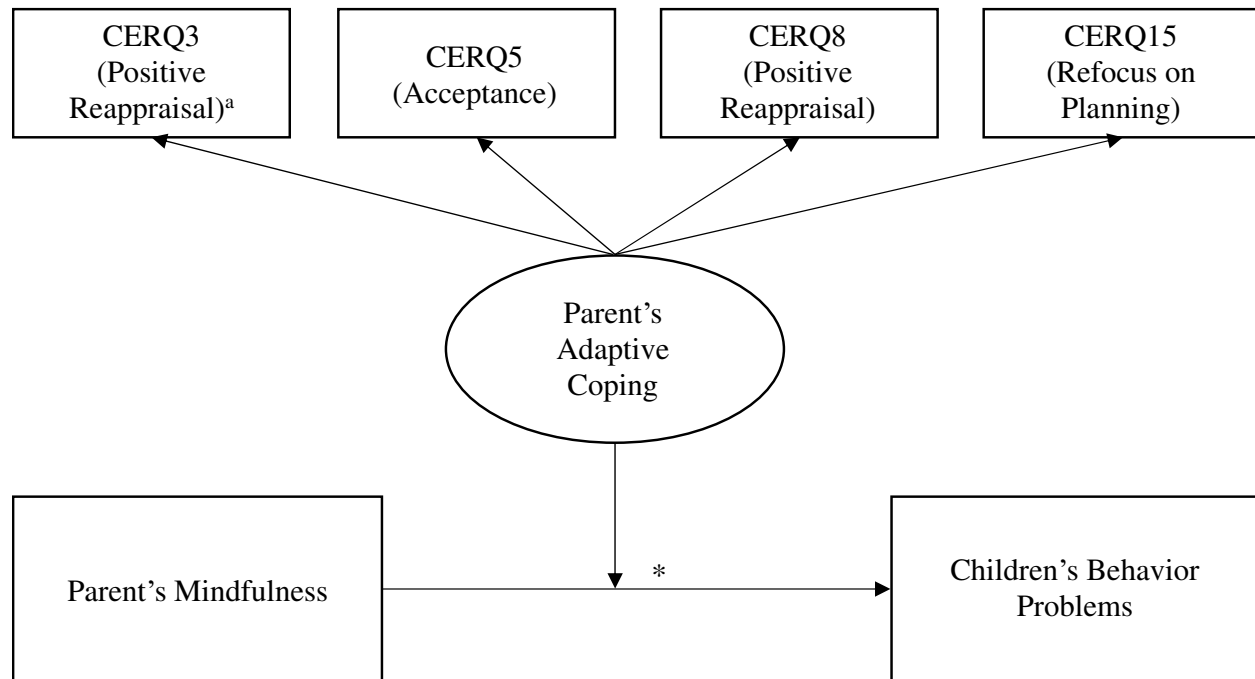
Predictors & Outcomes	<i>b</i>	<i>95% CI</i>	<i>SE</i>	<i>z</i>	<i>P</i> ($> z $)	<i>f</i> ²
Mindfulness → Adaptive (a1)	<0.01	-0.02, 0.02	0.01	0.29	.77	<.01
Mindfulness → Maladaptive (b1)	0.02	-0.01, 0.05	0.02	1.40	.16	.10
Adaptive → Child Behavior (a2)	-3.85	-9.74, 2.75	3.19	-1.21	.23	.05
Maladaptive → Child Behavior (b2)	-0.26	-5.96, 6.73	3.24	-0.08	.94	<.01
Child Gender → Child Behavior	4.53	-1.71, 10.65	3.15	1.44	.15	.24
Family SES → Child Behavior	-2.96	-7.88, 2.12	2.55	-1.16	.25	.09
Total Pathways	<i>b</i>	<i>95% CI</i>	<i>SE</i>	<i>z</i>	<i>P</i> ($> z $)	<i>f</i> ²
Adaptive Coping (a1b1)	-0.01	-0.11, 0.09	0.04	-0.27	.79	<.01
Maladaptive Coping (a2b2)	<- 0.01	-0.15, 0.16	0.07	-0.06	.95	<.01
Total Effect (c)	-0.35	0.06, 0.63	0.14	2.43	.02	.15

Note: Cohen's f^2 is a measure of local effect size (i.e., one variable's or pathway's effect) within a multivariate model. Guidelines indicate that .02 is a small effect, .15 is a medium effect, and .35 is large effect (Cohen, 1992).

Moderation

For the moderation analyses, indicator and interaction variables were double-mean-centered using the IndProd function of SEMtools (v0.5.6, Jorgensen et al., 2022). Following the good fit of the initial model ($\chi^2(8) = 5.60$, $CFI=.94$, $RMSEA=.06[0,.12]$, $SRMR=.05$), the double-mean-centered interaction terms were added to the model. The model included the same exogenous and endogenous variable as the mediation analyses, however, as hypothesized, only the latent factor for adaptive coping was included in the model as the moderator (see Figure 5). Despite good model fit ($\chi^2(43) = 55.74$, $CFI=.92$, $RMSEA=.08[0,.13]$, $SRMR=.09$), the interaction term of adaptive coping X mindfulness was nonsignificant ($p=.14$, $f^2=.05$) but with a small-to-medium effect size. As in the mediation models, the association between parents'

mindfulness and children's behavior was significant with a large effect ($f^2 = .23$) both before and after covariates were included and in sensitivity analyses. Greater mindfulness was associated with fewer child behavior problems. Moderation parameter estimates are in Table 5.



^aNumber refers to the survey item number on the CERQ; subscale in parentheses

* $p < .05$

Figure 5
Moderation Analysis

A moderation model with parents' adaptive coping indicated by a latent variable with four indicators from a cognitive coping measure. The only significant pathway is that from parents' mindfulness to children's behavior problems, such that parents who are more mindful report fewer behavior problems with their children.

Table 5
Defined Moderation Model Parameters

Predictor of Behavior	<i>b</i>	95% <i>CI</i>	<i>SE</i>	<i>z</i>	<i>P</i> ($> z $)	<i>f</i> ²
Parent's Mindfulness	-0.41	0.07, 0.75	0.17	2.37	.02	.23
Parent's Adaptive Coping	-2.73	-8.69, 3.85	3.20	-0.85	.39	.03
Mindfulness X Coping	-0.50	-1.29, 0.03	0.34	-1.49	.14	.05
Child Gender	5.02	-1.90, 10.98	3.29	1.53	.13	.06
Family SES	-2.80	-7.95, 2.17	2.58	-1.08	.28	.03

Note: Cohen's *f*² is a measure of local effect size (i.e., one variable's or pathway's effect) within a multivariate model. Guidelines indicate that .02 is a small effect, .15 is a medium effect, and .35 is large effect (Cohen, 1992)

CHAPTER 5

DISCUSSION

This study sought to test a pathway between parents' mindfulness and children's behavior problems to provide insight into how mindfulness might bolster family functioning for adults and children and provide information about the potential utility of targeting cognitive coping in the future. It was hypothesized that (a) a bifactor model, generally representing adaptive and maladaptive coping, would be a good fit for parent's cognitive coping strategies (as in Figure 2), (b) there is a negative association between parents' trait mindfulness and children's behavior problems that is partially mediated by parents' cognitive coping strategies, such that parents who are more mindful use more adaptive coping strategies and report children with fewer behavior problems, or (c) the association is moderated by cognitive coping such that the association is attenuated for individuals with high levels of adaptive coping (as in Figure 3).

The study's first hypothesis was partially supported. A factor analysis of the cognitive coping data revealed a four-factor (rather than two-factor) solution best fit the data. Two of the factors were as hypothesized (i.e., adaptive and maladaptive) and two were identical to two subscales of the measure (i.e., positive refocusing and self-blame). These findings provide limited support for PASTOR (Kalisch et al., 2015) in that there were some general patterns across which parents employed coping strategies. However, given the strong theory supporting coping as situation and resource dependent, further research would benefit from evaluating other measures of coping, perhaps including vignettes or ecological-momentary assessments (EMAs; Folkman & Moskowitz, 2004). Using EMAs may be especially advantageous in that they do not rely on retrospective recall and can include questions beyond coping strategies related to present-

moment emotions as well as demands and resources, which may influence the choice of coping efforts.

There was no evidence to support the study's second and third hypotheses that parents' cognitive coping mediated or moderated the association between parents' mindfulness and parent-reported children behavior problems. Parents' mindfulness did not predict coping and coping did not predict perceptions of children's behavior. Prior research indicated that trait mindfulness had been associated with problem-focused (de Vibe et al., 2018) and adaptive coping strategies (Göttman & Bechtoldt, 2021), but that finding was not replicated here. In fact, the effect size estimates indicated that mindfulness was more predictive of maladaptive rather than adaptive coping, though neither association was statistically significant. This was unanticipated, as mindfulness and cognitive coping strategies both seem to be related to a parent's cognitions and their ability to remain present and nonjudgmental. This may be because trait mindfulness is more embodied and stable whereas coping strategies are time, resource, and situation dependent (Folkman & Moskowitz, 2005) and thus, measures may be more prone to day-to-day measurement variability. Surveys from a single timepoint may be best suited for trait or stable characteristics, and momentary assessments may be superior for state measures.

The pathways to child behavior problems from adaptive and maladaptive coping were also nonsignificant, which was unexpected given past literature (e.g., Alostaz et al., 2022). The effect size estimates provide some empirical support for PASTOR (Kalisch et al., 2015), the Double ABC-X model (McCubbin & Patterson, 1983), and Dix's parent attribution research (1993) in that parents' adaptive coping strategies had a small-to-medium effect on perceptions of children's behavior such that more adaptive cognitive coping was associated with better perceptions of children's behavior problems (i.e., fewer parent-reported behavior problems). This

is in line with past research that uncovered associations between parental internal locus of control and child behavior problems (Moreland et al., 2016); parents who can think positively about challenging situations and view themselves as capable of handling challenges perceive their children to have better behavior. These parents may better be able to reframe their children's challenging behavior as developmentally appropriate or perhaps buffer their parenting practices against the deleterious effects of stress.

Results from the moderation analyses echoed the mediation analyses. The model had good fit; however, the hypothesized pathway was nonsignificant. Parent's adaptive coping had a small effect on children's behavior, as did the interaction of mindfulness X coping. This is somewhat in line with prior research that had established adaptive coping as a moderator between supportive parent interactions and child behavior problems (Alostaz et al., 2022), and the effect size found in this study for mindfulness X coping ($f^2=.05$) indicates this path may be significant in a larger sample. Future research should consider whether adaptive coping is protective for families as seen in Timshel et al. (2017).

In all models, the association between parents' mindfulness and children's behavior problems was statistically significant, thus replicating a pattern seen in WEIRD populations (e.g., Parent et al., 2016) with a more diverse sample. This was anticipated due to the vast literature base demonstrating the positive benefits of mindfulness on stress-buffering and emotion regulation (e.g., Creswell & Lindsay, 2014; de Carvalho et al., 2021, Kinman et al., 2020). However, by replicating this finding in a sample of families with elevated risk, this study underscores the importance of mindfulness as a skill in diverse populations. This finding further supports the intertwining of Belsky's (1984) determinants of parenting and the FSM (Figure 1b; Masarik & Conger, 2017) such that parents with greater mindfulness (i.e., psychological

resources) perceived their children to be better behaved, potentially due to their ability to buffer against psychological distress. Given the findings that utilized the cognitive coping strategy measure were nonsignificant, this study suggests that the process by which mindfulness is associated with perceptions of children's behavior may not be cognitive coping, though replication with a larger sample is needed to rule out this pathway. An alternative explanation for the association is that it is not mindful parents who perceive their children to have fewer behavior problems, but an evocative effect where parents who perceive their children to have many behavior problems are unable to be mindful. To bolster the existing evidence that has established there is a reciprocal relationship between stress and children's behavior (Heberle & Chazon-Cohen, 2022, Mackler et al., 2015), longitudinal studies will need to be conducted to determine the etiology of the relation.

The study has important implications for both research and practice. Researchers should continue to probe family-level relationships to determine how a parent's mindfulness benefits their children and potentially other family members. Interventions that target parental mindfulness may be a means to improve children's behavior (and perhaps overall family functioning) in families with elevated levels of risk. Given that mindfulness interventions are often low cost and can be delivered flexibly, they may be an ideal intervention strategy for those planning to serve under-resourced communities. Mindfulness interventions have been used effectively with parents for intervention (Burgdorf et al., 2019) and prevention (Jespersen et al., 2021), with clinical and nonclinical populations (Shorey & Ng, 2021) and welfare-adjacent families (Brown et al., 2021). Though the study did not find support for the theorized model (Figure 1e), other pathways in the model should be investigated as it is still unclear as to how parents' mindfulness promotes children's behavior. With the medium-to-large effect that

parents' self-blame had on perceptions of children's behavior ($f^2=.13$), it may be a promising direction for additional research.

Limitations

The study has several limitations, few of which could be remedied through secondary data analysis. The sample was recruited using convenience purposive sampling, and thus was inherently nonrandom. Further, the overall the sample size was small given the complexity of the models computed, which were presumably underpowered. Some have argued that small samples are adequate for factor analyses when initial communalities are high (i.e., $>.7$) and when the factors are well-determined (i.e., 4-5 items per factor; MacCallum et al., 1999). However, initial communalities in the dataset were moderate at best (all but two $>.4$), even though each factor was well-determined (i.e., 4 items per factor). Therefore, the factor analysis should be replicated in a larger sample. With a small sample size and computed effect size estimates, it is likely that models were underpowered and replication with a larger sample would provide further insight into the ways in which parents' mindfulness and coping strategies are associated with their perceptions of children's behavior. A further limitation of the selected methods is that SEM assumes a linear relation, and it's possible that the relation is nonlinear.

A key weakness of the study is that all the variables used were taken from parent-report measures at a single timepoint. Thus, no causal claims can be derived about the direction of the association between mindfulness and children's behavior (Winer et al., 2016), and common-method variance may be at play. Further studies of the association between parent mindfulness and children's behavior would benefit from (a) longitudinal designs, (b) including observations of children's behavior, and (c) multiple informants or biomarker data rather than a single parent report. These changes in study design would allow researchers to truly test mediation hypotheses

and other third variables to determine the processes by which parental mindfulness results in better-behaved children.

Conclusion

Despite prior evidence establishing the association between parent's mindfulness and children's internalizing and externalizing behaviors (Parent et al., 2016), there have been few investigations into the processes by which this occurs. This study sought to determine if parental cognitive coping could be broadly categorized as adaptive and maladaptive and whether it served as a mediator or moderator in the association between parental mindfulness and children's behavior problems. Though cognitive coping included an adaptive and maladaptive factor, it also included factors of self-blame and positive refocusing. Cognitive coping did not mediate or moderate the association. However, findings of an association between parents' mindfulness and children's behavior were replicated in a sample of families with elevated levels of risk. Therefore, mindfulness is an important characteristic or intervention strategy that should be promoted in populations with elevated risk to best promote family functioning and perceptions of children's behavior. Future studies should consider other measures of coping, such as ecological-momentary assessments, and alternative pathways by which mindfulness may act upon children's behavior.

REFERENECEES

- Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA Preschool Forms & Profiles*. University of Vermont, Research Center for Children, Youth, & Families.
- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA School-Age Forms & Profiles*. University of Vermont, Research Center for Children, Youth, & Families.
- Agnafors, S., Barmark, M., & Sydsjö, G. (2021). Mental health and academic performance: A study on selection and causation effects from childhood to early adulthood. *Social Psychiatry and Psychiatric Epidemiology*, 56(5), 857–866.
<https://doi.org/10.1007/s00127-020-01934-5>
- Alexander, K. L., Entwisle, D. R., & Kabbani, N. S. (2001). The dropout process in life course perspective: Early risk factors at home and school. *Teachers College Record*, 103(5), 760–822. <https://doi.org/10.1111/0161-4681.00134>
- Almeida, D., Monteiro, D., & Rodrigues, F. (2021). Satisfaction with life: Mediating role in the relationship between depressive symptoms and coping mechanisms. *Healthcare*, 9(787).
<https://doi.org/10.3390/healthcare9070787>
- Alostaz, J., Baker, J. K., Fenning, R. M., Neece, C. L., & Zeedyk, S. (2022). Parental coping as a buffer between child factors and emotion-related parenting in families of children with autism spectrum disorder. *Journal of Family Psychology*, 36(1), 153–158.
<https://doi.org/10.1037/fam0000757>
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13(1), 27–45.
<https://doi.org/10.1177/1073191105283504>
- Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology*, 23(5), 611–626.
<https://doi.org/10.1037/0012-1649.23.5.611>
- Bandura, A. (1971) *Social Learning Theory*. General Learning Press.
- Baum, A., Garofalo, J. P., & Yali, A. M. (1999). Socioeconomic Status and Chronic Stress: Does Stress Account for SES Effects on Health? *Annals of the New York Academy of Sciences*, 896(1), 131–144. <https://doi.org/10.1111/j.1749-6632.1999.tb08111.x>
- Belsky, J. (1984). The determinants of parenting: A process model. *Child Development*, 55(1), 83. <https://doi.org/10.2307/1129836>
- Bernaards, C. A., & Jennrich, R. I. (2005). Gradient Projection Algorithms and Software for

- Arbitrary Rotation Criteria in Factor Analysis. *Educational and Psychological Measurement*, 65(5), 676–696. <https://doi.org/10.1177/0013164404272507>
- Benson, P. R. (2010). Coping, distress, and well-being in mothers of children with autism. *Research in Autism Spectrum Disorders*, 4(2), 217–228. <https://doi.org/10.1016/j.rasd.2009.09.008>
- Brown, S. M., Bender, K. A., Bellamy, J. L., Garland, E. L., Dmitrieva, J., & Jenson, J. M. (2021). A pilot randomized trial of a mindfulness-informed intervention for child welfare-involved families. *Mindfulness*, 12(2), 420–435. <https://doi.org/10.1007/s12671-018-1001-5>
- Burgdorf, V., Szabó, M., & Abbott, M. J. (2019). The Effect of Mindfulness Interventions for Parents on Parenting Stress and Youth Psychological Outcomes: A Systematic Review and Meta-Analysis. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.01336>
- Chambers, R., Lo, B. C. Y., & Allen, N. B. (2008). The impact of intensive mindfulness training on attentional control, cognitive style, and affect. *Cognitive Therapy and Research*, 32(3), 303–322. <https://doi.org/10.1007/s10608-007-9119-0>
- Cheung, M. W. (2015). metaSEM: an R package for meta-analysis using structural equation modeling. *Frontiers in Psychology*, 5. <https://doi.org/10.3389/fpsyg.2014.0152>
- Christopher, M. S., Neuser, N. J., Michael, P. G., & Baitmangalkar, A. (2012). Exploring the psychometric properties of the Five Facet Mindfulness Questionnaire. *Mindfulness*, 3(2), 124–131. <https://doi.org/10.1007/s12671-011-0086-x>
- Collins, K. R. L., Best, I., Stritzke, W. G. K., & Page, A. C. (2016). Mindfulness and zest for life buffer the negative effects of experimentally-induced perceived burdensomeness and thwarted belongingness: Implications for theories of suicide. *Journal of Abnormal Psychology*, 125(5), 704–714. <https://doi.org/10.1037/abn0000167>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155–159.
- Conduct Problems Prevention Research Group. (2014). Trajectories of risk for early sexual activity and early substance use in the Fast Track Prevention Program. *Prevention Science*, 15(S1), 33–46. <https://doi.org/10.1007/s11121-012-0328-8>
- Craig, F., Savino, R., Fanizza, I., Lucarelli, E., Russo, L., & Trabacca, A. (2020). A systematic review of coping strategies in parents of children with attention deficit hyperactivity disorder (ADHD). *Research in Developmental Disabilities*, 98. <https://doi.org/10.1016/j.ridd.2020.103571>
- Creswell, J. D., & Lindsay, E. K. (2014). How does mindfulness training affect health? A mindfulness stress buffering account. *Current Directions in Psychological Science*, 23(6),

- 401–407. <https://doi.org/10.1177/0963721414547415>
- Cumming G. (2014). The new statistics: why and how. *Psychological science*, 25(1), 7–29. <https://doi.org/10.1177/0956797613504966>
- de Carvalho, J. S., Oliveira, S., Roberto, M. S., Gonçalves, C., Bárbara, J. M., de Castro, A. F., Pereira, R., Franco, M., Cadima, J., Leal, T., Lemos, M. S., & Marques-Pinto, A. (2021). Effects of a mindfulness-based intervention for teachers: A study on teacher and student outcomes. *Mindfulness*, 12(7), 1719–1732. <https://doi.org/10.1007/s12671-021-01635-3>
- de Kruijff, L. G. M., Moussault, O. R. M., Plat, M.-C. J., Hoencamp, R., & van der Wurff, P. (2019). Coping strategies of Dutch servicemembers after deployment. *Military Medical Research*, 6(1), 9. <https://doi.org/10.1186/s40779-019-0199-4>
- de Vibe, M., Solhaug, I., Rosenvinge, J. H., Tyssen, R., Hanley, A., & Garland, E. (2018). Six-year positive effects of a mindfulness-based intervention on mindfulness, coping and well-being in medical and psychology students; Results from a randomized controlled trial. *PLOS ONE*, 13(4), e0196053. <https://doi.org/10.1371/journal.pone.0196053>
- Deighton, J., Lereya, S. T., Casey, P., Patalay, P., Humphrey, N., & Wolpert, M. (2019). Prevalence of mental health problems in schools: poverty and other risk factors among 28,000 adolescents in England. *British Journal of Psychiatry*, 215(3), 565–567. <https://doi.org/10.1192/bjp.2019.19>
- Dix, T. (1993). Attributing Dispositions to Children: An Interactional Analysis of Attribution in Socialization. *Personality and Social Psychology Bulletin*, 19(5), 633–643. <https://doi.org/10.1177/0146167293195014>
- Fletcher, T.D. (2022). QuantPsyc: Quantitative Psychology Tools (Version 1.6) [Computer software]. <https://CRAN.R-project.org/package=QuantPsyc>
- Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55(1), 745–774. <https://doi.org/10.1146/annurev.psych.55.090902.141456>
- Garnefski, N., & Kraaij, V. (2006). Cognitive emotion regulation questionnaire – development of a short 18-item version (CERQ-short). *Personality and Individual Differences*, 41(6), 1045–1053. <https://doi.org/10.1016/j.paid.2006.04.010>
- Geronimi, E. M. C., Arellano, B., & Woodruff-Borden, J. (2020). Relating mindfulness and executive function in children. *Clinical Child Psychology and Psychiatry*, 25(2), 435–445. <https://doi.org/10.1177/1359104519833737>
- Göbel, A., Henning, A., Möller, C., & Aschersleben, G. (2016). The relationship between emotion comprehension and internalizing and externalizing behavior in 7- to 10-year-old children. *Frontiers in Psychology*, 7. <https://doi.org/10.3389/fpsyg.2016.01917>

- Göttsmann, A., & Bechtoldt, M. N. (2021). Coping with COVID-19—Longitudinal analysis of coping strategies and the role of trait mindfulness in mental well-being. *Personality and Individual Differences*, 175. <https://doi.org/10.1016/j.paid.2021.110695>
- Hamama-Raz, Y., Pat-Horenczyk, R., Perry, S., Ziv, Y., Bar-Levav, R., & Stemmer, S. M. (2016). The effectiveness of group intervention on enhancing cognitive emotion regulation strategies in breast cancer patients: A 2-year follow-up. *Integrative Cancer Therapies*, 15(2), 175–182. <https://doi.org/10.1177/1534735415607318>
- Han, Z. R., Ahemaitjiang, N., Yan, J., Hu, X., Parent, J., Dale, C., DiMarzio, K., & Singh, N. N. (2021). Parent mindfulness, parenting, and child psychopathology in China. *Mindfulness*, 12(2), 334–343. <https://doi.org/10.1007/s12671-019-01111-z>
- Heberle, A. E., & Chazan-Cohen, R. (2022). Longitudinal and reciprocal relations among parent and child outcomes for Black Early Head Start families. *Early Education and Development*. <https://doi.org/10.1080/10409289.2022.2045461>
- Henrich, J., Heine, S., & Norenzayan, A. (2010). Beyond WEIRD: Towards a broad-based behavioral science. *Behavioral and Brain Sciences*, 33(2-3), 111-135. <https://doi.org/10.1017/S0140525X10000725>
- Holtmann, M., Buchmann, A. F., Esser, G., Schmidt, M. H., Banaschewski, T., & Laucht, M. (2011). The Child Behavior Checklist-Dysregulation Profile predicts substance use, suicidality, and functional impairment: A longitudinal analysis: CBCL-DP long-term outcome. *Journal of Child Psychology and Psychiatry*, 52(2), 139–147. <https://doi.org/10.1111/j.1469-7610.2010.02309.x>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Jennings, W. G., Reingle, J. M., Staras, S. A. S., & Maldonado-Molina, M. M. (2012). Substance use as a risk factor for intimate partner violence overlap: generational differences among hispanic young adults. *International Criminal Justice Review*, 22(2), 139–152. <https://doi.org/10.1177/1057567712442943>
- Jespersen, J. E., Morris, A. S., Hubbs-Tait, L., & Washburn, I. J. (2021). Evaluation of a parent education program emphasizing responsive parenting and mindfulness: An inclusive randomized controlled trial. *Child & Youth Care Forum*, 50(5), 859–883. <https://doi.org/10.1007/s10566-021-09597-2>
- Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., & Rosseel, Y. (2022). semTools: Useful tools for structural equation modeling (Version 0.5-6) [Computer software] <https://CRAN.R-project.org/package=semTools>
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*.

Hyperion.

- Kalisch, R., Müller, M. B., & Tüscher, O. (2015). A conceptual framework for the neurobiological study of resilience. *Behavioral and Brain Sciences*, 38, E92. <https://doi.org/10.1017/S0140525X1400082X>
- Kinman, G., Grant, L., & Kelly, S. (2020). 'It's My Secret Space': The benefits of mindfulness for social workers. *The British Journal of Social Work*, 50(3), 758–777. <https://doi.org/10.1093/bjsw/bcz073>
- Komsta, L. (2022). outliers: Tests for outliers. (Version 0.15) [Computer software]. <https://CRAN.R-project.org/package=outliers>
- Kudesia, R. S., Pandey, A., & Reina, C. S. (2022). Doing more with less: Interactive effects of cognitive resources and mindfulness training in coping with mental fatigue from multitasking. *Journal of Management*, 48(2), 410–439. <https://doi.org/10.1177/0149206320964570>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.
- Lin, G., Wen, Z., Marsh, H. W., & Lin, H. (2010). Structural Equation Models of Latent Interactions: Clarification of Orthogonalizing and Double-Mean-Centering Strategies. *Structural Equation Modeling*, 17(3), 374–391. <https://doi.org/10.1080/10705511.2010.488999>
- Lüdecke D, Ben-Shachar M, Patil I, Makowski D (2020). Extracting, Computing and Exploring the Parameters of Statistical Models using R. *Journal of Open Source Software*, 5(53), 2445. <https://doi.org/10.21105/joss.02445>
- MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, 4(1), 84–99. <https://doi.org/10.1037/1082-989X.4.1.84>
- Mackler, J. S., Kelleher, R. T., Shanahan, L., Calkins, S. D., Keane, S. P., & O'Brien, M. (2015). Parenting stress, parental reactions, and externalizing behavior from ages 4 to 10. *Journal of Marriage and Family*, 77(2), 388–406. <https://doi.org/10.1111/jomf.12163>
- Marçal, K. E. (2020). Demographic and socioeconomic predictors of behavioral trajectories from age 3 to 15: A longitudinal mixed effects approach. *Journal of Child and Family Studies*, 29(7), 1818–1832. <https://doi.org/10.1007/s10826-020-01710-8>
- Masarik, A. S., & Conger, R. D. (2017). Stress and child development: A review of the Family Stress Model. *Current Opinion in Psychology*, 13, 85–90. <https://doi.org/10.1016/j.copsyc.2016.05.008>
- McCubbin, H. I., & Patterson, J. M. (1983). The family stress process: The Double ABCX

- Model of adjustment and adaptation. *Marriage & Family Review*, 6(1–2), 7–37.
https://doi.org/10.1300/J002v06n01_02
- Moreland, A. D., Felton, J. W., Hanson, R. F., Jackson, C., & Dumas, J. E. (2016). The relation between parenting stress, locus of control and child outcomes: Predictors of change in a parenting intervention. *Journal of Child and Family Studies*, 25(6), 2046–2054.
<https://doi.org/10.1007/s10826-016-0370-4>
- Mouton, B., Loop, L., Stiévenart, M., & Roskam, I. (2018). Confident parents for easier children: A parental self-efficacy program to improve young children's behavior. *Education Sciences*, 8(3), 134. <https://doi.org/10.3390/educsci8030134>
- Mutumba, M., Moskowitz, J. T., Neilands, T. B., Lee, J.-Y., Dilworth, S. E., & Carrico, A. W. (2021). A mindfulness-based, stress and coping model of craving in methamphetamine users. *PLOS ONE*, 16(5). <https://doi.org/10.1371/journal.pone.0249489>
- Neece, C. L. (2014). Mindfulness-based stress reduction for parents of young children with developmental delays: Implications for parental mental health and child behavior problems. *Journal of Applied Research in Intellectual Disabilities*, 27(2), 174–186.
<https://doi.org/10.1111/jar.12064>
- Nielsen, M., Haun, D. B. M., Kärtner, J., & Legare, C. H. (2017). The persistent sampling bias in developmental psychology: A call to action. *Journal of Experimental Child Psychology*, 162, 31–38. <https://doi.org/10.1016/j.jecp.2017.04.017>
- Parent, J., McKee, L. G., N. Rough, J., & Forehand, R. (2016). The association of parent mindfulness with parenting and youth psychopathology across three developmental stages. *Journal of Abnormal Child Psychology*, 44(1), 191–202.
<https://doi.org/10.1007/s10802-015-9978-x>
- Pinquart, M. (2021). Cultural differences in the association of harsh parenting with internalizing and externalizing symptoms: A meta-analysis. *Journal of Child and Family Studies*, 30(12), 2938–2951. <https://doi.org/10.1007/s10826-021-02113-z>
- R Core Team (2022). R: A language and environment for statistical computing (Version 4.2.2) [Computer software]. R Foundation for Statistical Computing. <https://www.R-project.org/>
- Revelle, W. (2022) psych: Procedures for personality and psychological research (Version 2.2.9) [Computer software] Northwestern University. <https://CRAN.R-project.org/package=psych>
- Rodriguez-JenKins, J., & Marcenko, M. O. (2014). Parenting stress among child welfare involved families: Differences by child placement. *Children and youth services review*, 46, 19–27. <https://doi.org/10.1016/j.childyouth.2014.07.024>

- Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48(2). <https://doi.org/10.18637/jss.v048.i02>
- Sackett, P. R., & Yang, H. (2000). Correction for range restriction: An expanded typology. *Journal of Applied Psychology*, 85(1), 112–118. <https://doi.org/10.1037/0021-9010.85.1.112>
- Sala, M., Rochefort, C., Lui, P. P., & Baldwin, A. S. (2020). Trait mindfulness and health behaviours: A meta-analysis. *Health Psychology Review*, 14(3), 345–393. <https://doi.org/10.1080/17437199.2019.1650290>
- Salgó, E., Szeghalmi, L., Bajzát, B., Berán, E., & Unoka, Z. (2021). Emotion regulation, mindfulness, and self-compassion among patients with borderline personality disorder, compared to healthy control subjects. *PLOS ONE*, 16(3). <https://doi.org/10.1371/journal.pone.0248409>
- Sell, M., Radicke, A., Adema, B., Daubmann, A., Kilian, R., Stiawa, M., Busmann, M., Winter, S. M., Lambert, M., Wegscheider, K., Plass-Christl, A., & Wiegand-Grefe, S. (2021). Parents with mental illness: Parental coping behavior and its association with children's mental health. *Frontiers in Psychiatry*, 12, 737861. <https://doi.org/10.3389/fpsy.2021.737861>
- Shorey, S., & Ng, E. D. (2021). The efficacy of mindful parenting interventions: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 121, 103996. <https://doi.org/10.1016/j.ijnurstu.2021.103996>
- Taghizade, S., Mahmoodi, Z., Zandifar, A., Qorbani, M., Mohamadi, F., & Mehrafzoun, N. (2022). The relationship model among parent–child relationship, coping responses and behavioral problems in children with attention deficit hyperactivity disorder. *BMC Psychiatry*, 22(1), 596. <https://doi.org/10.1186/s12888-022-04224-3>
- Thompson, R. A. (2015). Relationships, Regulation, and Early Development. In R. M. Lerner (Ed.), *Handbook of Child Psychology and Developmental Science* (pp. 1–46). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781118963418.childpsy306>
- Timshel, I., Montgomery, E., & Dalgaard, N. T. (2017). A systematic review of risk and protective factors associated with family related violence in refugee families. *Child Abuse & Neglect*, 70, 315–330. <https://doi.org/10.1016/j.chiabu.2017.06.023>
- Vilaverde, R. F., Correia, A. I., & Lima, C. F. (2020). Higher trait mindfulness is associated with empathy but not with emotion recognition abilities. *Royal Society Open Science*, 7(8), 192077. <https://doi.org/10.1098/rsos.192077>
- Williams, M. J., Dalgleish, T., Karl, A., & Kuyken, W. (2014). Examining the factor structures of the Five Facet Mindfulness Questionnaire and the Self-Compassion Scale.

- Psychological Assessment*, 26(2), 407–418. <https://doi.org/10.1037/a0035566>
- Williford, A. P., Calkins, S. D., & Keane, S. P. (2007). Predicting change in parenting stress across early childhood: Child and maternal factors. *Journal of Abnormal Child Psychology*, 35(2), 251–263. <https://doi.org/10.1007/s10802-006-9082-3>
- Winer, E. S., Cervone, D., Bryant, J., McKinney, C., Liu, R. T., & Nadorff, M. R. (2016). Distinguishing Mediational Models and Analyses in Clinical Psychology: Atemporal Associations Do Not Imply Causation. *Journal of clinical psychology*, 72(9), 947–955. <https://doi.org/10.1002/jclp.22298>