

The Pennsylvania State University
The Graduate School
College of Health and Human Development

**ASSESSMENT OF MINDFUL PARENTING AMONG PARENTS OF EARLY
ADOLESCENTS: DEVELOPMENT AND VALIDATION OF THE
INTERPERSONAL MINDFULNESS IN PARENTING SCALE**

A Thesis in
Human Development and Family Studies

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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

August 2007

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ABSTRACT

The goal of this study was to test the validity of a proposed construct of mindful parenting, as measured by the Inter-personal Mindfulness in Parenting (IEM-P) scale. This conceptualization of mindful parenting encompasses affective, cognitive, and attitudinal aspects of parent-adolescent relations and draws from the literature on intra-personal mindfulness (i.e., an ability to intentionally maintain present-centered awareness and attention with a non-judgmental stance). Mindful parenting extends the internal process of mindfulness to the interpersonal interactions taking place during parenting. Through investigation with a sample of 801 rural families of early adolescents, mindful parenting was shown to have properties of reliability and convergent, discriminant, and concurrent validity. First, the IEM-P measurement model was examined in a randomly selected subsample of 375 mothers. Results of a confirmatory factor analysis supported a measurement model comprised of a higher-order factor of mindful parenting, as expected, and four first-order factors (present-centered attention, present-centered emotional awareness, non-judgmental acceptance, and non-reactivity), one more than anticipated. This model had adequate reliability, was replicated in an independent sample of 378 mothers, and was then shown to have measurement invariance across mothers and fathers.

A series of structural equation models conducted with the full sample of 753 mother/adolescent pairs provided evidence of the validity of the mindful parenting construct. First, mindful parenting was shown to be positively associated with, yet clearly distinct from mothers' intra-personal mindfulness. Next, psychological functioning was shown to account for a much larger proportion of the variance in mothers' intra-personal mindfulness than of their mindful parenting, as hypothesized. Third, mothers' mindful parenting accounted for a substantial proportion of the variance in the constructs of parent-child affective quality and general child management (use of inductive reasoning, monitoring, and consistency in discipline), yet appeared independent from them. Finally, mothers' self-reported mindful parenting was shown to be moderately predictive of concurrent, adolescent-reported goal setting and inversely of girls' externalizing behavior. These findings offer preliminary validation of the extension of mindfulness to the interpersonal domain of parent-adolescent relations and can serve to inform the development and evaluation of preventive interventions targeting mindful parenting in families of early adolescents.

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Chapter 1

INTRODUCTION

Gaining a clearer understanding of what constitutes effective parenting during early adolescence is of importance given the consistently documented relation between parenting behaviors and adolescent outcomes (Resnick et al., 1997). Parents, through daily interactions, are the primary socializing agent for youth (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000) and are a primary influence on the course of adolescent problem behavior and adaptive functioning. Parenting encompasses multidimensional constructs reflecting beliefs, attitudes, and behaviors. Yet researchers often assess a single parenting practice, or two presumed orthogonal dimensions of parenting: warmth and control (i.e., “parenting style”), and relate them to developmental outcomes.

Examining any one specific parenting behavior or two-dimensional style, however, without considering the potential for a higher-order construct of parenting, such as mindful parenting, may be misleading. The current study presents a proposed metaconstruct of mindful parenting that is intended to encompass affective, cognitive, and attitudinal aspects of parenting that are present in parent-adolescent interactions. This conceptualization of mindful parenting draws from the literature on “mindfulness” (i.e., an ability to intentionally maintain present-centered awareness and attention with a non-judgmental stance) (see Baer, 2003; Kabat-Zinn, 2003) and addresses a hypothesized gap in the theoretical and empirical research regarding the parenting of adolescents.

The aims of this study are to: (a) determine a measurement model for assessing a hypothesized parenting metaconstruct: “mindful parenting” using a newly developed survey instrument, the Interpersonal Mindfulness in Parenting scale (IEM-P); (b) examine the relation between parent background characteristics, including intra-personal mindfulness, and variability in levels of mindful parenting; (c) further assess the validity of the IEM-P scale by examining the concurrent relations between mindful parenting and other empirically supported dimensions of parenting; and (d) test direct and indirect effects of mindful parenting on adolescent problem behavior and adaptive functioning.

Background and Significance

Parenting and Adolescent Adjustment

Research on the determinants of parenting indicates that a complex array of self- and child-oriented cognitions and emotions, including social cognitions (Dix, Ruble, Grusec, & Nixon, 1986) and perceived parenting stress (Crnic & Greenberg, 1990; Deater-Deckard, 2004), can influence parenting behavior, and thus may impact adolescent outcomes. In addition, the effects of parent-child relationships can be bi-directional and are nested within multiple layers of ecological context (e.g., parents’ work and other family relationships) (Kotchick & Forehand, 2002; Luster & Okagaki, 1993). With competing demands for their attention and time, parents may experience an increase in stress from within the family system as their early adolescent children begin to seek greater autonomy (Small, Eastman, & Cornelius, 1988). If this key developmental task of adolescence is not successfully negotiated by parents, (e.g., if discipline practices become inconsistent or parental monitoring efforts become ineffective) adolescents may be placed at higher risk for negative outcomes (e.g., conduct problems) (Hawkins, Catalano, &

Miller, 1992).

As youth make the normative transition from middle childhood to adolescence, they are challenged by substantial physiological, cognitive, emotional, and social changes (Steinberg & Silk, 2002). If these challenges are successfully navigated, positive adolescent adjustment can be expected. In contrast, if contextual risk factors and/or maladaptive heritable predispositions exert influence on adolescent development and these effects are not ameliorated through the presence of compensatory, protective factors, (e.g., high quality parenting) healthy functioning may be compromised (Collins et al., 2000; S. S. Luthar, Cicchetti, & Becker, 2000). In the latter case, young adolescents may display problem behaviors, including delinquency (Hawkins et al., 1992; Hawkins et al., 1998).

Both proximal and distal explanatory factors (e.g., peer relations, school bonding, and socioeconomic status) have been identified in relation to adolescent adjustment. Family risk and protective factors, however, have consistently been implicated as important predictors of adolescent well-being (Kumpfer, Olds, Alexander, Zucker, & Gary, 1998; Resnick et al., 1997). Etiological models have empirically verified the key role of family socialization factors in shaping the developmental trajectories of adolescents either toward or away from problem behaviors (e.g., substance use; for a review, see Kumpfer et al., 1998). Although several family-focused interventions target the improvement of specific parenting skills (Kumpfer & Alvarado, 2003; Spoth, Kavanagh, & Dishion, 2002; Spoth & Redmond, 2002), future prevention efforts may be improved through further refinement and careful articulation of developmental theories regarding the role of parenting in adolescent adjustment.

Within the literature on parenting of adolescents, a number of important parenting dimensions have been extensively researched. These include the affective quality of the parent-youth relationship and the nature of child management practices (i.e., guidance, discipline, and monitoring). The research supporting these parenting dimensions will be briefly reviewed before elaborating the conceptual framework of the proposed study: the construct of mindfulness and its application to parenting.

Affective quality of the parent-child relationship. Quality of the affective relationship between the parent and the adolescent has been called parental warmth, responsiveness, and acceptance, among other terms. Research has identified the degree of positive or negative affect that is expressed in the parent child relationship as one of the most distinguishing dimensions of the relationship (Collins & Russell, 1991).

Adolescents' affectional bonding with parents has been associated with increased tendency to abstain from alcohol use (Spath, Redmond, Hockaday, & Yoo, 1996), whereas cold and unsupportive maternal behavior has been linked to problem drug use among adolescents (Shedler & Block, 1990). Parental acceptance has also been shown to be related to adolescent psychosocial development (e.g., work orientation, self-esteem, and self-reliance) (Gray & Steinberg, 1999).

Child management practices. Besides affective quality, another commonly studied aspect of parenting is the general management practices parents employ to discipline, monitor, and guide their children. In a meta-analysis, Locke and Prinz (2002) identify discipline (i.e., restrictiveness or firm control) as including a wider range of parental behaviors than just harsh or punitive actions. They conclude that the accepted definition of discipline is one that also encompasses parenting techniques that are

considered to be effective child management (e.g., inductive reasoning and consistency). As children have been shown to be more responsive to guidance offered by parents who are effective in their discipline practices than those who are punitive or harsh (Eisenberg & Valiente, 2002), the study of multiple forms of discipline is warranted.

One component of effective discipline practice is the parent's use of inductive reasoning. In a meta-analysis of 47 studies on parental caregiving and child externalizing behavior, Rothbaum and Weisz (1994) classify this parenting dimension under the broader umbrella of "guidance," a term that is highlighted in social learning theory (e.g., Bandura, 1977; Patterson & Stouthamer-Loeber, 1984). Generally, guidance refers to parental behaviors designed to guide the child toward a desired behavior, or towards a more advanced understanding of their world, using explanations and demonstrations (Rothbaum & Weisz, 1994). Baumrind (1991) specified that the use of explanations and reasoning in discipline were key to distinguishing "authoritative" from "authoritarian" parents and demonstrated that the use of these parenting practices were related to child social assertiveness.

Another component of parental discipline is "consistency," a dimension of parenting that has been less frequently studied, yet appears important for understanding the influence of parenting on adolescent problem behaviors. For example, Frick and colleagues (Frick, Christian, & Wootton, 1999) found that within their adolescent sample, parental consistency in applying discipline accounted for the largest amount of variance in conduct problems of any of their parenting dimensions. These results are in alignment with Patterson's (1997) macrotheory of parenting that was developed through work with families of antisocial boys. Patterson's macrotheory is based in part on his findings that

when parents respond to misbehavior with harsh verbal threats, yet seldom back up any threats with effective discipline, child problem behaviors are reinforced in a coercive, cyclical process (Patterson, 1982). Even in families not stuck in a coercive cycle, inconsistency in discipline has been associated with antisocial behavior in young children (Larzelere, Schneider, Larson, & Pike, 1996).

Another dimension of parenting not explicitly assessed in the current study, but one that is important for understanding child management is psychological control (Barber, 2002). Parental psychological control can have a negative impact on adolescent children who are seeking greater individuation, privacy, and autonomy (Steinberg & Silk, 2002). Studies of the antecedents of psychological control suggest that the use of psychological control as a child management technique is greater among parents of adolescents when there is a history of child behavior problems and concurrent parent use of harsh-discipline in early childhood (Pettit & Laird, 2002). In the absence of behavior problems in early childhood, psychological control combined with low parental involvement has been found to be related to greater delinquency in adolescence (Pettit & Laird, 2002).

A final aspect of child management, parental monitoring, also takes on greater importance in adolescence as youth begin spending more time away from home and with their peers (Larson, 2001). Parental monitoring, an example of a proactive child management strategy that is distinct from psychological control (Pettit & Laird, 2002), has been consistently found to be related to lower levels of substance use, antisocial peer affiliation, and sexual activity (Ary et al., 1999; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Metzler, Noell, Biglan, Ary, & Smolkowski, 1994). Typically, monitoring

has been interpreted as a parenting practice by which parents actively attempt to watch over their children as a means of behavioral control. Recent theoretical and empirical work (Kerr & Stattin, 2000; Stattin & Kerr, 2000), however, has shown that monitoring may be more a factor of how much adolescents spontaneously disclose information to their parents than an indication of parents' efforts to keep watch.

Parent Background Characteristics

The majority of empirical research on parenting has focused on the relation between parenting practices and child outcomes. There is a relatively smaller body of research on the determinants of parenting itself. Bronfenbrenner's (1977) bioecological model of human development has had a substantial impact on the study of all major processes in human development. His assertion that parenting, like many other aspects of human development, is a *process* versus a static construct set the stage for other theoreticians to examine the multiple layers of influence on parenting from a dynamical, systems perspective (e.g., Lerner, Rothbaum, Boulos, & Castellino, 2002). Although advances have been made in understanding the bi-directional influences involved in parent-child relationships (i.e., the transactional nature of "parent effects" and "child effects"), it has only been since the early 1980's that researchers have begun to examine the determinants of parenting using more comprehensive models. Two such models are Belsky's process model of the determinants of parenting (Belsky, 1984) and Kotchick and Forehand's ecological model of parenting (Kotchick & Forehand, 2002).

Both the process model of the determinants of parenting (Belsky, 1984) and the ecological model of parenting (Kotchick & Forehand, 2002) place an emphasis on social contextual factors that can serve as a source of stress and therefore place a strain on

parents' efforts at parenting effectively. A primary contextual factor important for understanding the determinants of parenting found in these models is socioeconomic status. In addition, factors internal to the parent such as psychological symptoms and psychological well-being are suggested by these models as key predictors of parenting.

Socioeconomic status. Poverty has been shown to have a dramatic negative influence on children and families (see Luthar, 1994). Although low socio-economic status can have a direct influence on poor child outcomes, the impact of low SES status on child well-being has been shown to be partially mediated through the disruption of parenting practices (McLoyd, 1998). Bradley and colleagues (Bradley, Corwyn, McAdoo, & Garcia-Coll, 2001) conducted a study of families from multiple ethnic groups and demonstrated that poor parents were more likely to use physical punishment than were non-poor parents across all ethnic groups.

A review by Hoff-Ginsberg and Tardif (1995) found great consistency across studies regarding differences in parenting practices for parents with different levels of SES. Middle-class parents have been found to be typically more equitable and accepting in their parenting behavior, while lower SES parents tend to talk less with their children and exhibit more controlling and disapproving behavior. These results suggest that the factor of SES is a reliable predictor of parenting practices. In addition, studies by McLoyd and colleagues (McLoyd, Jayaratne, Ceballo, & Borquez, 1994), Elder and colleagues (Elder, Liker, & Cross, 1984) and Conger and colleagues (Conger, Ge, Elder, Lorenz, & Simons, 1994), suggest that poverty negatively influences parent psychological functioning, which in turn mediates the influence of poverty on parenting. Low socioeconomic status is not explicitly examined in the current study, but is included

as a control variable due to its importance for denoting a stressful context for parents in the U.S. Other stressors exerting influence on parenting, yet not included in the current study, are work-family overload, marital discord, ethnic/racial discrimination, and both major stressful life events and daily hassles.

Parent psychological functioning. Psychopathology (e.g., schizophrenia, bipolar disorder, borderline personality disorder, or dissociative disorder) can have a severe negative impact on parenting behavior, and has been extensively researched in relation to parenting (see Zahn-Waxler, Duggal, & Gruber, 2002). This study will not address a full array of types of psychological symptoms, but will involve an examination of the relation between parents' sub-clinical symptoms of depression and anxiety and mindful parenting. Parental depression is one form of impaired parent psychological functioning that has been widely studied in relation to parenting behavior. Depressed parents from various ethnic/cultural groups have been found to exhibit worse parenting than parents who display few symptoms of depression (e.g., Sagrestano, Paikoff, Holmbeck, & Fendrich, 2003) and anxious parents tend to exhibit greater control, less warmth, and are more critical than less anxious parents (see Whaley, Pinto, & Sigman, 1999).

Evidence supporting the influence of parental depression on parenting behaviors has been well-established for some time. An extensive review conducted a number of years ago by Downey and Coyne (1990) reported the results of observational studies that demonstrate that mothers who are depressed interact with their children in dysfunctional ways that are similar to the impairment present in their interactions with other adults. Across numerous studies, depressed mother's interactions with their children were carried out with: (a) constricted affect and flat speech; (b) less frequent, less positive, and

less quick response; (c) greater hostility and negativity; and (d) with control attempts based on coercion versus negotiation.

More recent studies have shown that maternal depressive symptoms are related to academic difficulties and conduct problems among girls (Davies & Windle, 1997) and that children of depressed mothers may have greater depressive symptoms themselves (Goodman & Gotlib, 1999). Similarly, children of anxious parents are many times more likely to develop an anxiety disorder than children of parents who do not have an anxiety disorder (Turner, Beidel, & Epstein, 1991). In addition to being partly heritable, it also appears that these psychological disorders are transmitted partly through parenting behaviors. Anxious mothers have been found to be less autonomy-granting and more catastrophizing in comparison to mothers who are not anxious (Whaley et al., 1999). In contrast, parents with better psychological functioning (i.e., few psychological symptoms) are expected to exhibit higher quality parenting.

An additional consideration in the examination of the influence of parent psychological functioning on parenting is that psychological well-being is not necessarily at the opposite end of a continuum from psychopathology. Factors of positive, adaptive functioning in adults have been shown to be distinct from the absence of psychological symptoms (see Ryff & Keyes, 1995). Dimensions of psychological well-being as conceptualized by Ryff and colleagues (1995) include autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Subjective happiness is a global indicator for psychological well-being that has also been studied (Lyubomirsky & Lepper, 1999). Assessing psychological functioning in terms of well-being has received considerably less attention as a predictor of parenting than

psychological symptoms. For the purposes of the current study, both psychological symptoms and general psychological well-being will be examined in relation to mindful parenting. Studies of mindfulness have shown that higher mindfulness is related to lower depression and anxiety and greater psychological well-being, and studies of parenting have shown that greater depression and anxiety is related to worse parenting, thus parents with lower depression and anxiety and greater psychological well-being are expected to report higher mindfulness in parenting.

The Construct of Mindfulness: Application to Parenting

Mindfulness is an English translation of the 2,500 year-old Pali (i.e., Theravada Buddhist) word “sati,” a term which connotes “awareness,” “attention” and “remembering/intention.” Mindfulness has been used in the Western discipline of psychology to “...describe a theoretical construct (mindfulness), a practice of cultivating mindfulness (such as meditation), or a psychological process (being mindful)” (Germer, 2005; pg. 6). Over the past 30 years, clinicians and researchers in the psychological and medical sciences have increasingly explored both secular and non-secular aspects and applications of all three of these forms of mindfulness. Most notably, a secular approach to teaching mindfulness meditation as a treatment for stress reduction has achieved widespread appeal (Kabat-Zinn, 1990).

In recent years, a number of other mindfulness-based interventions have been developed and tested with a variety of populations in the U.S. and abroad. The majority of mindfulness-based interventions have been delivered to adults in midlife and the empirical evidence supporting the efficacy of these interventions is promising overall (Baer, 2003). Research has demonstrated the potential of mindfulness-based interventions

to reduce adult symptoms of psychopathology, improve psychological well-being, and enhance adaptive coping in response to stress. This surge in mindfulness-based intervention research has sparked interest in the change mechanisms at work in these interventions. The Western conceptualization of mindfulness as a psychological process, or as a meditation practice, entails awareness and attention to the constant stream of cognitive, emotional, and somatic experiences (i.e., the cognitive-affective interface) while maintaining a non-judgmental and accepting stance (Bishop, 2002; Germer, 2005; Kabat-Zinn, 2003). Subsequently, research has been undertaken to examine the construct of general intra-personal mindfulness (i.e., a tendency toward the psychological process of being mindful) through the measurement of mindfulness in adults by using self-report survey assessment.

Measurement of mindfulness. The construct of mindfulness is defined as an ability to intentionally maintain present-centered awareness and attention towards one's internal experience with an accepting and non-judgmental attitude (Baer, 2003; J.; Kabat-Zinn, 2003; Teasdale, Segal, & Williams, 2003). Five questionnaires have been developed to capture characteristics of mindfulness suggested by that definition: (a) The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003); (b) The Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001) (c) The Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004); (d) The Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar, & Greeson, 2004; A. M. Hayes & Feldman, 2004); and (e) The Mindfulness Questionnaire (MQ; Chadwick, Hember, Mead, Lilley, & Dagnan, 2005). A recent measurement study (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) involved administering all five of these

questionnaires to two large samples of college students. All of the questionnaires showed good internal consistency and convergent and discriminant validity.

Factor analysis and tests of incremental validity (i.e., unique predictive value in accounting for variance of an outcome variable) in Baer's study provided support for five facets of mindfulness, two that are skill-related: "*observe*" (e.g., "When I'm walking, I deliberately notice the sensations of my body moving") and "*describe*" (e.g., "I'm good at finding the words to describe my feelings"), and three others: "*awareness*" (e.g., "It seems I am 'running on automatic' without much awareness of what I'm doing"), "*non-judging*," (e.g., "I make judgments about whether my thoughts are good or bad") and "*non-reactivity*" (e.g., "I perceive my feelings and emotions without having to react to them") (Baer et al., 2006). The latter three facets were found to have the highest incremental validity with regard to psychological symptoms and the "observe" facet was found to be positively related to meditation experience.

In tests of convergent and discriminant validity, non-reactivity was most highly, positively correlated with self-compassion, $r = .53$. Awareness had a strong, inverse relation with absent-mindedness, $r = -.61$. Non-judging had a strong, inverse relation with neuroticism, $r = -.55$ and difficulties with emotion regulation, $r = -.52$. Awareness, non-judging, and non-reactivity form the basis for three proposed subscales of the Interpersonal Mindfulness in Parenting scale (IEM-P) in the current study.

Mindfulness-based interventions. Because of the presumed power of the mindfulness construct, a variety of psychological treatments have been developed for use with adults in medical and mental health settings in the U.S. and abroad. These include: (a) Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990; Kabat-Zinn et al.,

1992); (b) Mindfulness-Based Cognitive Therapy (Segal, Williams, & Teasdale, 2002); (c) relapse prevention for substance abuse (Marlatt et al., 2004); (d) Acceptance and Commitment Therapy (S. C. Hayes, 2004); and (e) Dialectical Behavior Therapy (Robins, Schmidt, & Linehan, 2004). The empirical evidence supporting the effectiveness of these interventions in reducing depression and anxiety, promoting adaptive coping with stress and improving psychological well-being is growing (Baer, 2003; Bishop, 2002; Lazar, 2005). A recent adaptation of MBSR, Mindfulness Based Relationship Enhancement (MBRE; Carson, Carson, Gil, & Baucom, 2004), provides evidence supporting the use of mindfulness-based techniques in strengths-promoting, preventive interventions with normative adult populations. Although there is evidence to support the use of mindfulness-based interventions to improve adult adjustment, there has been relatively little inquiry into the change mechanisms at work in these interventions.

Whereas general intra-personal mindfulness focuses on how individuals handle their *internal* experience, interpersonal interactions are a constant source of stimuli that trigger cognitions, affect, and attitudinal shifts occurring within an individual. Limiting the construct of mindfulness to the intra-personal domain may fail to account for the myriad interpersonal relationships in which the opportunity for an individual to exhibit mindfulness occurs. Moreover, the presence of a high level of intra-personal mindfulness may not guarantee that an individual will be able to display awareness, non-judging, and low reactivity in social interactions. The domain of parenting has been suggested as one arena of interpersonal relations in which an extension of mindfulness may be of particular use (see Kabat-Zinn & Kabat-Zinn, 1997), with considerable potential for improving

parenting intervention models (Dumas, 2005), but this has not yet been empirically evaluated.

“Mindful parenting” is hypothesized as a metaconstruct that serves to integrate aspects of parental cognitions, attitudes, and affective reactivity in parenting interactions into a single higher-order construct. This construct, in turn, is expected to be related to specific parenting practices. In addition to drawing from the extensive literature on parenting, the foundation for the construct of mindful parenting is based on the aforementioned studies of mindfulness in adults.

Mindful Parenting

Mindful parenting is hypothesized to be comprised of three facets that are expected to be important for understanding quality parenting of adolescents: (a) awareness and present-centered attention directed toward one’s internal experience and toward one’s adolescent during parenting interactions; and (b) openness and non-judgmental receptivity to adolescent’s thoughts and emotions; and (c) non-reactivity to culturally-accepted adolescent behavior. The proposed construct of mindful parenting is expected to predict certain other dimensions of parenting (e.g., specific parenting practices), and be related to indicators of adolescent adjustment, such as problem behaviors and adaptive functioning. Mindful parenting is conceptualized as a higher-order construct that encompasses parent social cognitions, meta-cognition, emotions, and meta-emotion taking place in the parenting context. This construct is intended to extend the internal process of mindfulness to the interpersonal interactions taking place during parenting. As such, assessment of mindfulness in parenting is hypothesized to capture

qualities of the cognitive-affective interface occurring for parents during parenting interactions with their adolescents.

Parent social cognitions. A key aspect of parent social cognitions are those related to the attributions that parents make regarding their child's behavior, and particularly attributions regarding misbehavior. Parents tend to judge their children's behavior with regards to: (a) whether the behavior has an internal or external locus of control (i.e., whether it is judged to be intentional or not); (b) whether the behavior is judged to represent a stable characteristic of the child. These types of parent social cognitions have been shown to influence parenting behaviors, particularly with regards to the use of discipline (Dix et al., 1986). When making attributions regarding their children's misbehavior, the general tendency is for parents to have a positive bias (i.e., that the behavior has an external locus of control and is not stable or enduring) (see Dix et al., 1986). This tendency towards a positive attributional bias decreases with the advancing age of children.

During their child's adolescence, parents become much more likely to think that misbehavior is intentional and has an internal locus of control, even when this may be an unreasonable expectation given the adolescents' own cognitive abilities at this developmental stage (Dix et al., 1986). Parents who have experienced harsh parenting themselves are likely to make negative causal attributions regarding the misbehavior of their children (e.g., that the behavior is under the child's control and is indicative of stable negative characteristics of the child) and think that the behavior warrants punishment (Daggett, O'Brien, Zanolli, & Peyton, 2000; Dix, Ruble, & Zambarano,

1989). The available evidence provides reliable support for the idea that parent cognitions are important for understanding parents' discipline practices.

Although not measured in the current study, it is anticipated that parents who are more mindful will exhibit less bias in their attributions due to greater openness to and non-judgmental acceptance of their adolescent children's behavior. This is not to suggest that parents will accept *all* behaviors that their children exhibit, but more mindful parents are expected to have more reasonable expectations of their children that are in accordance with accepted cultural norms. As such, consideration of prior research on parenting cognition and emotion is relevant to the framework of the current study.

Role of emotions in parenting. Human cognitions and emotions are closely interrelated and to the extent that parent cognitions are deemed reliable determinants of parenting behavior, parent emotion must also be addressed. Dix's (1991) work regarding the affective organization of parenting provides very strong evidence that parents experience both intense negative and intense positive affect during their parenting experiences. Dix makes a strong case for the role of emotions in influencing parental motivations, actions, and the attention that they pay to both their child (see Wahler & Dumas, 1989) and their own parenting behaviors. According to Dix's model of affective process in parenting (1991), and supported by his extensive review of the empirical literature, virtually all aspects of parenting seem to be influenced by parent's affective activation, engagement, and regulation.

An additional aspect of parent emotion is parent "meta-emotion" (i.e., parents' thoughts and feelings about their own emotions and about their children's emotions) (Gottman, Katz, & Hooven, 1996). The construct of meta-emotion involves both

emotional awareness on the part of the parent and an emotion-coaching parenting approach (i.e., an approach in which the parent helps their child recognize and deal with negative emotions). In a longitudinal study following parents and their children from age five to age eight, Gottman and colleagues found support for their theory that parental meta-emotion was both distinct from and related to other parenting behaviors and then to child outcomes at the later time point.

This study proposes that mindful parenting involves parents being able to pay attention to their adolescent and to their own reactions to things their adolescent says and does, while conveying a non-judgmental attitude and regulating their reactions. If parents have this ability, it may be reasonable to expect that they will then be able to maintain consistency in their discipline practices, adequately monitor their adolescent, improve the quality of time spent with their adolescent, and maintain a warm and affectionate relationship. It is also expected that parents who incorporate greater mindfulness in their interpersonal interactions with their adolescent children will be more likely to exhibit discipline practices that are in accordance with cultural norms for effective discipline. In the case of European-American, middle-class parents, this relation between mindful parenting and the use of culturally-accepted discipline practices would involve greater use of inductive reasoning and less use of harsh discipline.

The Current Study

The proposed study will involve testing a model for measuring mindful parenting using the IEM-P scale, assessing the validity of the construct of mindful parenting, and then testing the relation between mindful parenting, other dimensions of parenting, and adolescent adjustment. Mindful parenting is expected to be independent from, yet

predictive of, constellations of specific parenting practices, with greater mindful parenting related to more effective profiles of empirically supported parenting practices. Mindful parenting is hypothesized to be comprised of the following three factors: (a) awareness and present-centered attention regarding one's internal experience and one's adolescent during parenting interactions; (b) openness and non-judgmental receptivity to adolescent's articulation of thoughts and emotions; and (c) non-reactivity to culturally-accepted adolescent behavior. The higher-order construct of mindful parenting, as represented by these three facets and assessed via the newly developed IEM-P scale, is expected to further explain the influence of parenting on adolescent adaptive functioning and problem behavior. Hypotheses corresponding to four specific aims are as follows:

Aim 1. Assess the measurement properties of the Interpersonal Mindfulness in Parenting (IEM-P) scale (see Figure 1).

Hypothesis 1a. The IEM-P scale will capture three factors of mindful parenting: present-centered awareness and attention; non-judgmental receptivity; and non-reactivity—and these three facets will represent a higher order factor of mindful parenting.

Hypothesis 1b. The IEM-P scale will have good overall internal consistency and the facets of mindful parenting will each have adequate subscale reliability.

Aim 2. Assess relations between parent background characteristics, including intra-personal mindfulness, and levels of mindful parenting.

Hypothesis 2a. Intra-personal mindfulness will be positively related to mindful parenting.

Hypothesis 2b. Intra-personal mindfulness is necessary, but not sufficient for exhibiting interpersonal mindfulness in the domain of parenting.

Hypothesis 2c. Parent psychological well-being is expected to have a positive relation to mindful parenting and psychological symptoms are expected to have an inverse relation to mindful parenting (see Figure 2). This hypothesis is based on empirical evidence showing an inverse relation between psychological symptoms and mindfulness, as well as the hypothesized positive relationship between mindfulness and mindful parenting.

Hypothesis 2d. Psychological symptoms and well-being are expected to predict more of the variation in intra-personal mindfulness than they will predict of the variation in mindful parenting. This hypothesis will allow a test of one aspect of the discriminant validity of the mindful parenting construct.

Aim 3. Further assess the validity of the IEM-P scale by examining the concurrent relations between mindful parenting and other empirically supported dimensions of parenting (see Figure 3).

Hypothesis 3. Mindful parenting is expected to have a positive relation to parent-child affective quality and effective child management practices (e.g., inductive reasoning, consistent discipline, high monitoring). This hypothesis is based in part upon the cultural norms for effective parenting in European-American families, the demographic group making up the largest proportion of the current sample.

Aim 4. Examine the direct and indirect effects of mindful parenting on concurrent adolescent problem behavior and adaptive functioning (see Figure 4).

Hypothesis 4a. Mindful parenting will have a direct, inverse relation to adolescent problem behavior (e.g., internalizing/ externalizing problems) and a direct relation to adaptive functioning (e.g., goal setting).

Hypothesis 4b. Mindful parenting will also have indirect relations to adolescent adaptive functioning (positive relation) and problem behavior (inverse relation) that are partially mediated through parent-child affective quality and child management practices.

Figure 1. A priori measurement model of mindful parenting

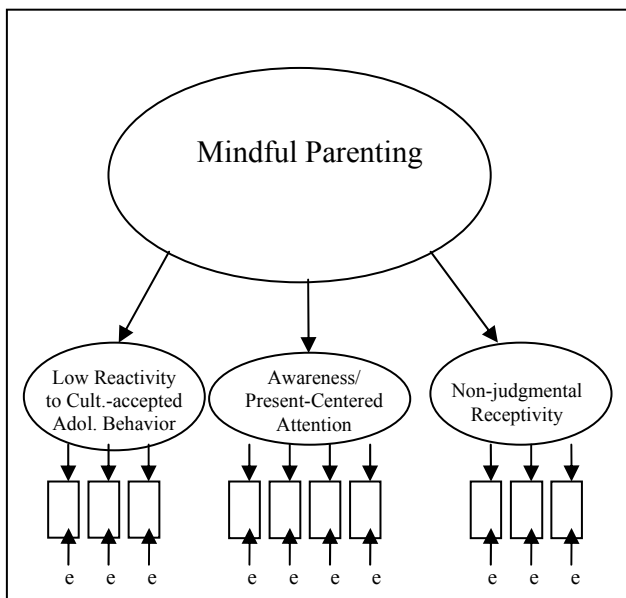


Figure 2. *A priori structural model of the relation between parent background characteristics and mindful parenting*

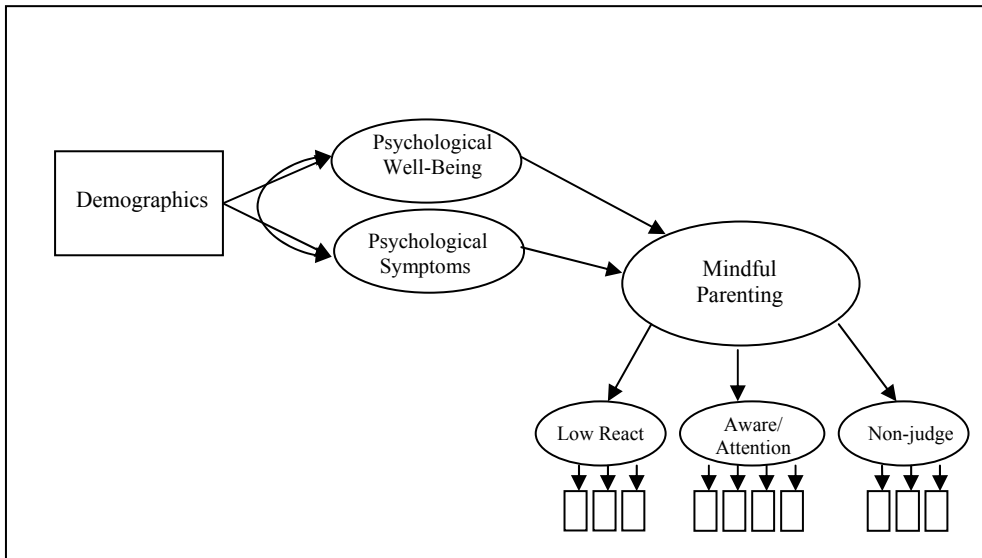


Figure 3. *A priori structural model of the relation between mindful parenting and other empirically-supported dimensions of parenting*

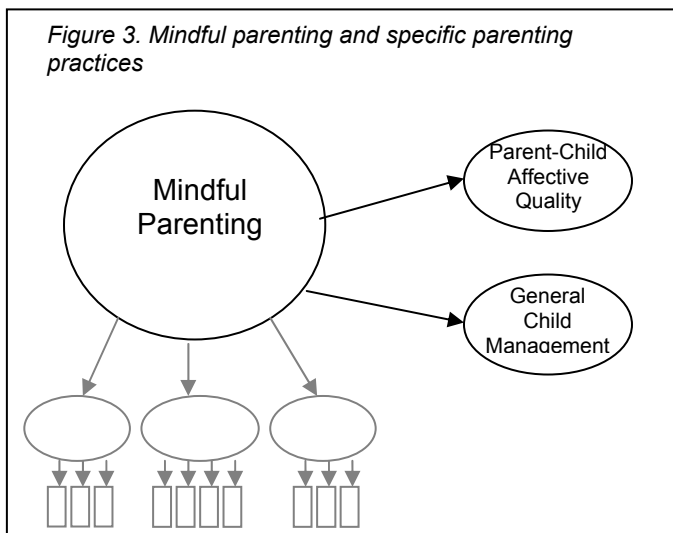
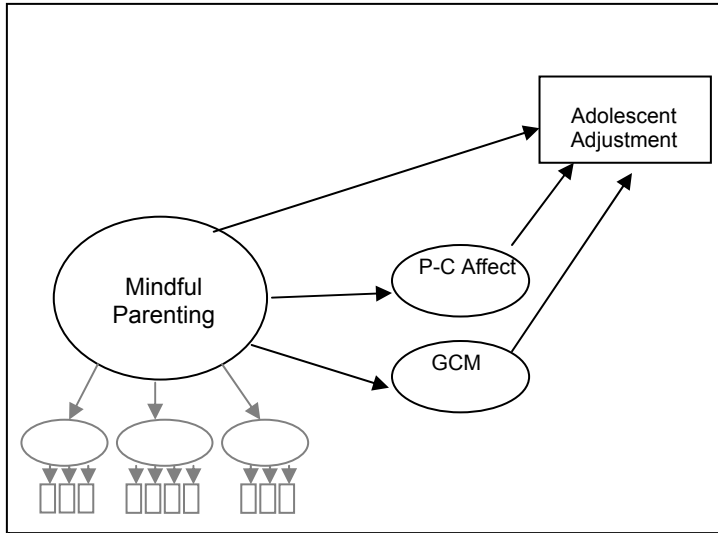


Figure 4. A priori structural model of the relation between mindful parenting and adolescent outcomes with partial mediation through other parenting



Chapter 2

METHOD

The current study is part of the PROSPER project, a community-level randomized trial that tests the effectiveness of an innovative model for the systematic delivery of evidence-based prevention programs to middle school students to reduce early substance use (Spoth, Greenberg, Bierman, & Redmond, 2004). PROSPER links university prevention scientists, the university-based Cooperative Extension System, and the public school system. [Note. The intervention aspect of the PROSPER project is not under examination in the current study.] The project involves 28 rural communities in Iowa and Pennsylvania. The study is following a total of over 10,000 middle school students from two cohorts to assess outcomes through the use of in-school survey data collection. In addition, PROSPER is intensively following a random subsample of families of cohort two students who receive home visit data collection each year which includes interviews of parents and students as well as video-taped observations of family interactions.

For the current study, a new survey instrument was added to the home visit data collection being carried out in the PROSPER project. At Wave 3 (end of 7th grade), mothers and/or fathers were interviewed regarding their interpersonal mindfulness in parenting (IEM-P) and their general intra-personal mindfulness. As part of the broader study, mothers were also interviewed regarding their psychological well-being and psychological symptoms, the quality of their affective relationship with their young adolescent and their use of general child management practices. Seventh graders were interviewed with regard to their problem behavior and adaptive functioning.

Participants and Procedures

Participants in Wave 1 of the PROSPER project were recruited from all sixth graders in 28 school districts in Pennsylvania and Iowa that met the following inclusion criteria: (a) small or medium size (1,301 to 5,200 students); (b) non-metropolitan area; (c) not affiliated with a university (e.g., not located in communities in which 50% or more of the population is comprised of college or university students and staff); and (d) at least 15% of district families eligible for free or reduced cost school lunches. Overall recruitment was excellent, with participation rates of 93.4% and 96.8% in cohort one and two, respectively.

Participants in the current study include $N = 801$ families from the in-home sample of PROSPER (Cohort 2, Wave 3). The analytic sample was derived in the following way: The families of 2,400 children from the second cohort of the PROSPER sample were randomly selected to be invited for in-home assessments. Random selection was made at the level of community, thus an equal percentage of families from each of the 28 communities were initially contacted by mail, and then by telephone, and invited to participate in the in-home data collection.

Nine hundred and seventy-nine, or 40.8% of the 2,400 families, agreed to participate at the first wave of data collection in the broader study. Among the 979 families, 176 could not be located or declined to participate in the current wave (Wave 3) of data collection. Thirty one families did not have a participating maternal caregiver and 264 families did not have a participating paternal caregiver, leaving a sample of $N = 770$ mothers and $N = 537$ fathers.

The first specific aim of the current study is to examine responses to the IEM-P survey instrument. For these analyses, the final sample is $n = 753$ mothers and $n = 523$ fathers. Cases were removed as follows: (a) $n = 11$ mothers (1.4% of participating mothers) and $n = 7$ fathers (1.3% of participating fathers) were identified as multivariate outliers using the six intra- and inter-personal mindfulness subscale scores; (b) 6 mothers (<1%) and 7 fathers (1.3%) had item-level missing data for the mindful parenting and/or mindfulness survey items.

The remaining aims are investigated with the mother sample and their adolescent children. Fathers are not included in analyses conducted for Aims 2 through 4, other than to demonstrate measurement invariance of the mindfulness scales, thus demographic information is presented for the mother sample only. Over 93.4% of mothers were European-American, reflecting the composition of the small towns and rural areas in Pennsylvania and Iowa. Among 753 participating adolescents included in the current study, there were $n = 361$ boys and $n = 392$ girls. Approximately 54.26% of participating adolescents' parents were both biological parents; the family structure for the remaining families included single parent, adoptive, and stepfamily configurations. Table 1 contains additional demographic characteristics of the mother/adolescent sample.

All participating families were visited at their homes by trained research assistants, who introduced IRB-approved information about the study and obtained informed consent. The home visits included questionnaires and videotaped observation, although only the questionnaire data is used in this report. Less than one hour was spent by each family member to complete the measures listed below.

Table 1

Demographic Characteristic	<i>M</i> or %	<i>SD</i>	Min	Max	%Missing
Adolescent sex	47.94% Boys	...	...	...	0
Adolescent age (years)	12.95	0.45	12	15	0.66%
Mother age (years)	40.68	6.08	23	71	0.80%
Mother education (grades completed)	13.68	2.13	2	20	1.46%
Annual household income	\$56,700	\$4,089	\$800	\$500,000	2.79%
Mother race/ethnicity		...	...	...	1.19%
European-American/Caucasian	93.44%				
Latino/Hispanic	3.90%				
Black/African-American	1.34%				
Asian/Pacific Islander	0.27%				
Native American/American Indian	0.13%				
Other (Not specified)	0.94%				

N = 753 mother/adolescent pairs.

Measures

With the exception of the mindfulness scales, the items in the parent and youth forms have been used in prior longitudinal research on the prevention of adolescent drug use among rural, predominantly European-American, families in the U.S. (Spoth, Redmond, & Shin, 1998; Spoth, Redmond, Shin, & Huck, 1999). The IEM-P scale and the general intra-personal mindfulness scales are included in the appendices. Basic demographic information (e.g., education, income) was assessed using standard items. Household income was rescaled so that values are represented in \$100K increments (e.g., 0.50 = \$50,000). Cronbach's alpha coefficients below are reported for the mother sample; $N = 753$).

Item parceling procedure. The manifest indicators of scales assessing parent psychological symptoms and psychological well-being, and adolescent internalizing and externalizing problem behaviors are “parceled” in the current study. The parceling procedure employed is a method whereby groups of manifest indicators representing a unidimensional factor are combined (e.g., averaged) so as to create a smaller number of “packets” of information for estimating the latent factor (Graham, 2005). The primary benefit of this approach is that it allows for a more streamlined measurement model (i.e., more parsimonious) for scales containing many items, hence allowing fewer chances for residuals to be correlated and leading to a reduction in sources of sampling error (Little, Cunningham, Shahar, & Widaman, 2002).

In the present study, Rogers and Schmitt's (2004) factorial approach is utilized, whereby a principal components analysis is conducted for each one-dimensional measure and the rankings of factor loadings for the single factor are used to guide parcel creation.

Each parcel created in the current study has a balance of items with (relatively) high, medium, and low loadings on the single factor represented by the scale, thus creating an “item-to-construct balance” (Little et al., 2002). The numbers of parcels per measure are noted below (ranging from three to five).

Parent-child affective quality. This six-item scale assesses the affective quality of the mother-adolescent relationship and is comprised of two subscales: Positive Affective Quality ($\alpha = .88$) and Negative Affective Quality ($\alpha = .82$). Each subscale contains three items all rated on a 7-point Likert-type scale, indicating how often the specified events occurred in the past month. Example items include, “Let this child know that you appreciate him/her, his/her ideas, or the things he/she does” (Positive AQ) and “Yell, insult or swear at him/her when you disagreed” (Negative AQ). Overall alpha is .81.

General child management. Three subscales were used to assess mothers’ general child management practices (overall $\alpha = .84$): (a) Use of Inductive Reasoning/Guidance (4 items; $\alpha = .73$) (e.g., “How often do you give reasons to this child for your decisions”); (b) Consistency in Discipline (4 items; $\alpha = .72$) (e.g., “How often do you discipline this child for something at one time, and then at other times not discipline him or her for the *same* thing”); and (c) Parental Monitoring (5 items; $\alpha = .72$) (e.g., “How often do you know who this child is with when he or she is away from home”). Items are rated on a 5-point Likert-type scale. In the current study, a linear transformation was conducted to extend the range of the general child management items from 1-5 to 1-7 in order to match the scale for affective quality.

Mindful parenting (IEM-P Scale). The IEM-P contained 10 items regarding three domains: (a) awareness and present-centered attention regarding one’s internal

experience and one's adolescent during parenting interactions (4 items) (e.g., "I find myself listening to my child with one ear because I am busy doing or thinking about something else at the same time."); (b) openness and non-judgmental receptivity to adolescent's articulation of thoughts and emotions (3 items) (e.g., "I am good at listening carefully to my child's ideas, even when I disagree with them."); and (c) low reactivity to culturally-accepted adolescent behavior (3 items) ("When I'm upset with my child, I notice how I am feeling before I take action"). These items were based upon the major dimensions of mindfulness reported in a recent measurement study of the existing published survey measures of intra-personal mindfulness to-date (Baer et al., 2006). The IEM-P scale is included in Appendix A.

Intra-personal mindfulness. Intra-personal mindfulness was assessed with a 12-item composite scale consisting of three items drawn from the Kentucky Inventory of Mindfulness Skills (Baer et al., 2004), seven items from the Mindful Attention and Awareness Scale (Brown & Ryan, 2003), and two items from the mindfulness subscale of the Self-Compassion Scale (Neff, 2003). This composite scale is included in Appendix B.

Parent psychological functioning. Two broad dimensions of parent psychological functioning were assessed. Parent symptoms of depression and anxiety were assessed by the corresponding subscales of the Symptom Checklist-90-R (SCL-90-R; Derogatis, 1977; Derogatis & Lazarus, 1994). This measure is a well-known 90-item self-report inventory of a host of psychological symptoms. The 10 items of the anxiety scale and the 13 items of the depression scale were combined to represent psychological symptoms ($\alpha = .95$). Participants rated each item using a 5-point Likert scale. The 23 items were combined into 5 parcels.

In addition, parent psychological well-being was assessed using two subscales. The first was comprised of five items from the General Psychological Well-Being Schedule (Dupuy, 1978; Fazio, 1977). The question stem for the scale is as follows: “During the past month, how much of the time...” with items such as, “...were you a happy person,” “...have you felt that the future looks hopeful and promising.” Response options range on a 6-point Likert scale from “all of the time” to “none of the time.” The second subscale contained a 5-item version of the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) (e.g., “Some people are generally very happy. They enjoy life regardless of what’s going on, getting the most out of everything. How well does that describe you?”). Response options range on a 7-point Likert scale ranging from “not at all” to “a great deal” or “less happy” to “more happy.” Items from the General Psychological Well-Being Schedule underwent a linear transformation from a scale ranging from 1-6 to 1-7 in order to be combined with the Subjective Happiness Scale items. Overall alpha for the 9-item scale is .92. The nine items were combined into three parcels.

Adolescent adaptive functioning. Adolescent adaptive functioning was assessed using a 4-item scale of goal setting. Sample items include “I am capable of making good plans for reaching the goals that I have” and “When setting a goal, I think about whether or not it’s a realistic goal.” Responses were on a 5-point Likert-type scale, with greater scores equaling adolescent reports of more adaptive goal setting behaviors. Alpha was .79.

Adolescent problem behavior. Adolescent internalizing and externalizing problems were assessed by two major subscales of the Youth Self-Report (YSR;

Achenbach, 1991). Internalizing problems were assessed with 16 items (e.g., “I feel lonely”) ($\alpha = .88$) and externalizing problems were assessed with 19 items (e.g., “I don’t feel guilty after doing something I shouldn’t”) ($\alpha = .87$). The items were combined into five parcels per scale, and due to positive skewness, square-root transformed scores were used in the analyses.

Plan of Analysis

In the current study, preliminary analyses are conducted to inspect the distributional properties and percent of missing data for each item from the mindfulness scale and the IEM-P scale. The majority of the study hypotheses are tested using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM), unless otherwise noted. CFA/SEM is conducted in Mplus version 3.11 (Muthén & Muthén, 1998-2004) using Maximum Likelihood (ML) estimation in order to use the full information present with the occurrence of missing data, thus avoiding loss of cases available for analysis.

The detection of multivariate outliers will be conducted by using the Mahalanobis distance (D) statistic. D^2 has a χ^2 distribution in large samples and the degrees of freedom are equal to the number of variables. Multivariate outlier detection will be carried out using the subscales of the Interpersonal Mindfulness in Parenting scale and the general intra-personal mindfulness scale. Cases are to be eliminated based on violation of the null hypothesis that the case is from the same population as the rest of the cases ($p < .001$).

The structure of the parenting data in the current study is such that parents are nested within families. Father data, however, is not examined other than in multiple

group analyses to determine measurement invariance of the mindfulness constructs. The nesting of the data at the community level is not expected to warrant concern, as there is no reason to expect that levels of mindful parenting will vary by community. Whenever appropriate, a dummy-coded variable representing participation in the PROSPER intervention (control vs. intervention) is added as a covariate in analyses of structural models to control for potential effects of the intervention.

Model generation in SEM. It is typical for *a priori* CFA/SEM models to require some re-specification in order for researchers to achieve models that fit their data adequately to test substantive hypotheses (Kline, 2005). This “model generating” approach to CFA (Joreskog, 1993) will be employed in the present study. As such, theoretical rationale will be used to provide strong guidelines for each model re-specification decision. Empirical information (i.e., inter-item correlations and modification indices) will be examined to confirm the statistical utility of each theoretically-guided model adjustment. Prior to model estimation, all measurement and structural models will be examined to determine adequate model identification. Wherever necessary, additional constraints will be imposed to ensure that the number of “observations” (i.e., observed variances and covariances) for each model equals or exceed the number of parameters to be estimated, thus improving the likelihood of achieving empirical identification (Bollen, 1989; Kline, 2005).

Assessing model fit. The Chi-square test statistic, the comparative fit index (CFI), and root mean square error of approximation (RMSEA) goodness-of-fit criteria are utilized to determine CFA/SEM model fit. The Chi-square test statistic is known to be highly sensitive to sample size, with hypothesized models almost always tending to be

rejected ($p < .001$) in large samples. Since the sample size for the current study falls in the range of “medium” to “large” for conducting SEM (Kline, 2005), the Chi-square test statistic is not expected to be particularly accurate in determining whether to reject the hypothesized model in comparison to the null model. With large samples, the ratio of χ^2 /degrees of freedom may be more informative; with values below 5, 3, and 2 having been reported as potential cut-points for ascertaining reasonable, good, and very good certainty that the hypothesized model should *not* be rejected (Bollen, 1989).

The CFI and the RMSEA are not as affected by sample size as the χ^2 statistic. The CFI is used to compare nested models and varies from 0 to 1. A CFI value above .90 represents adequate fit and above .95 indicates a very good fit (Hu & Bentler, 1999). RMSEA values of less than or equal to .06 are considered to indicate good model fit (Hu & Bentler, 1999), less than or equal to .08 are considered to represent reasonable fit, and values above .10 are considered poor fit. The Aikake Information Criterion (AIC) is also reported.

Chapter 3

RESULTS

Specific Aim 1

The first aim of the current study was to assess the measurement properties of the Interpersonal Mindfulness in Parenting (IEM-P) scale.

Hypothesis 1a. The IEM-P scale was hypothesized to assess three factors of mindful parenting: present-centered awareness and attention; non-judgmental receptivity; and non-reactivity—and these three facets were expected to represent a higher order factor of mindful parenting.

The first stage of testing Hypothesis 1a. was to examine the distributional properties and intercorrelations of the ten IEM-P items (see Table 2 for scale items and Table 3 for correlations). The items all appeared to follow a Gaussian normal distribution and item means and standard deviations are presented in Table 3. The pattern of correlations revealed two potentially poor items (items 10 and 5) and a pattern of correlations between items 1 and 9, and between 3 and 6, that seemed representative of two separate factors, not the single attention/awareness factor that was hypothesized.

IEM-P Item 10, “I have difficulty accepting my child’s growing independence,” was found to be slightly negatively correlated with one other item and showed low correlations with all others. It was the sole item of the scale not based upon prior survey research in mindfulness and was therefore determined to be a poor indicator of the non-judge facet of mindful parenting. Although it was hypothesized that present-centered attention in parenting and awareness in parenting would form one factor, the correlation between items 1 and 9 and the correlation between items 3 and 6 (with little to no cross

relations), suggested the possibility of two distinct dimensions. Upon further examination, taking into account theoretical considerations, items 1 and 9 appeared to assess a *cognitive* facet of present-centered mindful parenting (attention) and items 3 and 6 appeared to assess an *affective* facet (emotional awareness). This conclusion led to the hypothesis that mindful parenting would be better represented by including an additional dimension, for a total of four first-order factors, in order to distinguish between the cognitive and affective aspects of present-centered awareness and attention. Item 5, “I often react too quickly to what my child says or does” was found to lack evidence for a unidimensional relationship with the other items in the scale, as shown by its moderate correlations with eight other items (ranging from .25 to .33), as was thus determined to be a potentially poor indicator of the non-reactivity scale.

Table 2

<i>IEM-P Items by hypothesized subscale</i>
<u>Awareness and present-centered attention</u>
1. I find myself listening to my child with one ear, because I am busy doing or thinking about something else at the same time.*
3. I notice how changes in my child’s mood affect my mood.
6. I am aware of how my moods affect the way I treat my child.
9. I rush through activities with my child without being really attentive to him/her.*
<u>Openness and non-judgmental receptivity</u>
4. I listen carefully to my child’s ideas, even when I disagree with them.
7. Even when it makes me uncomfortable, I allow my child to express his/her feelings.
10. I have difficulty accepting my child’s growing independence.*
<u>Non-reactivity</u>
2. When I’m upset with my child, I notice how I am feeling before I take action.
5. I often react too quickly to what my child says or does.*
8. When I am upset with my child, I calmly tell him/her how I am feeling.

Items with an * are reverse-scored.

Table 3

Item-level intercorrelations for the mindful parenting manifest indicators

Scale Item	1	2	3	4	5	6	7	8	9	10
IEM-P 1	---									
IEM-P 2	0.18	---								
IEM-P 3	ns	0.24	---							
IEM-P 4	0.30	0.37	0.18	---						
IEM-P 5	0.31	0.33	Ns	0.31	---					
IEM-P 6	ns	0.24	0.29	0.21	ns	---				
IEM-P 7	0.19	0.31	0.17	0.50	0.28	0.29	---			
IEM-P 8	0.18	0.44	0.13	0.42	0.33	0.18	0.35	---		
IEM-P 9	0.44	0.24	Ns	0.34	0.25	0.10+	0.23	0.19	---	
IEM-P 10	0.15	0.10+	Ns	0.18	0.27	Ns	0.21	0.19	0.29	---
Mean	3.20	3.46	3.76	3.20	3.94	3.88	4.08	3.52	3.77	3.59
(SD)	(.69)	(.68)	(.71)	(.69)	(.66)	(.74)	(.70)	(.73)	(.70)	(.87)

All correlations are statistically significant at $p < .0001$ unless noted with + ($p < .01$) or ns ($p > .05$).

Mindful parenting model generation. To further test Hypothesis 1a., a series of confirmatory factor analysis (CFA) models were specified with a randomly selected subsample of the mothers (49.8%, $n = 375$). As expected from examining the inter-item correlation matrix, the original, *a priori* model (see Figure 1) (MP₁) did not converge. It was necessary to constrain an additional first-order factor loading in order to achieve empirical identification of the model (the unstandardized loadings of both non-judge and non-react on the higher order factor were constrained). After removal of IEM-P item 10 (the item deemed to be a poor indicator of the non-judge facet), the second version of the mindful parenting CFA model (MP₂) reached statistical convergence, but goodness-of fit criteria supported the expectation that this model would not be a good fit for the data (see Table 4 for fit).

Since model MP₂ still contained a single factor for items 1, 3, 6, and 9, which were expected to lack a uniformity of relations, model estimates and modification indices were examined to gauge additional empirical support for the hypothesis that two separate factors would provide a better representation of these four items. Examination of the standardized factor loadings (showing low to moderate values ranging from $\beta = .33$ to $.55^1$) and modification indices (showing that separating items 1 and 9 from 3 and 6 should yield a substantial improvement in the Chi-square test statistic) provided additional support for this hypothesis.

A third model (MP₃) including two separate factors for present-centered attention and emotional awareness yielded a closer fit to the data (see Table 4), but still did not achieve a CFI of .95 or an RMSEA of .06. After removal of the second potentially poor

¹ Standardized estimates generated by Mplus are based on the variances of both the latent and observed variables.

item, item 5 (the item expected to be a poor indicator of non-reactivity), the final model to be estimated (MP₄) had a CFI of .94 and an RMSEA of .05, and the Chi-square to degrees of freedom ratio reached 2.59, all of which collectively suggested an adequately-fitting model. This model was then replicated in the second sample of mothers.

Table 4

Mindful parenting model generation, cross-validation, and final measurement model

Model	χ^2	<i>df</i>	χ^2/df	CFI	RMSEA	AIC
<i>Mothers: Sample 1 (n = 375)</i>						
MP ₁	...	...	...	...	...	...
MP ₂	127.60	25	5.10	0.83	0.11	6847.33
MP ₃	71.45	24	2.98	0.92	0.07	6793.18
MP ₄	44.01	17	2.59	0.94	0.05	6007.94
<i>Mothers: Sample 2 (n = 378)</i>						
MP ₅	32.61 ^{ns}	17	1.92	0.97	0.05	5793.65
<i>Multiple Groups: Mothers (N = 753) and Fathers (N = 523)</i>						
MP ₆	82.82	38	2.18	0.97	0.04	20100.21
<i>Mothers: Full Sample (N = 753)</i>						
MP ₇	51.22	17	3.01	0.97	0.05	11791.07

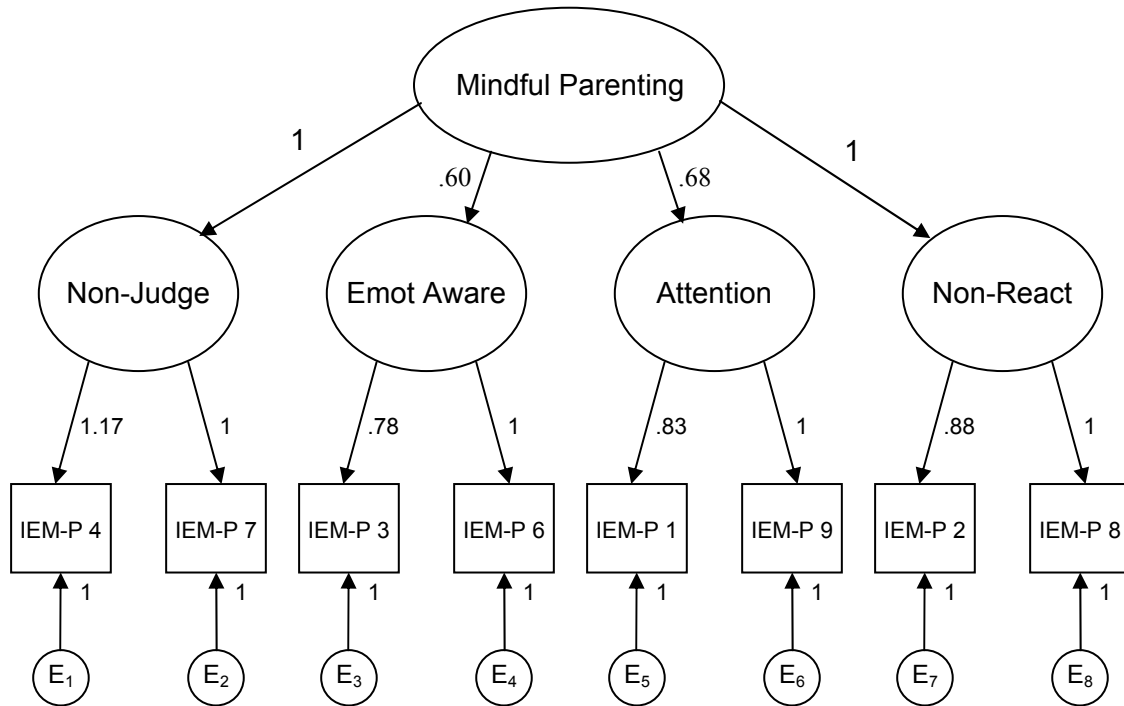
Note. ns = $p > .05$, meaning the hypothesized model should *not* be rejected.

Cross-validation of the IEM-P scale. The MP₄ model of mindful parenting (i.e., four first-order factors and one second-order factor) was specified for the second, independent sample of mothers ($n = 378$, 50.2% of total sample). The examination of numerous model-fit criteria indicated that this model (MP₅) provided a very good fit to the data (see Table 4), supporting the stability across samples of the factor solution generated during the investigation of Aim 1.

Measurement invariance of the IEM-P scale. To further test the stability and validity of the mindful parenting model, a test of measurement invariance was conducted across two groups: the full sample of mothers ($N = 753$) and the full sample of fathers ($N = 523$). Strong invariance was tested by constraining factor loadings to be equal across groups. This test yielded a well-fitting model (MP₆) (see Table 4) as compared to the null model, suggesting that mindful parenting may be conceptually similar for mothers and fathers.

Final model of mindful parenting. The investigation of Aim 1 provided strong support for a four first-order, one second-order CFA model of mindful parenting as replicable and invariant. Thus, the specifications from the final model were fit to the full sample of mothers for use as the measurement model for mindful parenting (MP₇) in subsequent structural models used to investigate study Aims 2 through 4. Fit indices for this model with the full sample of mothers ($N = 753$) are listed in Table 4 and unstandardized factor loadings are depicted in Figure 5 (see Appendix D for a table of model estimates).

Figure 5. Final measurement model for mindful parenting (N = 753 mothers)



Hypothesis 1b. The IEM-P scale was expected to have good overall internal consistency and the facets of mindful parenting were each expected to have adequate subscale reliability.

Although the factor loadings provide information regarding reliability, the traditional reliability estimates for the total IEM-P scale and each subscale were also evaluated to further examine Hypotheses 1b. Cronbach's alpha coefficients were computed (see Table 5), along with Pearson's correlations for each of the two-item subscales. This hypothesis was supported by an alpha for the overall scale indicating adequate reliability ($\alpha = .72$). The subscale alphas and correlations were moderate, with the lowest relation occurring between the emotional awareness items, but deemed reasonable when considering the limitations of subscales comprised of only two items.

Table 5

Reliability of the manifest mindful parenting scale/subscales

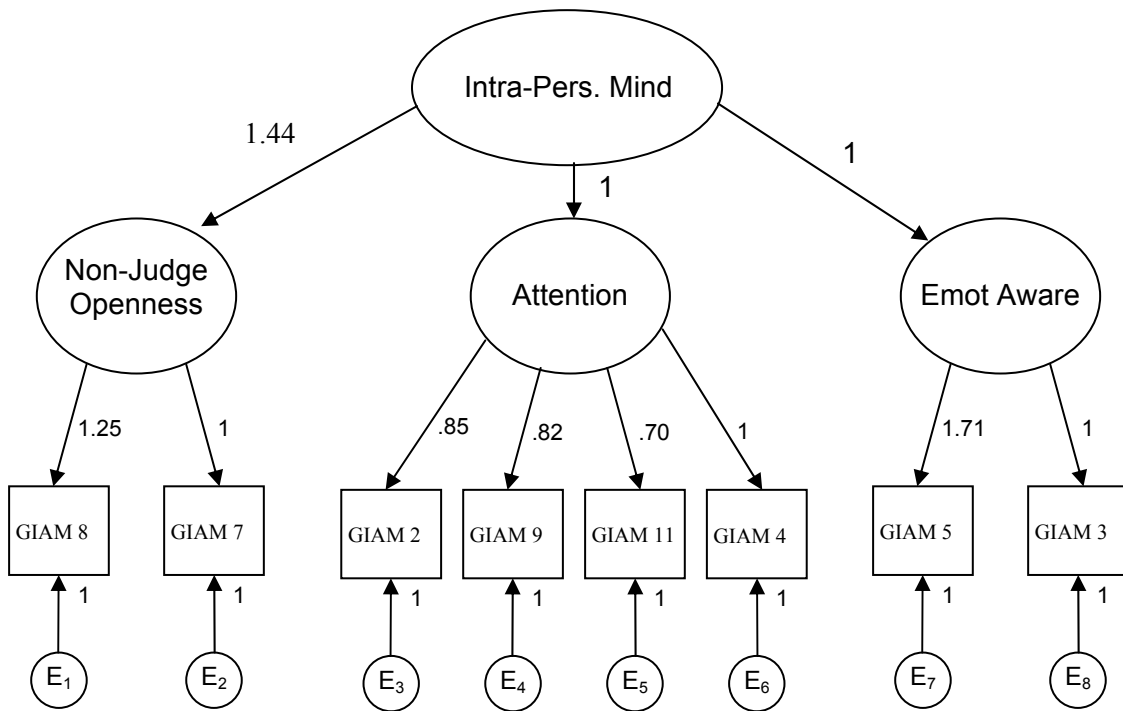
	Coefficient alpha (std)	Pearson's correlation
Interpersonal Mindfulness in Parenting Scale (8 items)	0.72	N/A
Present-Centered Attention Subscale (2 items)	0.61	0.44****
Emotional Awareness Subscale (2 items)	0.45	0.29****
Low-reactivity Subscale (2 items)	0.61	0.44****
Non-judge Subscale (2 items)	0.66	0.50****

**** $p < .0001$. $N = 753$.

Specific Aim 2

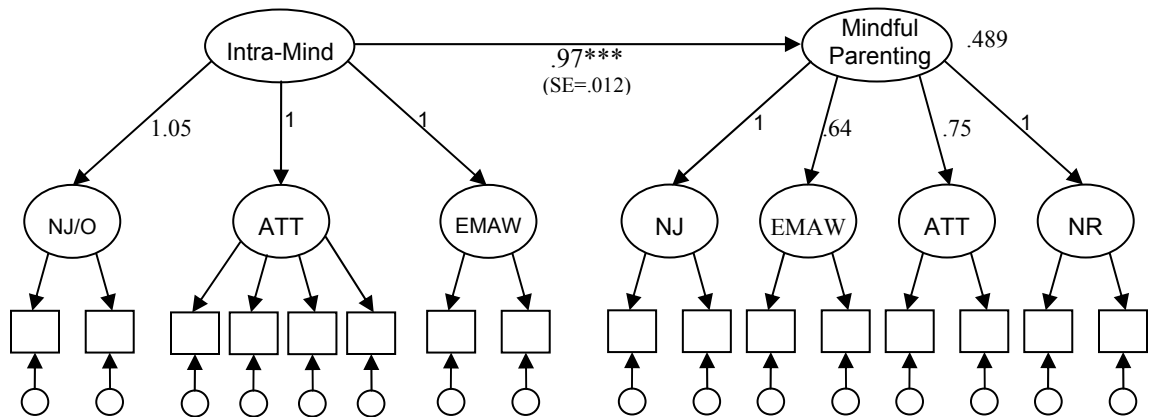
The second aim was to assess relations between parent background characteristics, including intra-personal mindfulness, and mindful parenting. In order to do so, a CFA of the general intra-personal mindfulness (GIAM) scale was estimated to ascertain its measurement properties. The results of several steps of model generation are included in Appendix C. The final model for intra-personal mindfulness (see Figure 6) [$\chi^2(18) = 40.85$, CFI = .98, RMSEA = .04] was used in subsequent analyses. This model contained three first-order factors: intra-personal non-judging/openness, intra-personal present-centered attention, and intra-personal emotional awareness, all representing a higher-order factor. In contrast to the work of Baer and colleagues (2006), no clear non-reactivity factor emerged.

Figure 6. Final measurement model for intra-personal mindfulness (unstandardized).



Hypothesis 2a. Intra-personal mindfulness was expected to be positively related to mindful parenting. This hypothesis was tested by examining a simple structural model (see Figure 7) that represented the relation between intra-personal mindfulness and mindful parenting. The resulting model [χ^2 (98) = 288.31, CFI = .92, RMSEA = .05] revealed a statistically significant, positive relationship that explained a moderate amount of the variance of mindful parenting ($\beta = .70^2$, $z = 8.88$, $p < .0001$, $R^2 = 0.489$). This model was a significant improvement over a nested model with the path between intra-personal mindfulness and mindful parenting constrained to zero [χ^2 (99) = 430.74, CFI = .86, RMSEA = .07]. In this case, $\chi^2 \Delta$ (1) = 142.43, $p < .0001$, indicating a significant improvement in fit.

Figure 7. The relation between mindfulness and mindful parenting (unstandardized).



Hypothesis 2b. Intra-personal mindfulness was expected to be necessary, but not sufficient for exhibiting interpersonal mindfulness in the domain of parenting. To examine this hypothesis, a person-centered approach was used in which each mother was classified as “high”, “medium”, or “low” separately for both mindful parenting and intra-

² Betas signify the amount of change in an outcome variable per standard deviation unit of a predictor variable.

personal mindfulness. Cut-off points were determined so that high and low scores represented approximately one-third of the distribution. A Chi-square test was utilized to determine the relation between the two dichotomous scores. Mothers falling into the medium categories were excluded from the cross-tabulation.

Support for Hypothesis 2b. was mixed. The hypothesis that there would be *very few* mothers in the low intra-personal mindfulness and high mindful parenting category, with a considerable number of mothers falling into the remaining three categories was not supported. As shown in Table 6, while most mothers were either low on both dimensions or high on both dimensions (78% of the sample), a roughly equal percentage were low on mindful parenting and high on intra-personal mindfulness or vice versa.

Table 6

Crosstabulations of high vs. low mindfulness and mindful parenting

n (%) Observed	Intra-Personal Mindfulness	
	LOW (n = 103; 41.37%)	HIGH (n = 146; 58.63%)
Mindful Parenting		
LOW (n = 109; 43.78%)	79 (31.73%)	30 (12.05%)
HIGH (n = 140; 56.22%)	24 (9.64%)	116 (46.59%)

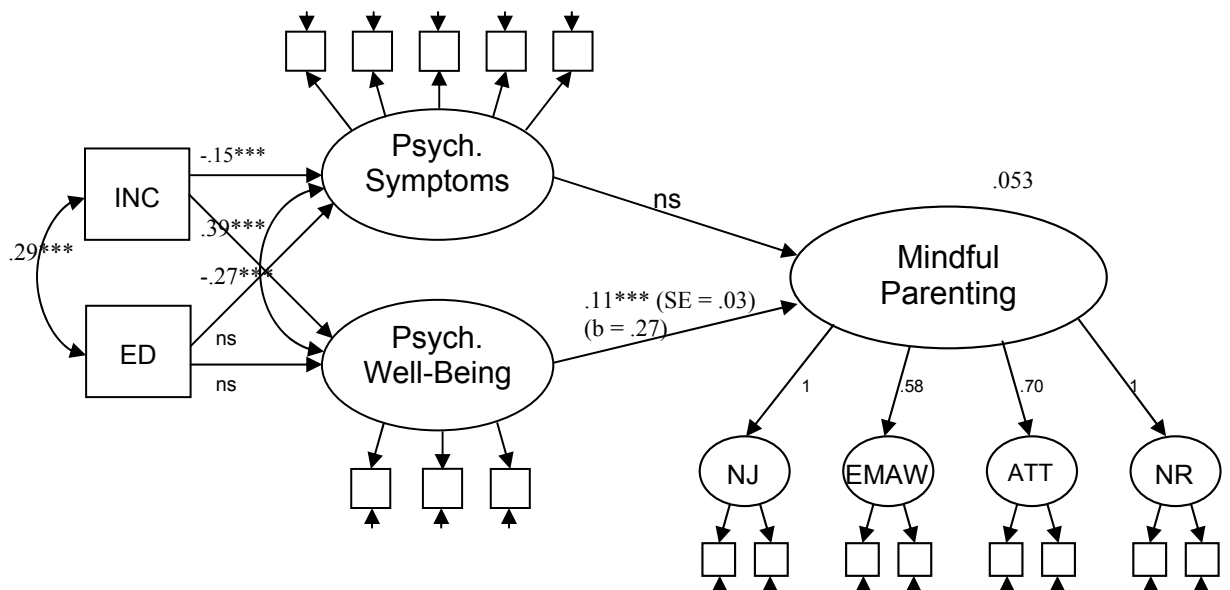
Chi-Square (df) = 77.37 (1), $p < .0001$, $n = 249$.

Hypothesis 2c. Parent psychological well-being was expected to have a positive relation to mindful parenting and psychological symptoms were expected to have an inverse relation to mindful parenting.

Partial support for this hypothesis was found by fitting the full structural model depicted in Figure 2. Separate, preliminary models were first estimated to determine the

relations between the psychological functioning variables and mindful parenting without consideration of the other independent variable. Examined separately, psychological symptoms had the expected inverse relation with mindful parenting ($\beta = -.13, z = -3.12, p < .01, R^2 = .018$) and psychological well-being had the expected positive relation with mindful parenting ($\beta = .23, z = 5.16, p < .0001, R^2 = .052$). Including both latent variables simultaneously, however, revealed that psychological well-being was the only one to have a unique relation to mindful parenting over and above the other factor ($\beta = .27, z = 3.95, p < .0001$) (see Figure 8). The full model was found to have good fit [$\chi^2(126) = 404.02, CFI = .96, RMSEA = .05$] and accounted for over five percent of the variance in mindful parenting ($R^2 = .053$).

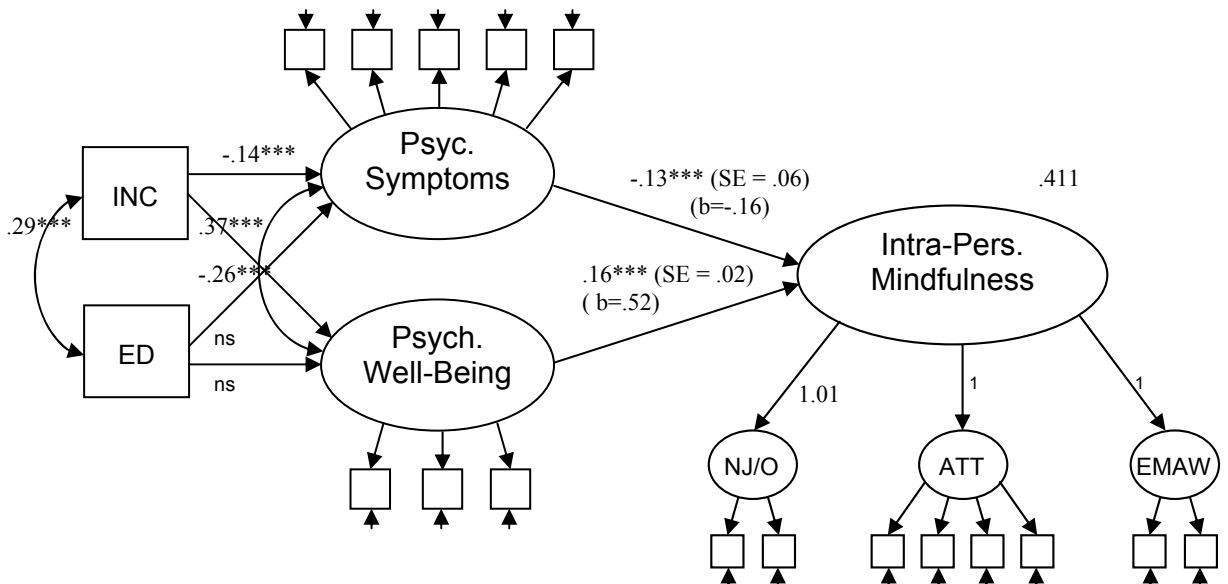
Figure 8. Final model of the relation between psychological functioning and mindful parenting.



Hypothesis 2d. Psychological symptoms and well-being were expected to predict more of the variance in intra-personal mindfulness than they would predict of the variance in mindful parenting.

A similar model to the model estimated for mindful parenting under Hypothesis 2c. was examined as the first step for determining support for Hypothesis 2d. In separate models, psychological symptoms had a significant inverse relation to intra-personal mindfulness ($\beta = -.47, z = -8.55, p < .0001, R^2 = .219$) and psychological well-being had a significant positive relation ($\beta = .53, z = 8.91, p < .0001, R^2 = .279$). When modeled simultaneously with covariates, the full model revealed that both well-being and psychological symptoms were significantly associated with intra-personal mindfulness [$\chi^2 (128) = 499.15, CFI = .95, RMSEA = .06$]. Psychological symptoms was inversely related to intra-personal mindfulness and psychological well-being was positively related to intra-personal mindfulness (model $R^2 = .411$) (see Figure 9).

Figure 9. Final model of the relation between psychological functioning and intra-personal mindfulness.



Support for Hypothesis 2d. was found by examining the proportion of variance explained (R^2) in the outcome variables for each of the models. Only 5.3% of the variation in mindful parenting was explained by the model of the relation between

psychological functioning and mindful parenting, whereas 41.1% of the variation in intra-personal mindfulness was accounted for by the model of the relation between psychological functioning and mindfulness. In addition, psychological symptoms had unique predictive power only in the intra-personal mindfulness model, not in the mindful parenting model.

Specific Aim 3

Assess the validity of the IEM-P scale by examining the concurrent relations between mindful parenting and other empirically supported dimensions of parenting.

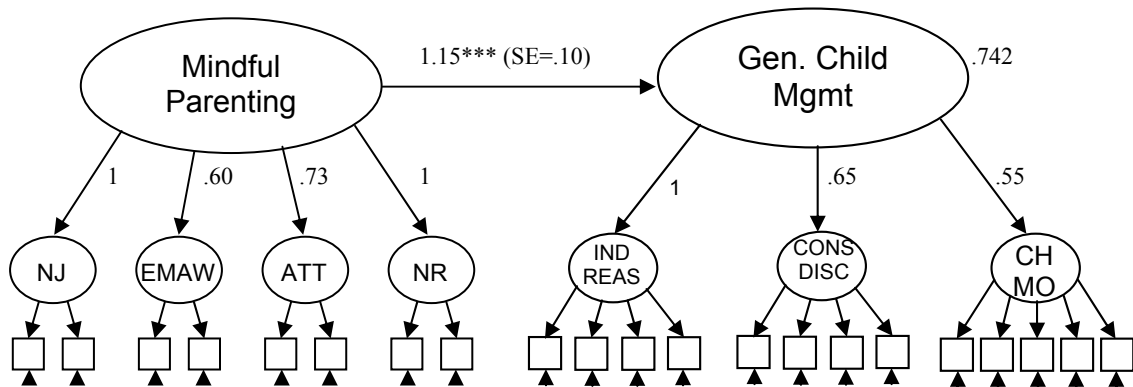
Hypothesis 3. Mindful parenting was expected to have a positive relation to parent-child affective quality and effective child management practices (e.g., inductive reasoning, consistent discipline, high monitoring).

This hypothesis was supported by the results of a series of models estimated with the parameters depicted in Figure 3. The first model (see Figure 10) [$\chi^2(258) = 584.46$, CFI = .91, RMSEA = .04], revealed a positive relation between mindful parenting and general child management (a higher order construct represented by three first-order factors: inductive reasoning, consistent discipline, and child monitoring), when controlling for household income, mother's education, family structure (i.e., whether both parents were biological), and PROSPER intervention condition ($\beta = .832$, $z = 11.17$, $p < .0001$).

The proportion of the variance of general child management accounted for in this model was substantial ($R^2 = .742$), and represents the combined influence of mindful parenting and the four covariates. These findings included a significant, positive relation between household income and general child management ($\beta = .13$, $z = 2.66$, $p < .01$).

The strong relation between mindful parenting and general child management provides support for Hypothesis 3. However, given that such a large proportion of the variance in general child management was accounted for, it was important to establish the independence of the two constructs. To do so, the modification indices for the model were examined to check whether the Chi-square test statistic would improve if any of the mindful parenting indicators were re-specified as indicators of general child management. None of the mindful parenting items were identified as needing modification, thus providing additional confidence regarding the independence of mindful parenting and child management.

Figure 10. Preliminary model of the relation between mindful parenting and general child management (unstandardized).

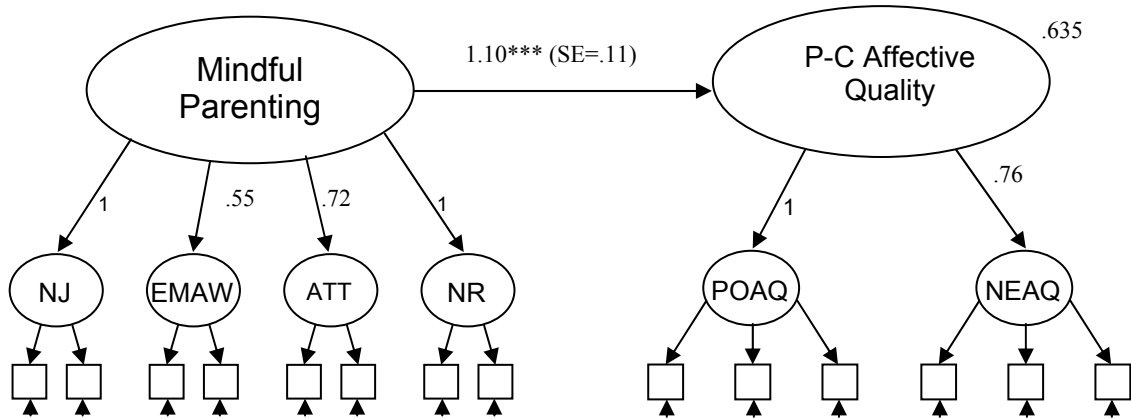


Note. Exogenous demographic covariates were included in the model but are not depicted (see Appendix D for variables, estimates, and standard errors).

The next step of testing this hypothesis involved estimating a similar model with parent-child affective quality as the outcome variable (see Figure 11) [$\chi^2(119) = 276.29$, CFI = .95, RMSEA = .04]. With demographic covariates controlled, the relation between mindful parenting and mother-child affective quality was also positive ($\beta = .788$, $z = 9.85$, $p < .0001$). This model also accounted for a substantial portion of the variance (R^2

= .635) so modification indices were once again examined, and no re-specification of the mindful parenting indicators was necessary, suggesting independence between mindful parenting and parent-child affective quality.

Figure 11. Preliminary model of the relation between mindful parenting and parent-child affective quality (unstandardized).

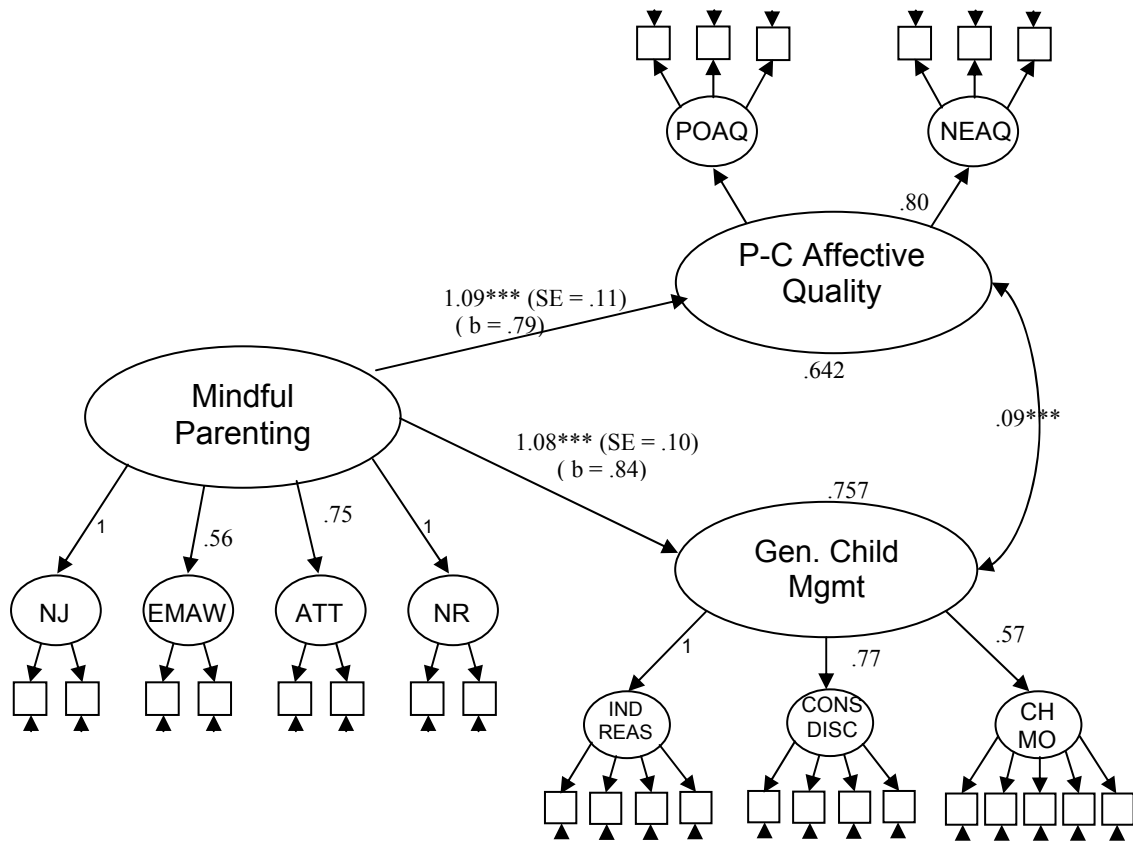


Note. Exogenous demographic covariates were included in the model but are not depicted (see Appendix D for variables, estimates, and standard errors).

Finally, a full model with both parenting outcomes and demographic covariates was estimated, revealing a model with reasonable fit (see Figure 12) [$\chi^2(409) = 982.21$, CFI = .91, RMSEA = .04] and significant, positive relations between mindful parenting and the two dimensions of specific parenting practices.

The unique, concurrent relations between mindful parenting and the other two dimensions of parenting, and the substantial proportion of the variance accounted for in those factors, provides preliminary support for the validity of mindful parenting as a meaningful parenting construct that is independent from, yet associated with multiple aspects of parenting in an expected manner.

Figure 12. Final model of the relation between mindful parenting, general child management, and parent-child affective quality.



Note. Exogenous demographic covariates were included in the model but are not depicted (see Appendix D for variables, estimates, and standard errors).

Specific Aim 4

The final aim was to examine the direct and indirect effects of mindful parenting on concurrent adolescent problem behavior and adaptive functioning.

Hypothesis 4a. Mindful parenting was expected to have a direct, inverse relation to adolescent problem behavior (i.e., internalizing/externalizing problems) and a direct, positive relation to adaptive functioning (i.e., goal setting).

Hypothesis 4b. Mindful parenting was also expected to have indirect relations to adolescent adaptive functioning and problem behavior (inverse relation) that are partially mediated through parent-child affective quality and child management practices.

Figure 4 depicts the basic form of the SEM models that were estimated in order to test hypotheses 4a. and 4b. These analyses involved modeling the direct and indirect effects of mindful parenting on the three domains of adolescent adjustment. Indirect effects were modeled with parent-child affective quality and general child management specified as mediators of the effect of mindful parenting on adolescent outcomes (separately in preliminary models and together in full models). Adolescent goal setting analyses were conducted for both genders combined. For internalizing and externalizing problem behavior, however, separate models were estimated for boys and girls since previous research has shown that boys tend exhibit more externalizing and aggressive problem behaviors and that girls exhibit more internalizing problem behaviors.

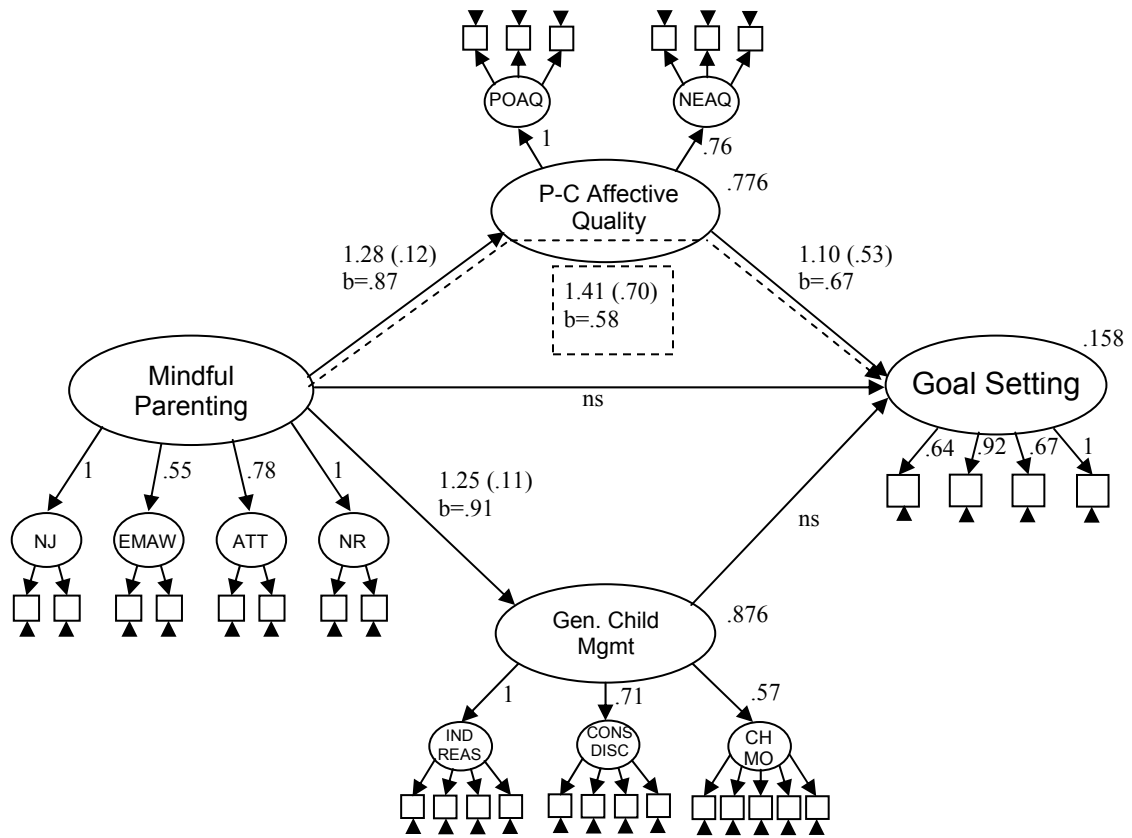
Goal setting. Prior to testing the mediation model predicting adolescent goal setting, preliminary models were estimated to determine the relations between each independent variable and the outcome. The same four demographic covariates from prior models were included as exogenous, manifest control variables. Each of the three parenting constructs was found to have a statistically significant, positive relation to goal setting in well-fitting preliminary models.

The mindful parenting model [$\chi^2(90) = 125.02$, CFI = .98, RMSEA = .02] accounted for 4.9% of the variance in goal setting ($\beta = .11$, $z = 2.37$, $p < .05$). The general child management model [$\chi^2(175) = 423.85$, CFI = .92, RMSEA = .04] accounted for slightly more variance in goal setting ($R^2 = .058$) ($\beta = .18$, $z = 2.99$, $p < .01$). The mother-

child affective quality model [$\chi^2(64) = 95.39$, CFI = .99, RMSEA = .03] had the greatest predictive power ($R^2 = .094$) ($\beta = .24$, $z = 4.14$, $p < .0001$) in relation to adolescent goal setting. Next, tests of single mediation were conducted by modeling the effect of mindful parenting on goal setting with one mediator. Both models revealed indirect effects on goal setting through the other parenting constructs, so the final model was estimated with both mediators included.

The final model (see Figure 13) combined all three parenting constructs as predictors of goal setting [$\chi^2(529) = 1144.72$, CFI = .92, RMSEA = .04], with general child management and mother-child affective quality as mediators of the effect of mindful parenting on goal setting. Once the additional terms were included in the model, general child management did not appear to have a unique relationship with adolescent goal setting independent of the other paths in the model ($p > .05$). Results indicated a significant, positive indirect effect of mindful parenting on adolescent goal setting through mother-child affective quality only (Sobel test: $\beta = .582$, $z = 2.02$, $p < .05$). Complete mediation of the mindful parenting effect on goal setting was signified by the evidence that the direct effect dropped to non-significant with the inclusion of the mediators. Given that each independent variable accounted for less than 10% of the variance in goal setting in preliminary models, this mediation model was evidence of a relatively modest effect.

Figure 13. Final mediation model of the relation between mindful parenting, general child management, parent-child affective quality, and adolescent goal setting.

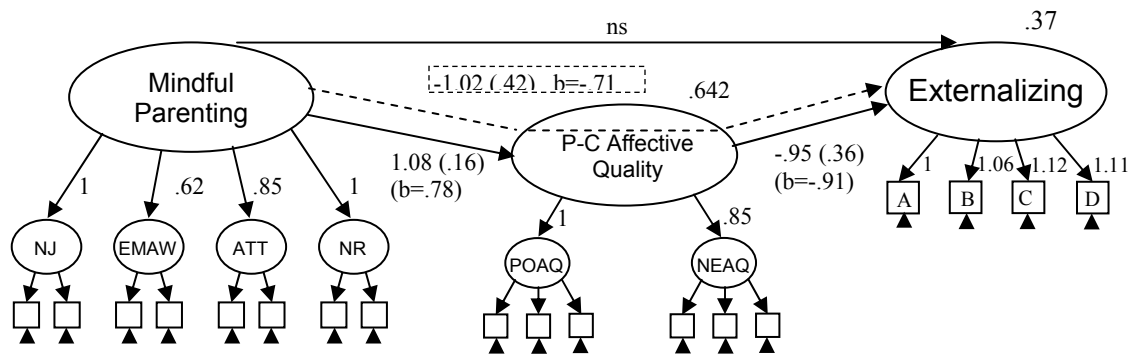


Note. Exogenous demographic covariates were included in the model but are not depicted (see Appendix D for variables, estimates, and standard errors).

Problem behavior. The preliminary model relating mindful parenting with boys' externalizing problems did not reveal a significant association. Given the lack of a direct effect for boys, mediation models were not tested. In contrast, the model for girls' externalizing behavior had excellent fit [$\chi^2(90) = 85.9$, CFI = 1, RMSEA = .001] and revealed an inverse relation between mindful parenting and externalizing behavior problems ($\beta = -.14$, $z = -2.19$, $p < .05$) that accounted for 7.6% of the variance in girls' externalizing problems. The single mediation models showed that mother-child affective quality was a significant mediator of the effect of mindful parenting on externalizing

problems for girls, but that general child management was not, so a dual-mediation model was not tested. The model with mother-child affective quality as the single mediator of an inverse effect had a good fit [$\chi^2(187) = 275.26$, CFI = .97, RMSEA = .035] (see Figure 14) and accounted for 37% of the variance in girls' externalizing problems. In addition, a significant, positive mediation effect demonstrated the full mediation of the indirect effect of mindful parenting on girls' externalizing problems (Sobel test: $\beta = -.71$, $z = -2.44$, $p < .05$).

Figure 14. Final mediation model of the relation between mindful parenting, parent-child affective quality, and adolescent girls' externalizing problem behavior.



Note. Exogenous demographic covariates were included in the model but are not depicted (see Appendix D for variables, estimates, and standard errors).

The preliminary models of the relation between mindful parenting and adolescent internalizing behavior did not reveal significant results for either boys or girls. The models had adequate fit, but the regression estimates were non-significant ($p > .05$) and the portion of the variance accounted for was negligible. Since no relation was found between mindful parenting and internalizing behavior, mediation models were not examined for adolescent internalizing behavior.

DISCUSSION

The goal of the present study was to begin to establish the validity and reliability of an innovative parenting construct: mindful parenting. Through the investigation of four specific aims, mindful parenting, as measured by the Inter-personal Mindfulness in Parenting (IEM-P) scale, was shown to have properties of reliability and construct, convergent, discriminant, and concurrent-predictive validity. First, an examination of the IEM-P measurement properties supported a measurement model for mindful parenting comprised of a higher order factor, as hypothesized, and four first-order factors, one more than anticipated. This model was replicated in an independent sample and shown to have measurement invariance across mothers and fathers.

For mothers, mindful parenting was shown to be related to, yet independent from intra-personal mindfulness, an established construct representing intra-personal present-centered awareness and attention with a non-judgmental stance (Baer et al., 2006). Prior survey research regarding intra-personal mindfulness formed the basis for the extension of the study of mindfulness to the interpersonal domain of parent-child relations. A key finding of this study was that these two constructs appeared to be clearly distinct for rural, European-American mothers of young teens. One aspect of the discriminant validity of mindful parenting was demonstrated by examining the differential relations between psychological symptoms, psychological well-being, and the two mindfulness constructs. Psychological functioning was shown to account for a much larger proportion of the variance in mothers' intra-personal mindfulness than was accounted for in their mindful parenting.

Third, the construct validity of mindful parenting was further demonstrated through an assessment of the relation between mindful parenting and two other higher-order parenting constructs, parent-child affective quality and general child management. Mindful parenting accounted for a large proportion of the variance in these two constructs, yet appeared independent from them according to empirical information provided through the structural modeling technique utilized in the current study. Finally, self-reported mindful parenting among mothers was shown to be moderately predictive of concurrent, adolescent-reported goal setting and girls' externalizing behavior. These relations were shown to be mediated through parent-child affective quality, but not general child management. Implications of the findings from Aims 1 through 4 are discussed in greater detail below, as are the limitations of the present study, and future directions for this line of research.

The Measurement of Mindful Parenting

The first aim of the current study was to assess the measurement characteristics of a newly developed scale that was designed to assess "mindful parenting." As there was a clear, specific *a priori* hypothesis regarding the factor structure of mindful parenting, Confirmatory Factor Analysis (CFA) (Bollen, 1989) provided the soundest approach for investigating the first aim. The process of examining the relations among the individual items and then using theoretical considerations to steer a clear process of CFA model generation allowed for a theoretically-guided, versus solely empirical (a la Exploratory Factor Analysis) (Van Prooijen & Van Der Kloot, 2001), selection of a well-fitting factor model.

Factor structure. Although three first order factors were hypothesized, four first-order factors were found. The expected factors of non-judgmental receptivity and non-reactivity were confirmed, and the two aspects of present-centered awareness and attention were separated into two distinct first order factors. This is not surprising in hindsight. It was not expected that self-report assessment would be sufficiently sensitive to pick up any distinction between cognitive versus affective aspects of present-centered awareness and attention in parenting, but the current study suggests that possibility.

There is an emerging line of research on the neurologic processes at play in mindfulness meditation and emotion regulation that is focused on “neural chronometry.” The study of neural chronometry involves teasing apart the timing of processes at the level of the brain that are associated with distinct cognitive and affective processes (e.g., the sequencing of amygdala and pre-frontal cortex activity) (see Goldsmith & Davidson, 2004). It is possible that the different cognitive (attention) and affective (emotional awareness) components of mindful parenting found in the current study are behavioral representations of sequential and distinct, yet clearly linked, brain processes involving cognition and affect.

Caution must be taken with regards to interpreting this aspect of the current findings since only four observed items are involved. Future work must be undertaken to expand the battery of survey items used to assess the present-centered attention and the present-centered emotional awareness aspects of mindful parenting. It would also be informative to combine observational and physiological assessment with the self-report study of mindful parenting.

Cross-validation and measurement invariance. A strength of the present study is the strong evidence for the validity of mindful parenting factor structure demonstrated through the cross-validation of the final IEM-P CFA model. By stringent assessment of all goodness-of-fit indices, the final CFA model for mindful parenting was shown to be an excellent fit for the second, independent, sample of mothers (even producing the desired non-significance of the test of the Chi-square statistic). It is often necessary for multiple studies to be carried out to cross-validate the measurement model of a new scale (Maruyama, 1998). The large sample size of the PROSPER project allowed for the random selection of two comparable samples of mothers while still allowing for sufficient power to test CFA measurement models in an SEM framework. As longitudinal data will be collected from the total sample as part of the larger project, examination of the stability of the mindful parenting factor structure across time will be possible in the future.

Although not included in the investigation of Aims 2 through 4, the father sample provided an opportunity to gauge the fit of the mindful parenting factor structure in an additional sample. Strong measurement invariance is often difficult to show across demographic subgroups (Kline, 2005), but was clearly evident in the multiple-group CFA model estimated with factor loadings constrained to be equal across mothers and fathers. Mean levels of mindful parenting were not under examination in the current study, but this is one aspect of invariance that should perhaps *not* be expected when comparing mindful parenting across mothers and fathers, particularly in a rural, European-American sample. Mothers and fathers in this population tend to embrace more traditional gender roles (Hofferth, 2003), and fathers may place less importance on psychologically-minded

characteristics of their parenting. In contrast, instrumental aspects of parenting may be more salient for rural, European-American fathers (Tripp-Reimer & Wilson, 1991). In future research, it should be determined whether fathers in this population report lower levels of mindful parenting, on average, as compared to mothers.

Mindful Parenting in Relation to Parent Background Characteristics

A key test of the validity of mindful parenting was carried out by examining its relations with other self-reported parent characteristics, including intra-personal mindfulness, psychological symptoms, and psychological well-being. Intra-personal mindfulness was the first characteristic to be examined in relation to mindful parenting, and this was an essential comparison in order to begin to establish the construct validity of mindful parenting. Mindful parenting was expected to be distinct from, yet positively related with, intra-personal mindfulness. The current study provided evidence that a one standard deviation increase in the intra-personal mindfulness latent variable was associated with a .70 increase in the mindful parenting construct; a significant, positive relationship. The relation with intra-personal mindfulness accounted for just under half of the variance in mindful parenting, providing additional support for the hypothesized relation between these constructs.

Structure of intra-personal mindfulness. In this study, a brief composite measure of general intra-personal mindfulness was used. It was based on the work of Baer and others (Baer et al., 2006). Conceptually, the factor structure of this brief measure showed some differences from prior research conducted primarily with college student samples. For the present sample, a well-fitting model of intra-personal mindfulness was generated that contained one higher-order factor and three first-order factors. The first order factors

included facets of non-judging/openness, attention, and emotional awareness. The emotional awareness factor was not evident in Baer's work (2006) and no clear non-reactivity factor emerged. Baer's study included all items from five mindfulness scales, thus it is possible that a larger number of items would have allowed estimation of a factor structure more comparable to the findings by Baer and colleagues.

Necessary, but not sufficient? It was expected that reports of exhibiting high intra-personal mindfulness would be a necessary condition for mothers in the present study to also report exhibiting high mindful parenting. On the other hand, it was expected that certain mothers would be high in their levels of intra-personal mindfulness, but still have low levels of mindful parenting. The hypothesis that intra-personal mindfulness would be found to be necessary, but not sufficient, for exhibiting mindful parenting was not supported. The rationale for this hypothesis was the expectation that the skills of mindfulness are first developed as an internal process that can then be extended to interpersonal interactions. Under these conditions, a mother such as one of the current participants might first develop the ability to pay attention to, and be accepting and aware of, her own internal experiences—and then later develop the ability to apply that skill-set to her parenting by paying attention to her parenting interactions with her children in a non-judgmental fashion.

On the contrary, it was found in the current, cross-sectional study that an equal proportion of mothers reported high levels of intra-personal mindfulness in combination with low levels of mindful parenting as vice versa. The categories containing both combinations of high/low were more sparsely populated than the high/high and low/low categories. It was expected that a large proportion of mothers would be high on both or

low on both aspects of mindfulness, but the high intra-/low mindful parenting category contained far fewer mothers than would be expected to confirm a necessary-but-not-sufficient hypothesis.

This hypothesis was based in part on one type of mindfulness practice that is particularly focused on regard for an “other”: compassion meditation. The “order of operations” in some Buddhist meditation traditions is for the practitioner to proceed through a sequence of focusing on compassion first for oneself, next for someone they care about, then for someone for whom they have ambivalent feelings, and finally toward someone they dislike greatly. Other forms of compassion meditation focus on an ever-widening ecology of persons who might be experiencing suffering, beginning once again with oneself, and extending outward in an ever-widening circumference until the entire population is imagined by the practitioner with feelings of compassion and a desire to alleviate their suffering (see Salzberg, 1995).

In contrast, it may be that certain mothers in the current study, particularly those who embody traditional gender roles and may identify greatly with their role as “mother,” may have an easier time being mindful in their parenting than paying attention to themselves or being aware of their own subtle thoughts and feelings. This is an interesting question that could be investigated both in the current sample and among other populations.

Although not confirmed for the higher-order constructs, it may be that there is a necessary-but-not-sufficient relationship between one or more of the mindfulness subscales. The relations between the subscales of the IEM-P and intra-personal mindfulness measures were not investigated here, but if additional items were added to

the subscales in the future, this hypothesis could be examined. With additional items, sufficiently identified structural models could be estimated to study whether certain aspects of intra-personal mindfulness are more or less relevant for understanding the first order factors of mindful parenting. It may be that intra-personal attention is related to inter-personal attention, intra-personal emotional awareness is related to inter-personal emotional awareness, and so on. On the other hand, it may be the case that intra- and inter-personal mindfulness develop in tandem, exhibiting a reciprocal relationship. In this case, one might posit that a way to improve intra-personal mindfulness could be found in cultivating inter-personal mindfulness in parenting, or in other social relationships.

Psychological symptoms, well-being, and mindfulness. It was expected that mindful parenting would be inversely related to psychological symptoms and positively related to psychological well-being. It was also expected that these aspects of psychological functioning would have similar, but stronger, relations with intra-personal mindfulness. The current results confirmed that these factors accounted for far greater variance in intra-personal mindfulness than in mindful parenting. There was a clear precedent in the literature that psychological functioning would be related to intra-personal mindfulness (Baer & Krietemeyer, 2006). The surprising finding, however, was that psychological symptoms did not arise as being significantly related to mindful parenting in the final structural model testing these associations.

The current sample was drawn from a universal, community-wide population; therefore a relatively low number of mothers were expected to have elevated levels of psychological symptoms. Many reported zero distress from psychological symptoms. This presents a problem of positive skewness at the level of the raw data that could have

obscured the relation between the latent variables. It may be that the items comprising psychological symptoms are in need of transformation prior to model estimation in order to gain a clearer understanding of any linear relations.

Another possibility with zero-inflated variables is to conduct a two-part “ZIP” or zero-inflated Poisson regression model. This type of model first estimates the probability of falling into either category of a binary classification, zero or not. The second part of the model tests the linear relation for the rest of the distribution. This estimation procedure requires the use of bootstrapping and was considered too computationally intensive to carry out as a post-hoc test in the current study. Future research could be conducted to pursue the use of this model or other forms of person-centered, subgroup analyses to provide a more thorough investigation of any potential relation between psychological symptoms and mindful parenting.

Although psychological symptoms were not found to have a unique association with mindful parenting, there was a positive relation between psychological well-being and mindful parenting for the current sample of mothers. This relation was stronger for intra-personal mindfulness. The key conclusion regarding these findings is that the validity of mindful parenting was supported by examining its association with several parent background characteristics. Further, as expected, psychological functioning was more related to broad aspects of intra-personal mindfulness and less related to mindful parenting.

Mindful Parenting in Relation to Other Parenting Behaviors

Mindful parenting was found to have a very strong, positive relation with two other higher-order constructs representing parenting behaviors: parent-child affective

quality and general child management. A substantial proportion of the variance in these two latent constructs was accounted for in models including mindful parenting and four demographic control variables (i.e., household income, mother education, intervention condition, and family status) as predictors. Although these relations were expected, and are a good sign of construct validity, the evidence was examined with caution since confirming the validity of mindful parenting required the establishment of independence between the constructs.

Modification indices provide a source of data-driven empirical information regarding whether any model re-specifications would allow for a substantial decrease in the Chi-square test statistic. Neither of the model estimation procedures produced modification indices signifying that the mindful parenting items would provide a better fit if re-specified as indicators of either affective quality or general child management. Thus, confidence in the independence of the constructs was supported.

One area for more fully testing the relation between mindful parenting and other aspects of parenting lies in the relations between mindful parenting and the subscales of the constructs. It would be interesting to examine the interrelations among the first order mindful parenting factors (i.e., attention, non-judging, emotional awareness, and non-reactivity) in relation to the first order factors of the specific parenting practices (i.e., child monitoring, inductive reasoning, consistency in discipline, positive affective quality, and negative affective quality). For example, mindful parenting attention may specifically relate to child monitoring efforts and non-reactivity may be related to consistency in discipline. Future research could be carried out with a more nuanced look

at how the dimensions of mindful parenting are useful for understanding specific parenting behaviors.

In interpreting the results of the current study, it must be kept in mind that the strongest findings were in support of the hypothesis that overall mindful parenting would predict parent-child affective quality and general child management. Beyond pointing to construct validity, these results provide preliminary support for the broader theoretical supposition of mindful parenting as a metaconstruct that could account for many aspects of specific parenting behaviors. Mindful parenting was proposed as a construct that could further the understanding of parenting, and one that is flexible with regards to cultural differences in norms for effective parenting. An additional hypothesis that could be tested with other ethnic/cultural groups is that mindful parenting ought to account for a significant proportion of the covariance among any number of related, culturally-accepted parenting practices.

Generality of mindful parenting? In a sense, mindful parenting should allow parents to parent the way they intend, that is, with a clear mind and sense of purpose. In the case of European-American mothers from a normative, community sample, the definition of culturally-accepted, high quality parenting is a parenting profile, often termed “authoritative” parenting (Baumrind, 1971, 1989), that is comprised of high positive affective quality, low negative affective quality, high inductive reasoning, high consistency in discipline, and high monitoring,. Other cultural groups have been shown to have different values with regards to high quality parenting (see Garcia-Coll, Meyer, & Brillou, 1995).

For low-SES African American families in troubled neighborhoods in the U.S., for example, positive youth outcomes have been related to higher rates of control and less autonomy-granting in parenting (Jarrett, 1997). Thus, the qualities of healthy parenting may vary by context of risk, culture, or norms (Mason, Cauce, & Gonzales, 1997). General child management is a construct that was developed and shown to be reliable and valid in samples of rural, European-American families (Spoth et al., 1998) and cannot necessarily be expected to operate similarly for other ethnic/cultural groups. Thus, mindful parenting may be valid for other cultural groups, but it would not necessarily be expected to account for a similar proportion of the variance in a construct such as general child management in other populations. Instead, as in the example of African American families, it may account for parenting that is signified by a strong, “no-nonsense” approach (Brody & Flor, 1998). These assertions are hypothetical, and current results with a cross-sectional sample of European-American mothers are in need of replication and extension, thus it will be important to conduct cross-cultural research in order to further validate the mindful parenting construct and its relation with other dimensions of parenting.

Mindful Parenting in Relation to Adolescent Functioning

Mindful parenting was expected to have both direct and indirect relations with adolescent outcomes that would be partially mediated through parent-child affective quality and general child management. Mindful parenting was shown to be modestly related to adolescent goal setting and girls’ externalizing behavior, but not to boys’ externalizing behavior, or to the internalizing behavior of either girls or boys. In preliminary models, general child management was related to adolescent outcomes, but

was not a significant mediator of the effect of mindful parenting when mother-child affective quality was also examined as a simultaneous mediator. Mother-child affective quality emerged as the most important mediator of the modest relation between mindful parenting and adolescent adaptive functioning (represented by goal setting), and for girls only, problem behavior (represented by internalizing behavior).

This portion of the study provided preliminary evidence of the concurrent-predictive validity of mindful parenting in relation to adolescent behavior. Observed indicators of adolescent dependent variables in the current study were youth-reported, providing the confidence in independence provide by a multi-informant approach. Thus, these relations are not inflated by common, person-specific bias, as could have been the case with the parent background characteristics and other parenting behaviors.

This study establishes mindful parenting as a potentially important construct for fully understanding the effects of parenting on adolescent outcomes, although it does not take into account many other aspects of the ecological context (c.f., Bronfenbrenner, 1977) that are known to influence adolescent development. This may explain the null results for boys with regards to problem behaviors. At this age, boys' problem behavior may be more influenced by their peers than it is for girls. Girls, on the other hand, may be more invested in family relationships (Armsden & Greenberg, 1987; Benson, Harris, & Rogers, 1992), and in this case, specifically the relationship with their mothers. Additionally, even though demographic controls were used in the current study, hypotheses regarding demographic characteristics could be explicitly studied in order to better understand subgroup differences.

Mindful parenting may also be important for understanding adolescent receptivity to parenting efforts. Adolescent perceptions of their parents as mindful may be critical for parent effectiveness in achieving parenting goals. In the case of child monitoring, it has been suggested that parental knowledge is primarily the result of the degree to which adolescents choose to disclose information to their parents and not usually due to parents actively seeking information about their children's whereabouts (Crouter & Head, 2002). If parents are more mindful and exhibit greater non-judgmental receptivity and non-reactivity and adolescents feel as though their parents are paying attention to them and their feelings, adolescents may be more likely to self-disclose and parents may be better informed. Thus, a hypothesis is that higher mindful parenting could be related to higher concordance between parent and youth reports of youth whereabouts and activities.

Additional methods for studying the relation between mindful parenting and healthy family functioning would be informative. First, it will be of interest to test a youth-report version of parents' mindful parenting and examine the relation of youth-perceived mindful parenting with adolescent outcomes. In addition, there are many more ways to assess adolescent adaptive functioning beyond goal setting (see Masten & Coatsworth, 1998). What is more, family processes involving cognitive and affective processes are fundamentally dynamic in nature and a daily diary approach (Almeida, 2005) may provide great insight into relations between mindful parenting and other aspects of family functioning. The study of self-report intra-personal mindfulness has recently been carried out using a *state* approach (with the Toronto Mindfulness Scale) (Lau et al., 2006). Technology is now available (e.g., palmtop computer programs) that can provide for accurate moment-to-moment psychological assessment with a relative

ease of participant burden in comparison to paper and pencil methods (see Newman, 2004), thus providing an avenue for extending the moment-to-moment assessment of mindfulness to the study of interpersonal mindfulness in parenting

Prior to expanding to these methods of inquiry, however, the most important next step will be to undertake a longitudinal study of the effects of mindful parenting on adolescent outcomes that takes into account aspects of child and family context. This line of research can also serve to inform preventive intervention efforts.

Implications for Intervention

The understanding that adolescence is a developmental period that involves substantial risk for maladaptive outcomes (e.g., delinquency, substance abuse) (Hawkins et al., 1992) and that family factors are consistent predictors of adolescent functioning (Kumpfer et al., 1998) has prompted extensive effort to prevent risk for negative outcomes (e.g., association with antisocial peers) and promote positive aspects of family functioning through skill building (i.e., teaching effective parenting behaviors). As such, family-focused preventive intervention efforts to-date have focused largely on teaching parenting skills (e.g., appropriate discipline techniques, parental monitoring) that have been shown through both basic and applied research to be related to positive adolescent outcomes (e.g., delayed onset of substance use) (Kumpfer & Alvarado, 2003; Richard; Spoth & Redmond, 2002)

Other than intervention models targeting specific demographic groups known to be at risk for maladaptive family functioning (e.g., families experiencing divorce), there has been relatively little attention paid in family skills training preventive intervention programs to the known determinants of parenting behavior (e.g., parent psychological

functioning, parent emotions, and social cognitions). Results of the present study support the suggestion by Dumas (2005) that mindfulness-based intervention techniques may have a great potential for increasing parenting effectiveness by increasing mindfulness in parenting interactions.

Thus, the present findings could be useful for informing the development and experimental evaluation of a mindfulness-based parenting intervention model. Parent-child affective quality and general child management are parenting constructs that are essentially comparable to the skills taught under the topics of “love” and “limits” in the curriculum of the Strengthening Families Program: For Parents and Youth 10-14 (SFP; Molgaard & Spoth, 2001). The SFP preventive intervention is designed to teach parents a number of skills for cultivating greater positive affective quality and lower negative affective quality in their relationships with their youth (i.e., the “love” portion of the program) along with skills for utilizing more appropriate management practices (i.e., the “limits” portion of the curriculum). Two pilot studies have examined the infusion of mindfulness into the evidence-based SFP intervention model (Duncan, Coatsworth, & Greenberg, 2007a, 2007b).

The current findings suggest that mindful parenting is highly effective in predicting concurrent mother-child affective quality and general child management (i.e., “love” and “limits” as conceptualized in the SFP program), and hence efforts to teach mindful parenting may increase intervention efficacy in changing specific parenting behaviors. In such case, mindful parenting could be expected to be a mediator of intervention effects. Testing the effects of a mindfulness-based parenting intervention on

change in the construct of mindful parenting would provide a very strong test of the utility of this construct.

Assessment of intervention change mechanisms. Over the past few years, a number of self-report measures of mindfulness have been developed, tested, and shown to be reliable and valid with a number of populations. Whereas survey instruments, such as the mindful parenting measure tested here, can be efficient tools for assessing the effects of mindfulness-based interventions, other levels of evidence should be examined in conjunction with self-report. Work by Davidson and colleagues (Davidson et al., 2003) suggests that post-intervention changes in EEG activity may be part of the biological basis for self-report findings regarding changes in positive and negative affect after participating in mindfulness meditation. Further research needs to be conducted that links self-report assessment of mindful parenting with neurological or psychophysiological assessment.

Given the emphasis on stress processes in mindfulness interventions, stress hormones involved in HPA functioning and other measures of autonomic nervous system functioning could to be examined as proximal intervention outcomes that relate to potential shifts in mindful parenting. What is more, for interventions aimed at altering interpersonal processes (e.g., MBRE or the mindfulness-based adaptation of SFP), observational assessment tools may fill a major gap in the measurement model for assessing intervention change, and hence bolster the evidence supporting such interventions. Utilizing an array of measurement tools that seek to assess different levels of evidence, including the self-report assessment of mindful parenting, is one approach for understanding the change mechanisms at work in mindfulness-based interventions.

Limitations

Although this study benefited greatly from being part of a broader project (e.g., being able to examine reports from a large sample of families randomly drawn from a community-wide population), there were a number of limitations inherent to this approach. Primary limitations of the present study include, but are not limited to, the small number of items used to assess mindful parenting and intra-personal mindfulness, the inadequacy of the Chi-square test of goodness-of-fit for determining whether to reject *a priori* models, and the use of self-report data only in the test of the relations of mindful parenting to other parenting constructs.

Number of observed items. One of the most apparent limitations of this study was the small number of items available for testing the measurement models of the mindfulness scales. The participant burden of survey length in the broader study strictly limited the number of items that could be added for investigation of mindful parenting and intra-personal mindfulness. Thus, there were relatively few items in the current study that were deemed to be good indicators for estimating the first-order factors/subscales of the IEM-P and GAIM scales. The final versions of the mindfulness scales each had scales comprised of only two items.

There is an often-cited general “rule of thumb” in research involving factor analysis that factors ought to have more than two items (Kline, 2005). Further, it is sometimes construed (in error) that two-item factors are not possible to estimate. It is accurate that a sole two-item factor by itself has insufficient degrees of freedom and is thus underidentified. However, in the case where there are multiple factors, as in the current study, two-item factors can be adequately estimated with sufficient degrees of

freedom due to the covariation among the factors (Kline, 2005). In the case of the model of mindful parenting, some identification concerns were alleviated by the higher order factor serving as a four-indicator factor of sorts, since the four constituent factors operated similarly to four parcels (Graham, 2005).

In this study, in order to allow for greater likelihood of empirical/local identification, each mindfulness scale had two subscale loadings constrained to one. In future studies, one of these constraints could be freed for each construct if there were sufficient manifest indicators. Although the current versions of the scales were parsimonious and presented little burden to participants in their completion, testing additional items is a worthwhile step to undertake in the future.

A larger number of items would allow for greater confidence in the empirical identification of the models and stability of the factor loadings, and would allow for tests of interrelations among the subscales. The subscale relations were not under examination in the current study, but are of interest for future research and would be allowed by the use of more indicators. On the other hand, if the 8-item versions of the instruments show stability over time, especially with regards to the structure of the specific subscale factors, it may be possible to retain these 8-item versions as “short forms” for use in studies where the overall constructs are of primary interest (and the subscales will not be examined using latent variable modeling).

Chi-square test of goodness-of-fit. The tests of the Chi-square statistic (of whether to reject the hypothesized model) were almost always significant in this study—the opposite outcome from that desired to affirm a given model. This was expected since the study sample size was large and the Chi-square test is highly sensitive to large sample

sizes; however that left only the descriptive fit indices of RMSEA and CFI to determine whether to reject the *a priori* models that were estimated. There is no ideal solution to this problem as large sample sizes are essential for testing complex measurement and structural models. One alternative method for assessing goodness-of-fit employed in this study was to examine the ratio of Chi-square to degrees of freedom, a method that has emerged recently in the literature as a potential alternative to the Chi-square/sample-size problem (Kline, 2005).

Method/informant bias. Another limitation of this study was the sole use of self-report survey assessment for examining mindful parenting and its relation to parent background characteristics and other parenting constructs. Estimates for the relations between mindful parenting, general child management, and affective quality may have been somewhat inflated due to common reporter/ common method covariance. Future studies could link self-reports of mothers' mindful parenting with other family members' reports of mothers' parenting behaviors. Observational methods could also be employed to ascertain whether differences in mindful parenting can be linked with observable behaviors among mothers.

Lack of evidence for causality. Finally, an important caveat to mention is that the present study was cross-sectional in nature and its results do not in any way demonstrate causal relations among the constructs under investigation. The directionality of paths in structural models is decided upon by the researcher, ideally with theory in mind, as was the case here. However, alternative models that are mathematically equivalent (i.e., with regards to fit) may be estimated with the direction of model paths reversed. Longitudinal research will be necessary to determine whether mindful parenting can account for

trajectories of growth in adolescent functioning and to disentangle child effects; experimental research is necessary to determine whether increasing mindful parenting through intervention participation also results in increases in healthy parenting behaviors and desirable youth outcomes.

Conclusion

Collectively, the present findings represent an addition to the body of knowledge regarding the parenting of young teens by demonstrating: (a) initial evidence of “mindful parenting” as a valid and reliable parenting construct, and (b) preliminary findings regarding the association between mindful parenting and adolescent adaptive functioning and problem behavior. Thus, the current study provided evidence that mindful parenting among mothers is important for understanding specific parenting behaviors and certain adolescent outcomes for certain youth. This is an important first step in the extension of mindfulness to the interpersonal domain of parent-child relations and opens the door to future study of mindful parenting.

APPENDIX A

Interpersonal Mindfulness in Parenting (IEM-P) Scale

Interpersonal Mindfulness in Parenting (IEM-P) scale

Instructions: The following statements describe different ways that parents interact with their children on a daily basis. Please tell me whether you think the statement is “Never True,” “Rarely True,” “Sometimes True,” “Often True,” or “Always True” for you. Remember, there are no right or wrong answers and please answer according to what *really reflects* your experience rather than what you think your experience *should* be. Please treat each statement separately from every other statement.

	<u>Never True</u>	<u>Rarely True</u>	<u>Sometimes True</u>	<u>Often True</u>	<u>Always True</u>
1. I find myself listening to my child with one ear because I am busy doing or thinking about something else at the same time.	1	2	3	4	5
2. When I'm upset with my child, I notice how I am feeling before I take action.	1	2	3	4	5
3. I notice how changes in my child's mood affect my mood.	1	2	3	4	5
4. I listen carefully to my child's ideas, even when I disagree with them.	1	2	3	4	5
5. I often react too quickly to what my child says or does.	1	2	3	4	5
6. I am aware of how my moods affect the way I treat my child.	1	2	3	4	5
7. Even when it makes me uncomfortable, I allow my child to express his/her feelings.	1	2	3	4	5
8. When I am upset with my child, I calmly tell him/her how I am feeling.	1	2	3	4	5
9. I rush through activities with my child without being really attentive to him/her.	1	2	3	4	5
10. I have difficulty accepting my child's growing independence.	1	2	3	4	5

Scoring information (hypothesized subscales):

Awareness & Present-Centered Attention

- 1. I find myself listening to my child with one ear, because I am busy doing or thinking about something else at the same time.*
- 3. I notice how changes in my child's mood affect my mood.
- 6. I am aware of how my moods affect the way I treat my child.
- 9. I rush through activities with my child without being really attentive to him/her.*

Non-judgment

- 4. I listen carefully to my child's ideas, even when I disagree with them.
- 7. Even when it makes me uncomfortable, I allow my child to express his/her feelings.
- 10. I have difficulty accepting my child's growing independence.*

Non-reactivity

- 2. When I'm upset with my child, I notice how I am feeling before I take action.
- 5. I often react too quickly to what my child says or does.*
- 8. When I am upset with my child, I calmly tell him/her how I am feeling.

[items with an * are reverse-scored]

APPENDIX B

General Intra-Personal Mindfulness Scale

(General Intra-Personal Mindfulness)

DAILY EXPERIENCES

The following are some statements about your everyday experiences. Please tell me whether you think the statement is “Never True,” “Rarely True,” “Sometimes True,” “Often True,” or “Always True” for you. Remember, there are no right or wrong answers and please answer according to what *really reflects* your experience rather than what you think your experience *should* be. Please treat each statement separately from every other statement.

	<u>Never True</u>	<u>Rarely True</u>	<u>Sometimes True</u>	<u>Often True</u>	<u>Always True</u>
1. I tend <u>not</u> to notice feelings of tension or discomfort until they really become severe.	1	2	3	4	5
2. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	1	2	3	4	5
3. I intentionally stay aware of my feelings.	1	2	3	4	5
4. I find myself doing things without paying attention.	1	2	3	4	5
5. I am aware of how my emotions affect my thoughts and behaviors.	1	2	3	4	5
6. I make judgments about whether my thoughts are good or bad.	1	2	3	4	5
7. I notice changes in my body, such as whether my breathing slows down or speeds up.	1	2	3	4	5
8. When I am feeling down I try to approach my feelings with curiosity and openness.	1	2	3	4	5
9. It seems that I am “running on automatic” without much awareness of what I'm doing.	1	2	3	4	5
10. I allow myself to feel whatever it is that I may be feeling.	1	2	3	4	5
11. When I am working on something, part of my mind is occupied with other topics, such as what I'll be doing later, or things I'd rather be doing.	1	2	3	4	5
12. When something upsets me, I have a hard time letting go of my thoughts and feelings.	1	2	3	4	5

APPENDIX C

Model generation steps for the intra-personal mindfulness scale CFA

Model Generation for the General Intra-personal Mindfulness Scale

A series of model generation steps were carried out that yielded the current measurement model for the GIAM intra-personal mindfulness scale. First, the inter-item correlations were examined to determine the potential for any poor or mis-specified items. Item 6 of the GIAM scale, “I make judgments about whether my thoughts are good or bad,” appeared to have a negative pattern of relations with other GIAM items. This item originated from the Kentucky Inventory of Mindfulness Skills (Baer, 2004) and therefore was expected to operate as a reliable indicator of the non-judging factor, but upon further examination this item was deemed to have perhaps been difficult for study participants to interpret (i.e., to have poor face validity).

Item 12, “When something upsets me, I have a hard time letting go of my thoughts and feelings,” had a pattern of low correlation with many GIAM items and was therefore not expected to be informative for estimating any one factor. On the other hand, items 7 and 8 were originally *not* expected to load on the same factor, but upon re-examination appeared to be closely conceptually related. Both items seemed to represent the “openness” aspect of the non-judging factor and were moderately correlated ($r = .41$). Item 1, “I tend not to notice feelings of tension or discomfort until they become really severe,” and Item 10, “I allow myself to feel whatever it is I may be feeling,” were moderately related with a number of other GIAM items, thus also demonstrating a pattern of correlations indicative of potentially poor items.

After inspecting the relations between the GIAM items, a sequence of six CFA models were estimated with the first sample of mothers ($n = 375$) (see below) in order to determine an adequately-fitting measurement model for the intra-personal mindfulness

scale. As expected, the *a priori* model for the CFA of the general intra-personal mindfulness scale (GIAM₁) could not be accepted given its low CFI and high RMSEA values, neither of which achieved adequate levels to retain the model. The second model (GAIM₂) was estimated with the removal of item 6, and still did not achieve fit indices indicative of reasonable model fit. Item 12 was excluded from the third model (GAIM₃), which reached the outer bound of an acceptable RMSEA level (.08), but still had a CFI of below .90. The fourth model, which re-specified the openness items (items 7 and 8) so that they would both represent indicators of the same factor, had convergence problems and it was necessary to also remove item 1 in order to achieve an estimable model (GAIM_{4/5}). This model approached reasonable levels of fit for choosing not to reject the model, but the indication from the inter-item correlations that item 10 might also be a poor indicator led to the estimation of an additional model with item 10 excluded (GAIM₆). The sixth model to be estimated achieved excellent indications of model fit, with a CFI of .98, an RMSEA of .04, a failure to reject the hypothesized model by the Chi-square statistic ($p > .01$), and a χ^2/df ratio of 1.64.

The final CFA model for the general intra-personal mindfulness scale (GAIM₆) was cross-validated in the second sample of mothers ($n = 378$) (GAIM₆), also with a CFI of .98, an RMSEA of .04, a failure to reject the hypothesized model with the Chi-square statistic ($p > .01$), and a slightly smaller χ^2/df ratio of 1.62. To further gauge the replicability of the GIAM measurement model, a multiple group CFA test of measurement invariance was conducted comparing mothers and fathers with factor loadings constrained to be equal across groups. As with the IEM-P test of measurement invariance, strong support for measurement invariance was found (see Table C). The final

GIAM CFA model to be estimated was with the full sample of mother ($N=753$) in order to determine the measurement model for use in subsequent structural models (see Table C). This model provided a good fit for the data and a factor structure that included one-higher order factor of intra-personal mindfulness in parenting and three first order factors (attention, non-judging/openness, and emotional awareness). Overall alpha for the 8-item scale was .74.

Model generation for the General Intra-Personal Mindfulness scale (GIAM)

Model	χ^2	df	χ^2/df	CFI	RMSEA	AIC
<i>Mothers: Sample 1 (n = 375)</i>						
GIAM ₁	199.99	52	...	0.81	0.087	10150.44
GAIM ₂	154.49	42	3.68	0.84	0.085	9209.00
GAIM ₃	112.07	33	3.40	0.88	0.080	8287.18
GAIM _{4/5}	62.40	25	2.50	0.94	0.063	7464.96
GAIM ₆	29.49 ^{ns}	18	1.64	0.98	0.040	6658.20
<i>Mothers: Sample 2 (n = 378)</i>						
GAIM ₇	29.01 ^{ns}	18	1.62	0.98	0.040	6707.90
<i>Multiple Groups: Mothers (N = 753) and Fathers (N = 523)</i>						
GAIM ₈	110.38	41	2.69	0.96	0.050	22435.42
<i>Mothers: Full Sample (N = 753)</i>						
GAIM ₉	40.85	18	2.27	0.98	0.040	13368.78

Note. ns = $p > .05$, meaning the hypothesized model should *not* be rejected.

APPENDIX D

Tables of estimates for final structural models used to investigate Aims 1- 4

<i>Table 8. Parameter Estimates for Model in Figure 5.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.69	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.88 (.07)	.65	12.55	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.63	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.17 (.08)	.78	14.85	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.60	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.78 (.13)	.48	5.87	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.73	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.83 (.10)	.61	8.17	<.0001
Mindful Parenting → Non-Reactivity	1.00	.83	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.95	N/A	N/A
Mindful Parenting → Emotional Awareness	.60 (.08)	.57	7.74	<.0001
Mindful Parenting → Attention	.68 (.07)	.57	9.21	<.0001

<i>Table 9. Parameter Estimates for Model in Figure 6.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Intra-Personal Mindfulness Attention → GAIM 4	1.00	.76	N/A	N/A
Intra-Personal Mindfulness Attention → GAIM 11	.70 (.06)	.52	12.10	<.0001
Intra-Personal Mindfulness Attention → GAIM 9	.82 (.06)	.62	13.91	<.0001
Intra-Personal Mindfulness Attention → GAIM 2	.85 (.06)	.69	14.89	<.0001
Intra-Personal Mindfulness Non-judge/Open → GAIM 7	1.00	.52	N/A	N/A
Intra-Personal Mindfulness Non-judge/Open → GAIM 8	1.25 (.18)	.79	6.94	<.0001
Intra-Personal Mindfulness Emotional Awareness → GAIM 5	1.00	.46	N/A	N/A
Intra-Personal Mindfulness Emotional Awareness → GAIM 3	1.71 (.23)	.56	7.32	<.0001
Intra-Personal Mindfulness → Attention	1.00	.46	N/A	N/A
Intra-Personal Mindfulness → Non-judge/Open	1.44(.29)	.74	4.95	<.0001
Intra-Personal Mindfulness → Emotional Awareness	1.00	.86	N/A	N/A

<i>Table 10. Parameter Estimates for Model in Figure 7.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Intra-Personal Mindfulness Attention → GAIM 4	1.00	.75	N/A	N/A
Intra-Personal Mindfulness Attention → GAIM 11	.71 (.06)	.53	11.90	<.0001
Intra-Personal Mindfulness Attention → GAIM 9	.84 (.06)	.63	13.96	<.0001
Intra-Personal Mindfulness Attention → GAIM 2	.86 (.06)	.69	15.40	<.0001
Intra-Personal Mindfulness Non-judge/Open → GAIM 7	1.00	.51	N/A	N/A
Intra-Personal Mindfulness Non-judge/Open → GAIM 8	1.30 (.18)	.81	7.40	<.0001
Intra-Personal Mindfulness Emotional Awareness → GAIM 5	1.00	.57	N/A	N/A
Intra-Personal Mindfulness Emotional Awareness → GAIM 3	1.15 (.17)	.46	6.73	<.0001
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.67	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.91 (.07)	.65	12.75	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.65	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.11 (.07)	.77	15.68	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.61	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.77 (.13)	.48	6.12	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.73	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.83 (.10)	.61	8.55	<.0001
Intra-Personal Mindfulness → Attention	1.00	.53	N/A	N/A
Intra-Personal Mindfulness → Non-judge/Open	1.14 (.19)	.68	6.09	<.0001
Intra-Personal Mindfulness → Emotional Awareness	1.00	.79	N/A	N/A
Mindful Parenting → Non-Reactivity	1.00	.85	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.91	N/A	N/A
Mindful Parenting → Emotional Awareness	.64 (.08)	.59	8.26	<.0001
Mindful Parenting → Attention	.72 (.08)	.59	9.46	<.0001
Structural Model				
Intra-Personal Mindfulness → Mindful Parenting	.97 (.11)	.70	8.88	<.0001
Residual in Mindful Parenting	.09 (.02)	.51	5.75	<.0001

<i>Table 11. Parameter Estimates for Model in Figure 8.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.68	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.89 (.07)	.65	12.15	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.65	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.16 (.08)	.78	14.77	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.60	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.78 (.14)	.48	14.77	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.73	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.83 (.10)	.61	8.30	<.0001
Mindful Parenting → Non-Reactivity	1.00	.84	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.94	N/A	N/A
Mindful Parenting → Emotional Awareness	.58 (.08)	.55	7.60	<.0001
Mindful Parenting → Attention	.70 (.08)	.58	9.21	<.0001
Psychological Symptoms → MHSM Parcel A	1.00	.88	N/A	N/A
Psychological Symptoms → MHSM Parcel B	1.40 (.04)	.92	37.31	<.0001
Psychological Symptoms → MHSM Parcel C	1.11 (.03)	.93	38.82	<.0001
Psychological Symptoms → MHSM Parcel D	1.05 (.03)	.90	36.24	<.0001
Psychological Symptoms → MHSM Parcel E	1.32 (.04)	.89	34.58	<.0001
Psychological Well-Being → WB Parcel A	1.00	.90	N/A	N/A
Psychological Well-Being → WB Parcel B	.96 (.03)	.90	36.02	<.0001
Psychological Well-Being → WB Parcel C	.94 (.03)	.91	37.61	<.0001
Structural Model				
Psychological Symptoms → Mindful Parenting				ns
Psychological Well-Being → Mindful Parenting	.11 (.03)	.27	3.95	<.0001
Household Income → Psychological Symptoms	-.15 (.04)	-.16	-4.10	<.0001
Mother Education → Psychological Symptoms	-.01 (.01)	-.07	-1.66	<.10
Household Income → Psychological Well-Being	.39 (.10)	.16	3.94	<.0001
Mother Education → Psychological Well-Being				ns
Correlation of Psychological Symptoms and Well-Being	-.28 (.02)	-.70	-14.39	<.0001
Correlation of Household Income and Mother Education	.29 (.03)	.34	8.57	<.0001
Residual in Mindful Parenting	.17 (.02)	.95	9.58	<.0001
Residual in Psychological Symptoms	.15 (.01)	.96	15.12	<.0001
Residual in Psychological Well-Being	.99 (.07)	.97	15.58	<.0001

<i>Table 12. Parameter Estimates for Model in Figure 9.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Intra-Personal Mindfulness Attention → GAIM 4	1.00	.65	N/A	N/A
Intra-Personal Mindfulness Attention → GAIM 11	.85 (.08)	.53	11.20	<.0001
Intra-Personal Mindfulness Attention → GAIM 9	.96 (.08)	.60	12.44	<.0001
Intra-Personal Mindfulness Attention → GAIM 2	1.05 (.08)	.70	13.62	<.0001
Intra-Personal Mindfulness Non-judge/Open → GAIM 7	1.00	.75	N/A	N/A
Intra-Personal Mindfulness Non-judge/Open → GAIM 8	1.00	.58	N/A	N/A
Intra-Personal Mindfulness Emotional Awareness → GAIM 5	1.00	.67	N/A	N/A
Intra-Personal Mindfulness Emotional Awareness → GAIM 3	.88 (.15)	.43	5.82	<.0001
Psychological Symptoms → MHSM Parcel A	1.00	.87	N/A	N/A
Psychological Symptoms → MHSM Parcel B	1.43 (.04)	.92	36.07	<.0001
Psychological Symptoms → MHSM Parcel C	1.12 (.03)	.92	36.92	<.0001
Psychological Symptoms → MHSM Parcel D	1.07 (.03)	.90	34.39	<.0001
Psychological Symptoms → MHSM Parcel E	1.36 (.04)	.89	33.74	<.0001
Psychological Well-Being → WB Parcel A	1.00	.89	N/A	N/A
Psychological Well-Being → WB Parcel B	.98 (.03)	.90	35.26	<.0001
Psychological Well-Being → WB Parcel C	.94 (.03)	.91	36.10	<.0001
Intra-Personal Mindfulness → Attention	1.00	.65	N/A	N/A
Intra-Personal Mindfulness → Non-judge/Open	1.00 (.13)	.52	7.56	<.0001
Intra-Personal Mindfulness → Emotional Awareness	1.00	.67	N/A	N/A
Structural Model				
Psychological Symptoms → Intra-Personal Mindfulness	-.13 (.06)	-.16	-2.05	<.05
Psychological Well-Being → Intra-Personal Mindfulness	.16 (.03)	.52	6.39	<.0001
Household Income → Psychological Symptoms	-.14 (.04)	-.16	-3.88	<.001
Mother Education → Psychological Symptoms				ns
Household Income → Psychological Well-Being	.37 (.10)	.15	3.81	<.001
Mother Education → Psychological Well-Being				ns
Correlation of Psychological Symptoms and Well-Being	-.26 (.02)	-.70	-13.98	<.0001
Correlation of Household Income and Mother Education	.29 (.03)	.33	8.52	<.0001
Residual in Intra-Personal Mindfulness	.06 (.01)	.59	5.25	<.0001
Residual in Psychological Symptoms	.14 (.01)	.97	14.61	<.0001
Residual in Psychological Well-Being	.95 (.06)	.97	15.10	<.0001

<i>Table 13. Parameter Estimates for Model in Figure 10.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.65	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.91 (.07)	.63	12.72	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.63	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.17 (.07)	.78	16.01	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.58	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.82 (.15)	.49	5.40	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.72	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.87 (.10)	.62	8.67	<.0001
Consistent Discipline → GCM 5	1.00	.63	N/A	N/A
Consistent Discipline → GCM 4	.95 (.08)	.61	11.71	<.0001
Consistent Discipline → GCM 6	.94 (.08)	.69	12.55	<.0001
Consistent Discipline → GCM 7	.95 (.08)	.61	11.80	<.0001
Child Monitoring → GCM 22	1.00	.69	N/A	N/A
Child Monitoring → GCM 01	.53 (.06)	.44	8.99	<.0001
Child Monitoring → GCM 02	.59 (.06)	.48	9.67	<.0001
Child Monitoring → GCM 23	1.01 (.09)	.63	11.49	<.0001
Child Monitoring → GCM 24	.71 (.07)	.52	10.22	<.0001
Inductive Reasoning → GCM 18	1.00	.83	N/A	N/A
Inductive Reasoning → GCM 16	.85 (.05)	.72	16.75	<.0001
Inductive Reasoning → GCM 17	.75 (.06)	.57	13.65	<.0001
Inductive Reasoning → GCM 19	.72 (.06)	.49	11.71	<.0001
Mindful Parenting → Non-Reactivity	1.00	.87	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.94	N/A	N/A
Mindful Parenting → Emotional Awareness	.55 (.08)	.54	6.98	<.0001
Mindful Parenting → Attention	.72 (.07)	.60	9.65	<.0001
General Child Management → Inductive Reasoning	1.00	.70	N/A	N/A
General Child Management → Consistent Discipline	.64 (.08)	.57	8.23	<.0001
General Child Management → Child Monitoring	.59 (.08)	.51	7.78	<.0001
Structural Model				
Mindful Parenting → General Child Management	1.18 (.11)	.83	11.07	<.0001
Household Income → Mindful Parenting				ns
Family Structure → Mindful Parenting				ns
Mother Education → Mindful Parenting	.02 (.01)	.10	2.03	<.05
Intervention Condition → Mindful Parenting				ns
Household Income → General Child Management	.17 (.07)	.12	2.37	<.05
Family Structure → General Child Management				ns
Mother Education → General Child Management	.02 (.01)	.09	1.87	<.10
Intervention Condition → General Child Management				ns
Residual in Mindful Parenting	.17 (.02)	.99	9.53	<.0001
Residual in General Child Management	.09 (.03)	.28	3.01	<.01

<i>Table 14. Parameter Estimates for Model in Figure 11.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.66	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.90 (.07)	.63	12.70	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.62	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.18 (.07)	.79	16.05	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.58	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.83 (.16)	.49	5.05	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.70	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.92 (.10)	.64	9.01	<.0001
Negative Affective Quality → PCAQ 1	1.00	.74	N/A	N/A
Negative Affective Quality → PCAQ 6	1.48 (.08)	.80	18.40	<.0001
Negative Affective Quality → PCAQ 10	1.46 (.08)	.79	18.27	<.0001
Positive Affective Quality → PCAQ 2	1.00	.92	N/A	N/A
Positive Affective Quality → PCAQ 4	.86 (.03)	.79	25.20	<.0001
Positive Affective Quality → PCAQ 9	.98 (.04)	.82	26.15	<.0001
Mindful Parenting → Non-Reactivity	1.00	.87	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.96	N/A	N/A
Mindful Parenting → Emotional Awareness	.50 (.08)	.49	6.51	<.0001
Mindful Parenting → Attention	.71 (.07)	.61	9.67	<.0001
Parent-Child Affective Quality → Positive Affective Quality	1.00	.62	N/A	N/A
Parent-Child Affective Quality → Negative Affective Quality	.75 (.09)	.65	8.71	<.0001
Structural Model				
Mindful Parenting → Parent-Child Affective Quality	1.09 (.11)	.77	10.00	<.0001
Household Income → Mindful Parenting				ns
Family Structure → Mindful Parenting				ns
Mother Education → Mindful Parenting	.02 (.01)	.08	1.67	<.10
Intervention Condition → Mindful Parenting				ns
Household Income → Parent-Child Affective Quality	.14 (.08)	.10	1.88	<.10
Family Structure → Parent-Child Affective Quality				ns
Mother Education → Parent-Child Affective Quality				ns
Intervention Condition → Parent-Child Affective Quality				ns
Residual in Mindful Parenting	.17 (.02)	.99	9.59	<.0001
Residual in Parent-Child Affective Quality	.14 (.04)	.40	3.73	<.001

<i>Table 15. Parameter Estimates for Model in Figure 12.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.65	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.92 (.07)	.63	13.03	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.63	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.18 (.07)	.79	16.51	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.58	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.82 (.16)	.49	5.02	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.71	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.91 (.10)	.63	9.09	<.0001
Consistent Discipline → GCM 5	1.00	.61	N/A	N/A
Consistent Discipline → GCM 4	.98 (.08)	.62	11.82	<.0001
Consistent Discipline → GCM 6	.95 (.08)	.68	12.53	<.0001
Consistent Discipline → GCM 7	.99 (.08)	.62	11.92	<.0001
Child Monitoring → GCM 22	1.00	.70	N/A	N/A
Child Monitoring → GCM 01	.53 (.06)	.45	9.11	<.0001
Child Monitoring → GCM 02	.59 (.06)	.49	9.76	<.0001
Child Monitoring → GCM 23	1.00 (.09)	.63	11.51	<.0001
Child Monitoring → GCM 24	.69 (.07)	.51	10.13	<.0001
Inductive Reasoning → GCM 18	1.00	.83	N/A	N/A
Inductive Reasoning → GCM 16	.84 (.05)	.72	16.70	<.0001
Inductive Reasoning → GCM 17	.75 (.06)	.57	13.74	<.0001
Inductive Reasoning → GCM 19	.71 (.06)	.48	11.61	<.0001
Negative Affective Quality → PCAQ 1	1.00	.74	N/A	N/A
Negative Affective Quality → PCAQ 6	1.47 (.08)	.80	18.54	<.0001
Negative Affective Quality → PCAQ 10	1.46 (.08)	.79	18.44	<.0001
Positive Affective Quality → PCAQ 2	1.00	.92	N/A	N/A
Positive Affective Quality → PCAQ 4	.87 (.03)	.80	25.34	<.0001
Positive Affective Quality → PCAQ 9	.98 (.04)	.82	26.12	<.0001
Mindful Parenting → Non-Reactivity	1.00	.88	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.94	N/A	N/A
Mindful Parenting → Emotional Awareness	.51 (.08)	.49	6.54	<.0001
Mindful Parenting → Attention	.73 (.07)	.62	9.92	<.0001
General Child Management → Inductive Reasoning	1.00	.64	N/A	N/A
General Child Management → Consistent Discipline	.77 (.09)	.64	9.07	<.0001
General Child Management → Child Monitoring	.63 (.08)	.50	7.98	<.0001
Parent-Child Affective Quality → Positive Affective Quality	1.00	.61	N/A	N/A
Parent-Child Affective Quality → Negative Affective Quality	.78 (.08)	.66	9.88	<.0001

<i>Table 15 (continued). Parameter Estimates for Model in Figure 12.</i>		Unstandardized	Standardized	z	p
		(Standard Error)			
Structural Model					
Mindful Parenting → General Child Management		1.09 (.10)	.83	10.71	<.0001
Mindful Parenting → Parent-Child Affective Quality		1.08 (.11)	.77	10.23	<.0001
Household Income → Mindful Parenting					ns
Family Structure → Mindful Parenting					ns
Mother Education → Mindful Parenting		.02 (.01)	.09	2.01	<.05
Intervention Condition → Mindful Parenting					ns
Household Income → General Child Management		.16 (.07)	.12	2.37	<.05
Family Structure → General Child Management					ns
Mother Education → General Child Management		.03 (.01)	.10	2.09	<.05
Intervention Condition → General Child Management					ns
Household Income → Parent-Child Affective Quality		.15 (.08)	.10	1.93	<.10
Family Structure → Parent-Child Affective Quality					ns
Mother Education → Parent-Child Affective Quality					ns
Intervention Condition → Parent-Child Affective Quality					ns
Correlation of Gen. Child Mgmt & P-C Affective Quality		.09 (.02)	.29	4.57	<.0001
Residual in Mindful Parenting		.17 (.02)	.99	9.59	<.0001
Residual in Parent-Child Affective Quality		.13 (.03)	.39	3.75	<.001
Residual in General Child Management		.08 (.03)	.26	2.93	<.01

Table 16. Parameter Estimates for Model in Figure 13.

	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.66	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.96 (.07)	.67	13.65	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.64	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.15 (.07)	.78	16.83	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.62	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.73 (.14)	.47	5.07	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.71	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.87 (.09)	.62	9.38	<.0001
Goal Setting → GOAL 4	1.00	.75	N/A	N/A
Goal Setting → GOAL 1	.64 (.04)	.68	17.00	<.0001
Goal Setting → GOAL 3	.92 (.05)	.79	19.54	<.0001
Goal Setting → GOAL 5	.67 (.05)	.52	13.60	<.0001
Negative Affective Quality → PCAQ 1	1.00	.75	N/A	N/A
Negative Affective Quality → PCAQ 6	1.47 (.08)	.81	19.13	<.0001
Negative Affective Quality → PCAQ 10	1.40 (.07)	.77	18.95	<.0001
Positive Affective Quality → PCAQ 2	1.00	.92	N/A	N/A
Positive Affective Quality → PCAQ 4	.87 (.03)	.80	26.94	<.0001
Positive Affective Quality → PCAQ 9	.97 (.03)	.83	28.95	<.0001
Consistent Discipline → GCM 5	1.00	.60	N/A	N/A
Consistent Discipline → GCM 4	.96 (.08)	.60	12.08	<.0001
Consistent Discipline → GCM 6	.97 (.08)	.67	12.23	<.0001
Consistent Discipline → GCM 7	1.02 (.09)	.63	11.57	<.0001
Child Monitoring → GCM 22	1.00	.59	N/A	N/A
Child Monitoring → GCM 01	.89 (.10)	.63	9.08	<.0001
Child Monitoring → GCM 02	.97 (.10)	.68	9.48	<.0001
Child Monitoring → GCM 23	.99 (.09)	.53	11.39	<.0001
Child Monitoring → GCM 24	.72 (.07)	.45	9.75	<.0001
Inductive Reasoning → GCM 18	1.00	.82	N/A	N/A
Inductive Reasoning → GCM 16	.87 (.05)	.71	17.67	<.0001
Inductive Reasoning → GCM 17	.78 (.06)	.57	13.43	<.0001
Inductive Reasoning → GCM 19	.72 (.07)	.45	9.75	<.0001
Mindful Parenting → Non-Reactivity	1.00	.83	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.88	N/A	N/A
Mindful Parenting → Emotional Awareness	.55 (.08)	.48	7.16	<.0001
Mindful Parenting → Attention	.78 (.08)	.62	10.16	<.0001
Parent-Child Affective Quality → Positive Affective Quality	1.00	.61	N/A	N/A
Parent-Child Affective Quality → Negative Affective Quality	.76 (.08)	.65	9.86	<.0001
General Child Management → Inductive Reasoning	1.00	.67	N/A	N/A
General Child Management → Consistent Discipline	.71 (.08)	.60	8.97	<.0001
General Child Management → Child Monitoring	.57 (.07)	.54	8.00	<.0001

<i>Table 17. Parameter Estimates for Model in Figure 14.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.65	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.94 (.10)	.69	9.28	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.59	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.26 (.12)	.78	10.95	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.63	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.78 (.19)	.50	4.15	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.73	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.71 (.12)	.54	5.89	<.0001
Externalizing → EXTERN A	1.00	.78	N/A	N/A
Externalizing → EXTERN B	1.06 (.07)	.78	15.52	<.0001
Externalizing → EXTERN C	1.12 (.07)	.81	16.00	<.0001
Externalizing → EXTERN D	1.11 (.07)	.80	15.81	<.0001
Negative Affective Quality → PCAQ 1	1.00	.74	N/A	N/A
Negative Affective Quality → PCAQ 6	1.50 (.11)	.83	13.53	<.0001
Negative Affective Quality → PCAQ 10	1.38 (.10)	.76	13.85	<.0001
Positive Affective Quality → PCAQ 2	1.00	.91	N/A	N/A
Positive Affective Quality → PCAQ 4	.86 (.04)	.79	19.76	<.0001
Positive Affective Quality → PCAQ 9	.98 (.04)	.88	23.41	<.0001
Mindful Parenting → Non-Reactivity	1.00	.81	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.97	N/A	N/A
Mindful Parenting → Emotional Awareness	.62 (.11)	.51	5.56	<.0001
Mindful Parenting → Attention	.85 (.12)	.63	7.36	<.0001
Parent-Child Affective Quality → Positive Affective Quality	1.00	.60	N/A	N/A
Parent-Child Affective Quality → Negative Affective Quality	.86 (.13)	.67	6.81	<.0001
Structural Model				
Mindful Parenting → Externalizing	.82 (.42)	.57	1.95	<.10
Parent-Child Affective Quality → Externalizing	-.95 (.35)	-.91	-2.67	<.01
Mindful Parenting → Parent-Child Affective Quality	1.08 (.16)	.78	6.59	<.0001
Household Income → Mindful Parenting				ns
Family Structure → Mindful Parenting				ns
Mother Education → Mindful Parenting	.02 (.01)	.12	1.97	<.05
Intervention Condition → Mindful Parenting				ns
Household Income → Externalizing				ns
Family Structure → Externalizing				ns
Mother Education → Externalizing				ns
Intervention Condition → Externalizing				ns
Household Income → Parent-Child Affective Quality	.23 (.10)	.17	2.28	<.05
Family Structure → Parent-Child Affective Quality				ns
Mother Education → Parent-Child Affective Quality				ns
Intervention Condition → Parent-Child Affective Quality				ns
Residual in Mindful Parenting	.08 (.03)	.35	3.22	<.01
Residual in Parent-Child Affective Quality	.10 (.04)	.36	2.54	<.05
Residual in Externalizing	.20 (.05)	.63	4.35	<.0001
Specific Indirects				
Mindful Parenting → P-C Affective Quality → Externalizing	-1.02 (.42)	-.71	-2.44	<.05

<i>Table 16 (continued). Parameter Estimates for Model in Figure 13.</i>	Unstandardized (Standard Error)	Standardized	z	p
Parent-Child Affective Quality → Goal Setting	1.10 (.53)	.67	2.10	<.05
General Child Management → Goal Setting				ns
Mindful Parenting → Parent-Child Affective Quality	1.28 (.12)	.88	11.09	<.0001
Mindful Parenting → General Child Management	1.25 (.11)	.91	11.74	<.0001
Household Income → Mindful Parenting				ns
Family Structure → Mindful Parenting				ns
Mother Education → Mindful Parenting	.02 (.01)	.08	1.76	<.10
Intervention Condition → Mindful Parenting				ns
Household Income → Goal Setting				ns
Family Structure → Goal Setting	.21 (.10)	.11	2.04	<.05
Mother Education → Goal Setting				ns
Intervention Condition → Goal Setting				ns
Household Income → Parent-Child Affective Quality	.16 (.08)	.11	2.08	<.05
Family Structure → Parent-Child Affective Quality				ns
Mother Education → Parent-Child Affective Quality				ns
Intervention Condition → Parent-Child Affective Quality				ns
Household Income → General Child Management	.19 (.07)	.14	2.83	<.01
Family Structure → General Child Management				ns
Mother Education → General Child Management	.02 (.01)	.09	1.85	<.10
Intervention Condition → General Child Management				ns
Residual in Mindful Parenting	.15 (.02)	.99	9.40	<.0001
Residual in Parent-Child Affective Quality	.08 (.03)	.22	2.38	<.05
Residual in General Child Management	.04 (.02)	.12	1.59	ns
Residual in Goal Setting	.77 (.09)	.84	8.47	<.0001
Specific Indirects				
Mindful Parenting → Gen. Child Mgmt → Goal Setting				ns
Mindful Parenting → P-C Affective Quality → Goal Setting	1.41 (.70)	.58	2.02	<.05

<i>Table 17. Parameter Estimates for Model in Figure 14.</i>	Unstandardized (Standard Error)	Standardized	z	p
Measurement Model Estimates				
Mindful Parenting Non-Reactivity → IEM-P 8	1.00	.65	N/A	N/A
Mindful Parenting Non-Reactivity → IEM-P 2	.94 (.10)	.69	9.28	<.0001
Mindful Parenting Non-Judge → IEM-P 7	1.00	.59	N/A	N/A
Mindful Parenting Non-Judge → IEM-P 4	1.26 (.12)	.78	10.95	<.0001
Mindful Parenting Emotional Awareness → IEM-P 6	1.00	.63	N/A	N/A
Mindful Parenting Emotional Awareness → IEM-P 3	.78 (.19)	.50	4.15	<.0001
Mindful Parenting Attention → IEM-P 9	1.00	.73	N/A	N/A
Mindful Parenting Attention → IEM-P 1	.71 (.12)	.54	5.89	<.0001
Externalizing → EXTERN A	1.00	.78	N/A	N/A
Externalizing → EXTERN B	1.06 (.07)	.78	15.52	<.0001
Externalizing → EXTERN C	1.12 (.07)	.81	16.00	<.0001
Externalizing → EXTERN D	1.11 (.07)	.80	15.81	<.0001
Negative Affective Quality → PCAQ 1	1.00	.74	N/A	N/A
Negative Affective Quality → PCAQ 6	1.50 (.11)	.83	13.53	<.0001
Negative Affective Quality → PCAQ 10	1.38 (.10)	.76	13.85	<.0001
Positive Affective Quality → PCAQ 2	1.00	.91	N/A	N/A
Positive Affective Quality → PCAQ 4	.86 (.04)	.79	19.76	<.0001
Positive Affective Quality → PCAQ 9	.98 (.04)	.88	23.41	<.0001
Mindful Parenting → Non-Reactivity	1.00	.81	N/A	N/A
Mindful Parenting → Non-Judge	1.00	.97	N/A	N/A
Mindful Parenting → Emotional Awareness	.62 (.11)	.51	5.56	<.0001
Mindful Parenting → Attention	.85 (.12)	.63	7.36	<.0001
Parent-Child Affective Quality → Positive Affective Quality	1.00	.60	N/A	N/A
Parent-Child Affective Quality → Negative Affective Quality	.86 (.13)	.67	6.81	<.0001
Structural Model				
Mindful Parenting → Externalizing	.82 (.42)	.57	1.95	<.10
Parent-Child Affective Quality → Externalizing	-.95 (.35)	-.91	-2.67	<.01
Mindful Parenting → Parent-Child Affective Quality	1.08 (.16)	.78	6.59	<.0001
Household Income → Mindful Parenting				ns
Family Structure → Mindful Parenting				ns
Mother Education → Mindful Parenting	.02 (.01)	.12	1.97	<.05
Intervention Condition → Mindful Parenting				ns
Household Income → Externalizing				ns
Family Structure → Externalizing				ns
Mother Education → Externalizing				ns
Intervention Condition → Externalizing				ns
Household Income → Parent-Child Affective Quality	.23 (.10)	.17	2.28	<.05
Family Structure → Parent-Child Affective Quality				ns
Mother Education → Parent-Child Affective Quality				ns
Intervention Condition → Parent-Child Affective Quality				ns
Residual in Mindful Parenting	.08 (.03)	.35	3.22	<.01
Residual in Parent-Child Affective Quality	.10 (.04)	.36	2.54	<.05
Residual in Externalizing	.20 (.05)	.63	4.35	<.0001
Specific Indirects				
Mindful Parenting → P-C Affective Quality → Externalizing	-1.02 (.42)	-.71	-2.44	<.05

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CURRICULUM VITAE

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- 2002 – 2003 Edward R. and Helen Skade Hintz Graduate Educational Enhancement Fellowship, The Pennsylvania State University

RECENT PUBLICATIONS

Duncan, L.G., Coatsworth, J.D., & Greenberg, M.T. (under review). Pilot and feasibility study of a mindfulness-based family skills training intervention.

Duncan, L.G., Coatsworth, J.D., & Greenberg, M.T. (under review). The relation between parenting type and adolescent competence in dual-parent families: A latent profile approach.

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