

Changing Parent's Mindfulness, Child Management Skills and Relationship Quality With Their Youth: Results From a Randomized Pilot Intervention Trial

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Abstract We evaluated the efficacy of a mindful parenting program for changing parents' mindfulness, child management practices, and relationships with their early adolescent youth and tested whether changes in parents' mindfulness mediated changes in other domains. We conducted a pilot randomized trial with 65 families and tested an adapted version of the *Strengthening Families Program: For Parent and Youth 10–14* that infused mindfulness principles and practices against the original program and a delayed intervention control group. Results of pre-post analyses of mother and youth-report data showed that the mindful parenting program generally demonstrated comparable effects to the original program on measures of child management practices and stronger effects on measures of mindful parenting and parent–youth relationship qualities. Moreover, mediation analyses indicated that the mindful parenting program operated indirectly on the quality of parent–youth relationships through changes in mindful parenting. Overall, the findings suggest that infusing mindful parenting activities into existing empirically validated parenting programs can enhance their effects on family risk and protection during the transition to adolescence.

Keywords Mindfulness · Parenting · Intervention · Efficacy · Adolescence

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Introduction

Mindfulness, the practice of focusing one's attention on what one is experiencing at the present-moment in an open and accepting way has become a popular central component of a number of efficacious interventions (Kabat-Zinn 1990). Mindfulness-based interventions have begun to show promise for treating a variety of psychological problems (see Baer 2007; Hayes 2004), including preventing relapse for depression (Segal et al. 2002) and substance abuse (Marlatt et al. 2004) and reducing negative physical and psychological responses to stress (Kabat-Zinn 1990; Kabat-Zinn et al. 1992). Common to these mindfulness interventions is their focus on *intrapersonal processes* and helping individuals change the relationship they have with internal states, primarily their thoughts and feelings.

Mindfulness may also have promise within preventive interventions that primarily target *interpersonal processes*. Studies demonstrate that mindfulness and mindfulness-based techniques are related to interpersonal processes such as perspective-taking and empathic responding (Block-Lerner et al. 2007; Wachs and Cordova 2007), relatedness and interpersonal closeness (Brown and Ryan 2004), and emotion identification, emotion communication, and anger management (Wachs and Cordova 2007). More mindful individuals are also more likely to respond constructively to relationship stress (Barnes et al. 2007). A preventive intervention incorporating mindfulness techniques showed positive effects on romantic partners' sense of closeness, relatedness, and acceptance, in addition to decreasing the partners' relationship distress (Carson et al. 2004).

Mindfulness also appears to be an important aspect of other interpersonal relationship contexts. For example,

being mindful has been described as a fundamental parenting skill (Steinberg 2004; Kabat-Zinn and Kabat-Zinn 1997), and advocates propose that fostering everyday mindfulness in the context of parenting and parent training is one avenue for improving the effectiveness of parenting interventions (Dumas 2005). Despite growing appeal for the idea of mindfulness in parenting, we found only five published reports of mindful parenting programs, and all were done in treatment settings. Singh et al. (2004, 2006, 2007) found that an 8- or 12-week mindful parenting course implemented with caregivers of children with autism or other developmental delays, followed by a 52-week practice phase, generally resulted in increases in parenting satisfaction and decreases in child aggression, noncompliance, and self-injury. The Parents Under Pressure intervention, a family-focused intervention that incorporates mindfulness skills-training and elements of mindfulness-based relapse prevention, was tested in a small randomized controlled trial with 64 parents on methadone maintenance (Dawe and Harnett 2007). The intervention improved family functioning and reduced child abuse potential compared to a control condition. In a non-experimental trial, Altmaier and Maloney (2007) evaluated a 12-week group-based mindful parenting intervention with a sample of 12 recently-divorced parents of preschool age children. Results indicated a significant pre- to post-intervention increase in mindfulness but no changes were found on observational ratings of parent-child relationships.

The results of these studies suggest that mindful parenting interventions may have potential for improving parenting, parenting satisfaction, family functioning, and mindfulness. It is unclear, however, whether improvements in mindfulness mediated improvements in parenting, satisfaction, or family functioning. In addition, given that there currently exist many family-focused and behavioral parent training preventive interventions with strong empirical evidence supporting their efficacy to improve parenting and deter child and youth problem behavior (see Kumpfer and Alvarado 2003; Lochman and van den Steenhoven 2002), an important empirical question for mindfulness-based parenting interventions is whether mindfulness adds value beyond the effects evident in existing programs.

Parenting is an interpersonal domain in which mindfulness may have considerable importance (Duncan et al. 2009a; Dumas 2005; Kabat-Zinn and Kabat-Zinn 1997). Mindful parenting is essentially about bringing the qualities of present-centered attention and awareness, low reactivity, and an open, accepting attitude to one's parenting thoughts, feelings, and behaviors, which can often be directed by conditioned beliefs, expectations and behaviors. It is simultaneously about the *intrapersonal* and *interpersonal* aspects of parenting. The intrapersonal

aspect of mindfulness in parenting includes the attributions (Bugental and Happaney 2002), attitudes and values (Holden and Buck 2002), beliefs (Sigel and McGillicuddy-DeLisi 2002), and expectations (Goodnow 2002) that parents have about their youth and parenting, but also the ways that parents relate to and respond to those internal experiences (Duncan et al. 2009a). Above all, parenting in an intensely emotional experience and virtually all aspects of parenting are influenced by parents' emotional activation, engagement, and regulation (Dix 1991). In this sense, mindful parenting is a "meta-concept" reflecting a higher level of awareness that parents have of their internal states and how they think and feel about their thoughts and feelings. In the interpersonal realm, mindfulness in parenting is reflected in the way parents are fully present when interacting with their children and the way parents bring an attitude of acceptance, kindness, and compassion to those interactions. We hypothesized that training parents in short mindfulness practices and techniques would influence their cognitions and affect around parenting (intrapersonal) and their behavior toward their children (interpersonal).

One period of development in which mindfulness in parenting may be particularly beneficial is during the transition to adolescence. Ineffective parenting in early adolescence is linked with behaviors such as substance use, delinquency, and risky sexual behavior (Dishion et al. 1999; Loeber and Dishion 1983; Perrino et al. 2000). In contrast, effective caregiver-child relationships, characterized by emotional closeness, open communication, and low conflict, socialize youth to skills, values, and behaviors that lead to competent self-regulation, emotional well-being, and positive behaviors (Masten and Coatsworth 1998). Parent-child relationships change notably during this transition as parents and youth spend less time together (Larson et al. 1996). Parents and youth report a decline in feelings of closeness (Laursen and Williams 1997), characterized by less positive and more negative emotion in their relationships (Kim et al. 2001). Parents and youth may experience more intense relationship conflict, which for some families creates an escalating cycle of negativity. Parents in conflict-filled relationships with their youth may be likely to disengage, which can contribute to less parental monitoring and greater risk for youth conduct or substance use problems (Dishion et al. 2004). Parents taking a mindful approach may be able to disrupt the destructive cycle of negativity and disengagement that can become "automatic" for some parent-child dyads (Dishion et al. 2003).

We have proposed a model of mindful parenting (see Duncan et al. 2009a) that draws from the concepts and practices of psychological mindfulness (Baer 2007; Brown and Ryan 2004), mindfulness-based interventions (Kabat-Zinn 1990, 2003), and contemporary theoretical and

empirical writings about parenting. The model highlights five dimensions of parenting that we believe are particularly well-suited to mindfulness training for parents: (1) *Listening with full attention*, which involves training parents to listen to their children with focused attention and receptive awareness to experiences in the present moment; (2) *Nonjudgmental acceptance of self and child*, meaning helping parents become more aware of the attributions and expectations they have toward their children's behavior and gently directing parents toward adopting a nonjudgmental acceptance of the traits, attributes, and behaviors of both themselves and their youth; (3) *Emotional awareness of self and child*, emphasizes building parents' capacity for awareness of emotions within themselves and their youth; (4) *Self-regulation in the parenting relationship*, requires training in mindfulness techniques that help parents to become less reactive to normative child behavior and therefore allows them to calmly select and implement parenting behaviors in accordance with their parenting values and goals; and, (5) *Compassion for self and child*, which means helping parents develop a genuine empathic concern for their youth and for themselves as parents. We hypothesized that designing activities and discussions that promote these kinds of mindful parenting practices and building them into an existing parenting program would enhance the efficacy of that program, particularly with respect to the emotional qualities of the parent–youth relationship.

Our theoretical model of mindful parenting (Duncan et al. 2009a), as well as other models (Dumas 2005) point to a number of theoretical mechanisms by which mindful parent training may influence parent–youth interactions including, parents' nonjudgmental attitude toward their own and their child's behavior, an ability to tolerate and distance themselves from negative affect, and a reduction of automatic response patterns. Another hypothesized mechanism of mindfulness training is *reperceiving*, which is described as a fundamental shift in one's relationship to experiences and is hypothesized to help alter automatic processes and highly conditioned connections between one's thoughts, feelings, and behavior (Shapiro et al. 2006).

Rather than create an entirely new mindful parenting program, we elected to adapt an evidence-based program, the *Strengthening Families Program: For Parents and Youth 10–14* (SFP; Molgaard et al. 2001), by infusing it with mindfulness activities. We adopted this strategy because we wanted to test the added value of mindful parenting and we chose SFP because of the strong empirical evidence showing that the program improves child management practices and the quality of parents' affective behavior toward their youth (Redmond et al. 1999; Spoth et al. 1998) and delays the onset and escalation of conduct problems and alcohol/drug use in adolescence (Spoth et al.

1999, 2004, 2006). Moreover, the content of the original SFP already implicitly contained many of the underlying principles of mindful parenting. Our task was to make these implicit messages more explicit by adding short mindfulness activities and by altering some of the language within the program so that it more clearly reinforced principles and practices of mindfulness. We previously conducted a small preliminary study with one parenting group to demonstrate that it was feasible to implement a mindfulness-adapted SFP intervention and that the mindfulness activities we developed were acceptable to participants (Duncan et al. 2009b).

The current study extended our work and had two aims. The first aim was to test the efficacy of our mindful parenting intervention to change mindful parenting, child management practices, and parent–youth relationship qualities. To facilitate the comparison with previous trials of SFP, we relied on the same measures of child management practices and parent–youth relationship quality. In addition, to reduce confounds associated with informant bias, we included both parent and youth reports in those domains. A randomized trial design that included three study conditions allowed us to test effects of the mindful parenting intervention against the original version of SFP, as well as a control condition. Such comparisons provided opportunities to evaluate the “additive” effects of mindfulness, albeit with a relatively small sample size per group. The second aim tested whether changes in mindful parenting mediated changes in other intervention outcomes.

Four hypotheses were tested in this study. First, we hypothesized that parents who received the mindfulness-enhanced intervention would demonstrate greater improvement on mindful parenting than parents in either of the other two conditions. Second, we hypothesized that parents receiving either the mindfulness adaptation or SFP intervention would show greater change on child management practices compared to parents in the control group. Because mindfulness practices might reduce parents' stress and allow them to be less reactive and more deliberate in their actions, we predicted that parents who received the mindfulness-enhanced intervention might display even better child management practices than parents who received the original SFP. Third, because our mindfulness adapted intervention specifically focuses on building compassion and caring, we predicted that families in that condition would report higher quality adolescent–parent relationships (e.g., more positive and less negative elements) than those in either the SFP or the control conditions. Fourth, we hypothesized significant indirect or mediated intervention effects whereby changes in mindful parenting would be related to changes in child management practices and the quality of parent–youth relationships.

Method

Participants

Participants consisted of 65 families drawn from small towns in central Pennsylvania. Five of the 65 families in our sample did not complete assessments prior to the beginning of the intervention, and 24 families did not complete assessments after the end of the intervention. Although dual-parent families often participated in the intervention, 20% of families did not include fathers, and fathers were less likely to participate in the research component of this study. Therefore, this study focused only on maternal and youth reports of parenting behavior and relationship quality.

Mean age of the youth was 11.65 years ($SD = .75$), and 38% of the youth were female. Mean age of mothers was 39.4 years ($SD = 7.0$). All but one mother had completed high school, and 82% of mothers held full- or part-time jobs. Median annual household income for the sample was \$40,000–\$50,000 with a range from under \$10,000 to over \$100,000. All but one family was European American. On average, families had lived in their current homes more than 50 years.

Procedures

This study was conducted in collaboration with the local communities that care (CTC) organization that had received funding to implement the SFP program. Families were recruited from three rural school districts in Centre County, Pennsylvania. The SFP intervention is designed to be implemented when youth transition out of elementary school, however, this transition occurred at different times in the three districts. Therefore, we recruited families of 5th and 6th grade youth from two districts and families of 6th and 7th grade students from the third. Families were recruited via mailings to parents, presentations in classrooms and at school functions, newspaper and radio advertisements, flyers placed in local businesses, and direct phone calls to families' homes.

Assessments were completed immediately before and immediately following the intervention. Pre and post-intervention surveys were mailed to the homes of all families that agreed to participate in the study. Youth and parent surveys were mailed separately, along with instructions, a reminder of confidentiality, and consent forms. Both parents and youth in all conditions received a \$10 gift card for completing each assessment.

Families were stratified by school district and randomly assigned to one of three conditions: (1) 23 families were assigned to the original SFP program, (2) 25 families were assigned to the mindfulness-based adaptation of the

SFP program (MSFP), and (3) 17 families were assigned to a delayed intervention control condition. Families in the SFP and MSFP conditions were told that one condition included more activities to help parents cope with the stress of having an adolescent, but they did not know whether they were assigned to that condition or not. Because of the small sample size, we used an urn randomization procedure to balance the groups on variables that might influence intervention outcomes (Stout et al. 1996), including age and gender of the youth, number of adults in the home, family size, and expected number of adults participating in the intervention. The stratified random design produced three separate SFP and MSFP groups of comparable size. All intervention sessions were held at local schools.

Intervention Conditions

Strengthening Families Program 10–14

SFP is an evidence-based, universal, family-focused intervention designed to reduce risk factors and enhance protective factors as a means of preventing adolescent substance use and problem behaviors. The intervention consists of seven 2-h sessions, delivered to groups of parents and youth. Sessions are typically delivered one session per week and are structured such that parents and youth meet in separate groups for the first hour and together in a family session during the second hour. A full description of the intervention is available elsewhere (Molgaard et al. 2000).

Mindfulness-Enhanced Strengthening Families Program

The format (session number, length, and timing) of mindfulness-enhanced strengthening families program (MSFP) was identical to the original SFP. In addition, the youth components and family components were identical to the original SFP. We worked with Virginia Molgaard, PhD., the lead author of the original SFP, to modify the intervention by infusing new mindfulness activities into the parent sessions only. To do so, we shortened some of the activities in the original program, shifted where some activities appeared in the session, and changed some of the language to emphasize messages of mindful parenting (e.g., being attentive, reducing emotional reactivity, being less judgmental).

New activities were designed to influence mindful parenting by enhancing parents' ability to pay close attention and listen carefully to their children during moment-to-moment parenting interactions. These activities sought to help parents act with non-judgmental acceptance, caring, and compassion towards their youths and themselves. The

activities focused on helping parents observe and become aware of mounting interpersonal tensions as they were beginning to arise, while purposefully modulating emotional reactivity to child behavior and child displays of negative affect. New mindfulness and mindful parenting activities included facilitator led didactic presentation of mindfulness principles, teaching of mindfulness practices (e.g., mindful breathing), practice exercises and group interactive activities. Short reflections were conducted at the beginning and end of the sessions. These reflections included aspects of mindful practice such as mindful breathing exercises as well as brief guided mindfulness reflections (e.g., compassion or loving kindness reflections) intended to help set parents' intentions and direct their attention to topics, such as what they wanted in their relationships with their youths, the qualities they really admired in their youths, and their own experiences negotiating the social challenges of adolescence. Parents were encouraged to practice these activities at home and were provided with materials that would facilitate this, such as a refrigerator magnet with the phrase "Stop, be calm, be present." At the beginning of each weekly session there was an opportunity for parents to report how their practice at home was progressing. A more complete description of the intervention is available elsewhere (Duncan et al. 2009a).

Delayed Intervention

Families randomized to the delayed intervention condition were promised a spot in an SFP intervention group that would begin approximately 3 months following the baseline assessment and 1 month following the follow-up assessment. All families in this condition were contacted following this study and specifically invited to participate in those groups.

Intervention Facilitators

Because of our partnership with the local CTC, the facilitators of the standard SFP parenting sessions had been recruited from local teachers, counselors, and parents and hired according to standard SFP criteria. They had bachelor's or master's degrees and relevant experience working with parents or youth. All facilitators received the standard 2 day training in SFP and were certified to implement the program. The facilitators for the three MSFP parenting groups also had bachelor's or master's degrees. They had completed the standard SFP training, and they had experience with the delivery of evidence-based prevention programs. However, only one of the three facilitators had experience with mindfulness meditation training. The first and second author provided additional training to MSFP parent facilitators on the mindfulness enhancements to the

curriculum, including experiential training in the mindfulness reflection activities, and orientation to the mindful parenting philosophy of the intervention.

Implementation Fidelity

Trained observers visited, on average, 2 of the 7 sessions for each SFP and MSFP group and rated fidelity of implementation using a series of structured ratings (Spoth et al. 2007). Ratings were adapted where necessary to be specific to the intervention, such that ratings for MSFP included assessment of the additional mindfulness activities, whereas assessment of the SFP did not. Adherence was high across sessions with 89% of prescribed program content being covered in each session. Group participation, or the extent to which parents seemed interested and participated in the sessions, was high ($M = 3.7$ on four ratings with a potential range from 0 to 4; $SD = .20$). In addition, group leader effectiveness, or the extent to which facilitators displayed qualities such as friendliness/acceptance and provided clear explanations, was high ($M = 3.6$ on nine ratings with a potential range from 0 to 4; $SD = .36$). Inappropriate group leader process, such as reading from the manual or being critical of participants' ideas, was low ($M = .16$ on six ratings with a potential range from 0 to 4; $SD = .22$). These figures are comparable to the adherence figures found in delivery of SFP in other studies (Spoth et al. 2007) and indicate high quality implementation.

Outcome Measures

Except for the measure of mindful parenting, the assessment battery for the current study was comprised of measures used in longitudinal studies to evaluate the efficacy of SFP (Redmond et al. 1999; Spoth et al. 2004).

Mindful Parenting (IM-P Scale)

The interpersonal mindfulness in parenting scale (Duncan 2007) contained 10 items reflecting parents' ability to maintain: (1) present-centered attention during parenting interactions (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"); (2) present-centered emotional awareness during parenting interactions (e.g., "I notice how my child's mood affects my mood"); (3) openness and non-judgmental receptivity to their adolescents' articulation of thoughts and displays of emotion (e.g., "I listen carefully to my child's ideas, even when I disagree with them"); and (4) ability to regulate their reactivity to their adolescents' normative behavior (e.g., "When I'm upset with my child, I notice how I am feeling before I take action"). Mothers responded to each item on a

5-point Likert-style rating scale. Internal consistency reliability for this scale was adequate ($\alpha = .62$). A previous study has demonstrated the concurrent and discriminant validity of the IM-P (Duncan et al. 2008).

Child Management Practices

Scales assessing mothers' discipline consistency, monitoring, rules communication, and inductive reasoning were used as indicators of child management practices. Mothers reported on their own discipline consistency (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 youths reported on mothers' discipline consistency (5 items, $\alpha = .80$; e.g., "When your mom asks you to do something and you don't do it right away, how often does she give up?"). Likewise, mothers reported on their own monitoring (5 items, $\alpha = .72$; e.g., "How often do you know who your child is with when he or she is away from home?"), and youths reported on their mothers' monitoring (3 items, $\alpha = .58$; e.g., "In the course of a day, how often does your mom know where you are?"). Only mothers, however, reported on rules communication, which focused on substance use (4 items, $\alpha = .84$; e.g., "I have told my child what my specific rules are about alcohol, tobacco, and drugs"), and inductive reasoning (4 items, $\alpha = .73$; e.g., "How often do you give reasons to this child for your decisions?"). Items from all of these scales are rated using 5-point Likert-type response options.

Parent–youth Relationship Quality

Both mothers and youths reported on the behavioral expression of affect in their relationships. Mothers reported on their emotional style parenting (11 items, $\alpha = .84$; e.g., "When my child tells me something important, I let him know that I am trying to understand what he is feeling"). Mothers' anger management was assessed by both mothers' perspective (4 items, $\alpha = .66$; e.g., "I am able to remain calm when my child does something that makes me angry") and youths' perspective (1 item; "When you do something wrong, how often does your mom lose her temper and yell at you?").

Mothers reported on their expression of positive affective behavior (4 items, $\alpha = .81$; e.g., "I act lovingly and affectionate toward this child") and negative affective behavior (10 items, $\alpha = .87$; e.g., "I shout, yell, or scream at her or him") directed toward their youth. Youth also reported on mothers' expression of positive affective behavior (1 item; "How often did your mom act lovingly and affectionate toward you?") and negative affective behavior (6 items, $\alpha = .83$; e.g., "How often did your mom shout, yell, or scream at you?") directed toward them.

Likewise, mothers reported on youths' expression of positive affective behavior (4 items, $\alpha = .91$; e.g., "How often did your child act lovingly and affectionate toward you?") and negative affective behavior (6 items, $\alpha = .87$; e.g., "How often did your child get angry at you?") directed toward them. Finally, youths also reported on their own positive affective behavior (4 items, $\alpha = .79$; e.g., "How often did you let your mother know that you appreciate her, her ideas, or the things she does?") and negative affective behavior (7 items, $\alpha = .85$; e.g., "How often did you get angry at your mother?") directed toward their mothers. All items were rated on a 7-point Likert-type scale indicating how often the specified events occurred in the past month. Negative affect scales were recoded so that high scores indicated less negative affect.

Results

Missing Data

To reduce any bias that might be associated with families that failed to complete pre- or post-intervention assessments and to conduct analyses based on all families in the sample, multiple imputation procedures were used (Schafer 1997). This is a best practice recommended for research in developmental psychology with patterns of missing data like ours (Widaman 2006).

We generated 50 complete datasets, based on study design characteristics (such as school district and intervention group), demographic characteristics (such as mothers' age, youths' age, parent marital status, mothers' education, mothers' employment status, family income, and residential stability), pre- and post-intervention assessments of mindful parenting, and pre- and post-intervention assessments of the outcome measure. We then averaged results across those 50 complete datasets, adjusting standard errors to account for the variability in the imputed estimates of variable values.

Intervention Effects

The first aim of the study was to examine the efficacy of the adapted intervention. To test the hypotheses associated with this aim, we conducted a series of multiple regression analyses with the pre-intervention score on the outcome as a covariate and intervention condition coded as two dummy variables. This approach is comparable to an analysis of covariance (ANCOVA), but more flexible and better suited to the unequal number of families in our three study conditions (Cohen 1968). All outcome variables were standardized with a mean of 0.00 and a standard deviation of 1.00 so that the parameter estimates for intervention

condition were comparable to an effect size, adjusted for pre-intervention differences on the same measure. This allowed us to interpret these coefficients using the commonly accepted criteria of small ($d = .2$), medium ($d = .5$) and large ($d = .8$; Cohen 1988). Effect size estimates provide important information about intervention effects especially when small sample sizes, such as ours, reduce the power to detect statistically significant effects.

Table 1 presents pre- and post-intervention means and standard deviations for all study variables separately for families in the three study conditions. Table 2 presents effect size estimates/standardized betas comparing SFP vs. control, MSFP vs. control, and SFP vs. MSFP, for mother-reported and youth-reported outcomes. Mean-level pre- to post-intervention changes (Table 1) were generally toward more positive parenting in all three conditions, but to varying degrees.

With regard to mindful parenting, only mothers in the MSFP condition reported mean-level improvements over the course of the intervention, whereas mothers in the SFP and control conditions reported slight declines on this measure. Effect size estimates (Table 2) indicate that change in mother-reported mindful parenting in the MSFP condition was approximately two-thirds of a standard deviation greater than in the control or SFP conditions ($\beta = .66$ and $.63$, $p < .05$, respectively). These effect sizes indicate a “medium” to “large” intervention effect and support our first hypothesis.

On our four measures of child management practices—discipline consistency, monitoring, rules communication, and inductive reasoning—mothers from all three conditions generally reported positive mean changes from pre- to post-assessment (Table 1). The only exception to this was the slight decline in rules communication reported by mothers in the control condition. Across these variables, small to large effects were found for comparisons of SFP vs. Control and MSFP vs. Control. The large intervention effect size for mothers in both the SFP and MSFP conditions on rules communication were statistically significant ($\beta = .84$ and $.76$, $p < .01$, respectively). Comparisons between MSFP and SFP showed slight differences on monitoring ($\beta = -.06$) and rules communication, ($\beta = -.08$). However, mothers in SFP showed greater improvement in discipline consistency ($\beta = .28$, reverse coded for table), and mothers in MSFP showed slightly greater improvements in the use of inductive reasoning ($\beta = .18$). Results from these mother reported variables demonstrate mixed support of our second hypothesis; that MSFP would show stronger effects on child management practices.

In contrast, youth reports of discipline consistency and monitoring showed a different pattern with regard to pre-to-post intervention mean changes and intervention effects.

Table 1 Means and standard deviations of outcome variables

	Control	SFP	MSFP
<i>Mothers' reports</i>			
Mindful parenting			
Pre-intervention	3.38 (.26)	3.53 (.31)	3.44 (.41)
Post-intervention	3.34 (.32)	3.43 (.46)	3.66 (.43)
Discipline consistency			
Pre-intervention	3.26 (.43)	3.42 (.47)	3.42 (.54)
Post-intervention	3.47 (.55)	3.78 (.48)	3.63 (.53)
Monitoring			
Pre-intervention	4.23 (.33)	4.27 (.47)	4.28 (.50)
Post-intervention	4.30 (.38)	4.41 (.43)	4.40 (.39)
Inductive reasoning			
Pre-intervention	3.85 (.48)	3.68 (.70)	3.81 (.66)
Post-intervention	3.89 (.50)	3.89 (.47)	4.05 (.51)
Rules communication			
Pre-intervention	3.81 (1.09)	3.97 (.96)	4.11 (.99)
Post-intervention	3.70 (1.18)	4.53 (.59)	4.51 (.71)
Emotional style parenting			
Pre-intervention	4.13 (.43)	4.20 (.37)	4.10 (.51)
Post-intervention	4.16 (.38)	4.13 (.33)	4.22 (.50)
Anger management			
Pre-intervention	3.25 (.57)	3.39 (.55)	3.45 (.76)
Post-intervention	3.44 (.55)	3.40 (.59)	3.77 (.62)
Mothers' positive affect/behavior toward youth			
Pre-intervention	5.58 (.75)	6.01 (.85)	5.94 (.85)
Post-intervention	5.67 (.83)	6.03 (.63)	6.09 (.79)
Mothers' negative affect/behavior toward youth			
Pre-intervention	5.68 (.88)	5.70 (.63)	5.78 (.76)
Post-intervention	5.83 (.63)	5.89 (.52)	6.05 (.57)
Youths' positive affect/behavior toward mother			
Pre-intervention	4.75 (1.03)	4.80 (1.09)	5.05 (.96)
Post-intervention	4.87 (1.18)	4.39 (1.45)	5.32 (.95)
Youths' negative affect/behavior toward mother			
Pre-intervention	5.76 (.80)	5.26 (1.05)	5.53 (.99)
Post-intervention	5.70 (.74)	5.12 (1.15)	5.70 (1.03)
<i>Youths' reports</i>			
Discipline consistency			
Pre-intervention	3.55 (.77)	3.74 (.54)	3.67 (.88)
Post-intervention	3.88 (.87)	3.28 (1.02)	3.89 (1.01)
Monitoring			
Pre-intervention	4.43 (.67)	4.32 (.70)	4.40 (.80)
Post-intervention	4.32 (.70)	3.62 (.87)	4.48 (.56)
Anger management			
Pre-intervention	2.93 (1.62)	3.19 (1.05)	3.49 (1.41)
Post-intervention	3.29 (1.31)	3.26 (1.07)	3.92 (1.10)
Mothers' positive affect/behavior toward youth			
Pre-intervention	5.83 (1.12)	6.18 (.89)	6.41 (1.14)
Post-intervention	5.67 (1.08)	6.10 (1.01)	6.25 (.89)

Table 1 continued

	Control	SFP	MSFP
Mothers' negative affect/behavior toward youth			
Pre-intervention	5.55 (1.15)	5.37 (.84)	5.56 (1.29)
Post-intervention	5.78 (1.23)	5.28 (1.03)	5.81 (1.18)
Youths' positive affect/behavior toward mother			
Pre-intervention	5.41 (1.19)	5.26 (1.20)	5.72 (1.31)
Post-intervention	5.26 (1.28)	4.79 (1.57)	5.74 (1.22)
Youths' negative affect/behavior toward mother			
Pre-intervention	5.79 (.76)	5.66 (.61)	6.04 (.80)
Post-intervention	6.11 (.74)	5.11 (1.21)	5.87 (1.12)

Youths in the MSFP and control conditions reported that their mothers improved in discipline consistency, but youths in the SFP condition reported a sizeable decline. Comparisons revealed a medium-size negative effect for SFP vs. control ($\beta = -.66$) and a medium size positive effect for MSFP vs. SFP ($\beta = .63$), with both showing a trend toward statistical significance ($p < .10$). Both SFP and control condition youths reported declines in their mothers' monitoring, whereas MSFP youths reported slight increases. When compared to the control condition, MSFP showed a strong and statistically significant positive effect

($\beta = 1.00$; $p < .001$), and SFP showed a strong and statistically significant negative effect ($\beta = -.79$; $p < .01$).

With respect to the variables indicating the quality of the mother–youth relationship, results indicate that MSFP had small to medium effects when compared to control or SFP conditions. Mothers in all three conditions reported improvements in emotional style parenting, anger management, their own positive affective behavior toward their youth, and their negative affective behavior toward their youth, with mothers in the MSFP condition reporting greater improvements than mothers in either the SFP or control conditions. Effects were particularly strong for mothers' anger management with magnitude of effects for the comparison of MSFP vs. SFP being in the medium range and marginally significant ($\beta = .56$, $p < .10$). Findings for youth report of mothers' anger management were roughly comparable with a medium size effect comparing SFP and MSFP; however, these effects did not reach statistical significance.

Compared to mothers in the control condition, mothers in both the SFP and MSFP conditions reported larger improvements in the amount of positive affective behavior and larger decreases in the amount of negative affective behavior they expressed toward their youth. However, mothers in the SFP condition reported smaller changes in

Table 2 Comparisons of study condition intervention effects

	SFP vs. Control	MSFP vs. Control	MSFP vs. SFP
Mothers' reports			
Mindful parenting	.02	.66*	.63*
Discipline consistency	.43	.15	-.28
Monitoring	.23	.17	-.06
Rules communication	.84**	.76**	-.08
Inductive reasoning	.17	.35	.18
Emotional style parenting	-.18	.19	.37
Anger management	-.12	.43	.56 ⁺
Mother's positive affect/behavior toward youth	.21	.32	.12
Mother's negative affect/behavior toward youth	.09	.30	.22
Youth's positive affect/behavior toward mother	-.40	.22	.62*
Youth's negative affect/behavior toward mother	-.17	.18	.34 ⁺
Youths' reports			
Discipline consistency	-.66 ⁺	-.04	.63 ⁺
Monitoring	-.79*	.21	1.00***
Anger management	-.11	.36	.46
Mother's positive affect/behavior toward youth	.26	.30	.04
Mother's negative affect/behavior toward youth	-.32	.02	.34
Youth's positive affect/behavior toward mother	-.26	.23	.49
Youth's negative affect/behavior toward mother	-.79**	-.36	.43

Note: Negative affect/behavior scales were recoded such that high scores indicate more positive functioning (e.g. lower levels of negative affect)

⁺ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

these two areas than mothers in the MSFP condition. Comparisons yielded small intervention effects. In contrast, youths' reports of the amount of positive affective behavior mothers expressed toward them declined slightly from pre- to post-assessment for all three conditions. Although these scores remained high across conditions, the differential changes yielded small-to-medium size effects for SFP and MSFP compared to control. Although youths in the MSFP and control conditions reported slight declines in mothers' negative affective behavior directed toward them, youths from SFP reported slight increases in this kind of behavior from their mothers. The effect size for the MSFP vs. SFP comparison is in the small-to-medium range.

When asked how their youths were relating to them, mothers in the MSFP condition reported increases in the amount of positive affective behavior and decreases in the amount of negative affective behavior. In contrast, mothers in the SFP condition reported declines in positive affective behavior and increases in negative affective behavior, and mothers in the control condition reported increases in both. As a result of this different pattern of change, the contrast between mothers in the MSFP and SFP conditions was statistically significant or marginally significant ($\beta = .62, p < .05$, and $\beta = .34, p < .10$, respectively), and represent medium-to-large and small-to-medium intervention effect sizes.

Youths' reports of their own positive and negative affective behavior showed a different pattern. Although youths in MSFP reported stable positive affective behavior toward their mothers, youths in the SFP and control conditions reported declines, yielding a small intervention effect for the MSFP vs. control comparison ($\beta = .23$) and a medium-size effect for the MSFP vs. SFP comparison ($\beta = .49$). Regarding the negative affective behavior they expressed toward their mothers, youths in all conditions reported low levels. However, youths in the MSFP condition reported slight increases over the intervention whereas youths in the SFP condition reported more substantial increases, and youths in the control condition reported slight declines. Comparisons between intervention and control conditions indicated a medium negative intervention effect for MSFP and a statistically significant effect for SFP ($\beta = -.79, p < .01$). Differences between youths in the SFP and MSFP conditions represent a medium intervention effect size.

Mediation Analyses

The second aim of the study was to assess mediation (Baron and Kenny 1986; Dearing and Hamilton 2006) to determine whether the intervention had an indirect effect on child management practices and parent–youth relationships that operated through changes in mindful parenting. We used the preferred method for assessing

mediation, which is the test of joint significance of the two parameter estimates comprising the indirect effect (MacKinnon et al. 2002) and relied on the PRODCLIN software (MacKinnon et al. 2007) to perform those tests. If the product of the partial regression coefficients linking the distal predictor to the mediator and the mediator to the outcome are different from zero and statistically significant, there is evidence of mediation. In our case, being in the MSFP intervention condition was the distal predictor and change in mindful parenting, as reported by the mothers, was the hypothesized mediator. To conduct these tests, we re-estimated all of the models described in the section above, but this time we also included scores on mindful parenting prior to the beginning and after the end of the intervention. By doing this, we were able to control for individual differences in the outcome variable and mindful parenting prior to the beginning of the intervention and make inferences about change in mindful parenting as the mediating mechanism (see Krull and MacKinnon 1999, for a similar example). As depicted in Fig. 1 for discipline consistency, this method partitions the intervention effect on the distal outcome into a direct effect (path C) and an indirect effect (path A \times path C). For comparison sake, we also have illustrated the direct and indirect effects of SFP vs. control.

Table 3 presents the results of our mediation analyses. In the first column we present the partial regression coefficient for the relation between change in mindful parenting and change on each study outcome, controlling for the intervention effect. This provides an estimate of whether changes in mindful parenting are related to changes in our outcomes irrespective of intervention condition; it is represented by path B in Fig. 1. We also present coefficients representing the indirect effect of being in MSFP vs. the control condition on each outcome, as operating through the change in mindful parenting (path A \times path B). Because the effect of being in the MSFP condition compared to being in the SFP condition on mindful parenting is very similar to MSFP vs. control ($\beta = .63$ and $\beta = .66$, respectively), the resulting coefficients for the indirect effects are also very similar. Therefore, we present only those for MSFP vs. control.

As shown in Table 3 and Fig. 1, the indirect effect of being in the MSFP condition on changes in discipline consistency was in the small-to-medium range and statistically significant ($.66 \times .42 = .28, p < .05$). In contrast, Fig. 1 shows that SFP's effects on changes in discipline consistency do not operate through changes in mindful parenting ($\beta = .01 [.02 \times .42 = .01], p = ns$), instead, the medium-sized direct effect ($\beta = .37$) suggests an alternative mechanism of action. Analyses of youths' reports on this outcome produced effects identical to mothers' reports. Tests of indirect effects for our other indicators of child

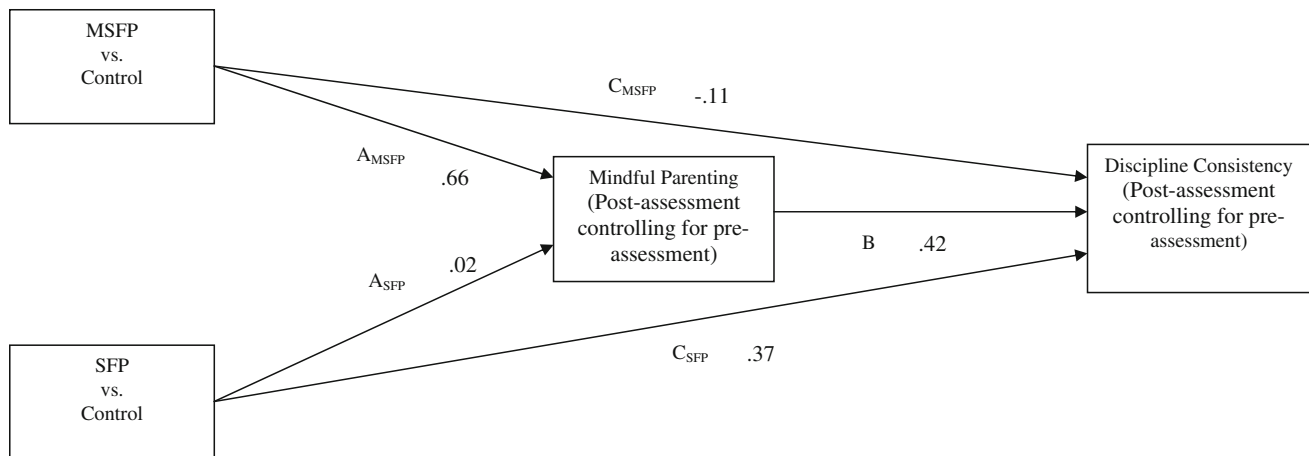


Fig. 1 Example of intervention's direct effect on program outcome and indirect effect on outcome operating through mindful parenting

Table 3 Coefficients for tests of mediation

	Effect of change in mindful parenting on outcome	Indirect effect of MSFP (vs. control) on outcome
Mothers' reports		
Discipline consistency	.42**	.28*
Monitoring	.06	.04
Rules communication	.07	.05
Inductive reasoning	.06	.04
Emotional style parenting	.31*	.20*
Anger management	.47**	.31*
Mother's positive affect/behavior toward youth	.33 ⁺	.22 ⁺
Mother's negative affect/behavior toward youth	.44**	.29*
Youth's positive affect/behavior toward mother	.37*	.24 ⁺
Youth's negative affect/behavior toward mother	.25*	.17*
Youths' reports		
Discipline consistency	.42*	.28*
Monitoring	-.09	-.06
Anger management	.23	.15
Mother's positive affect/behavior toward youth	.29 ⁺	.19 ⁺
Mother's negative affect/behavior toward youth	.17	.11
Youth's positive affect/behavior toward mother	.45**	.30*
Youth's negative affect/behavior toward mother	.49***	.32*

⁺ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

management practices revealed that changes in mindful parenting were not related to changes in monitoring, rules communication, or inductive reasoning. Therefore, there was no evidence for mediation such that the MSFP intervention influenced these outcomes through a change in mindful parenting.

On the other hand, change in mindful parenting was related to most of our indicators of parent–youth relationship quality, from both mothers' and youths' perspectives. Significant indirect effects were found for mothers' reports

of changes in emotional style parenting, anger management, and the amount of positive and negative affective behavior mothers expressed toward their youths. However, changes in mindful parenting were not related to youths' reports of changes in mothers' anger management or the amount of negative affective behavior mothers expressed toward their youths. A statistical trend was evident for the indirect effect on youths' reports of changes in the amount of positive affective behavior mothers expressed toward them ($.66 \times .29 = .19$, $p < .10$).

Changes in mindful parenting were also associated with both mothers' and youths' reports of changes in the amount of positive and negative affective behavior youth expressed toward their mothers. There was evidence of indirect intervention effects for all of these outcomes, suggesting that being in the MSFP condition affected these distal outcomes by changing mindful parenting. The fact that these mediated relations for the quality of the relationship variables are based on measures that cross mothers' and youths' reports makes it less likely that they are due to some kind of systematic informant bias.

Discussion

We tested a mindfulness-enhanced parenting intervention compared to an original version of the intervention and a delayed intervention control group. The findings contribute to and extend a small empirical literature of the efficacy of mindful parenting programs (cf., Altmaier and Maloney 2007; Dawe and Harnett 2007; Singh et al. 2004, 2006, 2007). Specifically, the mindfulness-enhanced intervention tested in this study showed positive effects in three areas. First, the intervention increased mothers' use of mindfulness techniques in how they parent their adolescents. Second, the intervention increased mothers' use of important child management practices, and for three of the four variables tested did so at a level that was comparable to the original parent training program. Third, the intervention enhanced parent-adolescent relationships and affective qualities more than the original intervention. Mediation analyses suggested that for many of the outcomes tested, the MSFP intervention operated by changing mindful parenting which in turn was associated with changes in child management practices and parent-youth relationships.

Although the concept of mindful parenting has great appeal in the popular literature, few studies have actually demonstrated that mindfulness applied in parenting can be altered through intervention. Our study adds to the small group of studies (e.g., Altmaier and Maloney 2007) demonstrating that mindful parenting can be purposefully enhanced through intervention. The results demonstrating change on mindful parenting for mothers in the MSFP condition can be interpreted as both an intervention effect and an intervention check. Because the mindful parenting activities in the parent groups were the only difference between the MSFP condition and the SFP condition, the results can be interpreted to mean that the modified intervention is changing what it was designed to change. Other studies without a control group have weaker evidence that the intervention produced the changes in mindfulness in parenting. In this study, MSFP showed a medium to strong

effect compared to the original SFP program and a delayed intervention control condition. We selected SFP in part because it already contained some of the kinds of messages about how to foster healthy parent-youth relationships that we hypothesized as part of our mindfulness in parenting model. Yet, making these messages of mindfulness more explicit in the adapted version and teaching mothers and fathers how to practice this kind of approach to parenting appears to have the desired effect.

It is also noteworthy that our approach to training mindfulness was secular and brief. The effect on mindfulness in parenting was the result of a variety of activities within group sessions held for only 1 h in seven consecutive weeks. Because of the structure of SFP, we could not teach formal mindfulness meditation, as is done in many mindfulness interventions. For example, Singh et al. (2007) used twelve 2-h sessions of one-on-one mindfulness meditation training followed by 52 weeks of practice in which parents were instructed to use the mindfulness meditation techniques, but were given no further instructions. In comparison, our method was quite brief, but showed that integrating the language of mindfulness when talking directly with parents about child management and parent-youth relationship issues, coupled with brief reflective mindfulness practices may be quite effective in inducing a mindful approach to parenting. Further studies could test whether our brief secular approach has similar effects to approaches that are purposefully non-secular and/or include more formal meditation training.

Our findings generally support our prediction that our mindfulness-enhanced version of an empirically-validated program would produce comparable or better effects to the original program for child management practices. The support was found primarily in mother reports on these variables. An exception to this pattern was that for mothers' reports of discipline consistency: Mothers in the SFP condition reported greater change than mothers in MSFP. One interpretation of this finding is that changing the content of an evidence-based intervention is likely to reduce its overall effectiveness (Elliott and Mihalic 2004). Yet, were this the case we might expect similar findings on other child management practices, rather than on a single outcome, and on youths' reports of the same constructs.

Results from youths' reports of discipline consistency and monitoring confirm MSFP mothers' reports of positive changes and suggests that program modifications may not have diluted the important components that make the original program operate well and produce long-term effects on child health and wellbeing. The pattern of cross-reported effects for SFP poses a slightly different puzzle as youths reported declines in mothers' discipline consistency and monitoring that were counter to what mothers reported. It is possible that, while mothers are implementing new

strategies they are learning in the program, they interpret changes as increases in these areas whereas youths interpret the same changes as decreases. That is, mothers are trying to be more consistent, but youths are seeing new behavioral management strategies as a change and, thus, inconsistent from the pattern of discipline they knew earlier. Similarly, monitoring might not be effective if done in a way that does not engender trust and willing disclosure from the youths (Smetana et al. 2006; Statin and Kerr 2000). This may be a sign that, with these increased parenting efforts, youths from the SFP condition are more reluctant to disclose where they are and whom they are with. The reported patterns of greater negative and lower positive affective behavior by mothers and youths may also indicate greater strain in the relationships and stronger reactions to mothers' new child management practices. Comparatively, it may be that that mindful parent training, which is intended to engender a more present-centered, compassionate, and less "automatic" approach might enhance parents' efforts, in terms of discipline consistency and monitoring.

Mindfulness-enhanced strengthening families program (MSFP) showed a pattern of substantial effects on aspects of the parent–youth relationship and the affective quality of their interactions. In particular, mothers in the MSFP study condition showed more sizeable improvement in the management of their anger, became more in tune with their youth's emotions, expressed slightly more positive and less negative emotion in their interactions with their youth, and differently perceived their youth's positive and negative emotions. Results suggest that mindfulness training may have an additional effect on these aspects of parent–youth relationships beyond what is typically found in a high-quality parenting intervention. That this intervention can contribute to building a close and loving relationship between youth and a caregiver may be particularly important for protecting youth from later maladaptive outcomes (Masten and Coatsworth 1998). Interventions that focus on training mindfulness in parenting may help parents increase expressions of positive affect and decrease expressions of negative affect which may also interrupt cycles of negativity related to the development of problem behaviors (e.g., Patterson et al. 1992). These results are consistent with findings showing that interventions that teach parents emotional communication skills and promote positive interactions with their youths have the largest treatment effects (Kaminski et al. 2008).

Results from our mediation analyses indicated that change in mindful parenting was associated with change in many of our outcomes, especially the indicators of parent–youth relationship quality. Our intervention focused on helping parents take a more present-centered, compassionate, accepting, and non-judgmental approach to

interacting with their youth. It appears that parents who were able to adopt this perspective and improve in their mindful parenting also increased their positive and decreased their negative interactions with their youth. Perhaps just as important, mothers appeared to be changing their perceptions of their youths' behavior. Although youths in the MSFP condition reported relatively stable positive affective behavior toward their mothers and slightly more negative behavior, mothers reported substantially more positive and less negative behavior. This may be a reflection of the purported mechanism of re-perceiving (Shapiro et al. 2006). Parents trained in mindfulness hypothetically are able to take a more objective or "decentered" (Safran and Segal 1990) approach to their moment-to-moment experiences with their youths and view what is happening or how their youths are feeling with a fresh perspective. In post-intervention focus groups, one father indicated that he now recognized that, when he had previously become angry with his children for doing or saying something that he had perceived as negative, they were actually behaving in ways that were an attempt to make a positive connection with him. By bringing attention, attitude and intention to his experiences with his children, this parent seems to have been able to shift perspective and see what was happening more clearly.

Re-perceiving is also hypothesized to lead to better self-regulation and the ability to tolerate experiences of more intense emotions. Mothers and youths in the MSFP condition both reported improvements in mothers' anger management, one important aspect of self-regulation. Parents in our focus group reported being more aware as their anger started to build during interactions with their youths and being more skilled at stopping and calming down. Through improved self-regulation, parents are likely to socialize their youths toward increased social competence and self management (Thompson and Meyer 2007). Improved parental self-regulation and anger management is related to better outcomes in other evidence-based parenting programs as well (Sanders et al. 2004). In this study we were not able to test different mechanisms of action, such as tolerance for strong emotions or decentering, that are aspects of mindfulness and might account for these effects. Our study relied on a global measure of mindful parenting, but future studies could test more refined models of the components of mindfulness to examine which of these account for program effects.

There are several limitations to this study that warrant discussion. The most important limitation was that this study was based on a pilot intervention. The number of SFP and MSFP groups and the overall sample size were small. We analyzed our intervention effects at the level of the individual family, our unit of randomization. Thus, our estimates of intervention effects included a combination of

the families' individual response to treatment and the shared experiences of all the families in each of the intervention groups. The similarity of families' response to treatment within each group was not the result of pre-existing characteristics as happens when entire classrooms of children are assigned to an intervention condition; rather such similarity was due to emergent properties related to implementation quality and group processes. Nonetheless, there are sound arguments for using multi-level models and nesting families within intervention groups (Baldwin et al. 2005; Wampold and Serlin 2000), whenever possible. The statistical power of such models for our sample size was below .10, rather than the generally accepted .80 (Cohen 1988), and when we attempted to estimate the models recommended for our study design (Bauer et al. 2008), we encountered numerous problems. When we did not estimate multi-level models but did specify clustered robust standard errors to account for our correlated data, the pattern of our findings was virtually identical to what we presented in the results section.

In addition, because of the resource limitations of a pilot study, we were not able to interview families in person and ensure a higher rate of participation in the post-intervention evaluations. Although we relied on analytic techniques that should minimize any effects of missing data, a lower percentage of missing cases would have been preferred. All data collected for this study were based on the written reports of mothers and youths. Direct observations of parenting and parent–youth interactions would instill greater confidence in our findings. The internal consistency for our measure of mindful parenting was also lower than preferred. This measure has shown better properties in other studies; nevertheless additional work is needed to refine its psychometric properties.

Finally, our study sample was relatively homogenous and comprised of European American mothers and their youths living in rural communities. It is unclear how our results might differ for fathers, for families of other races, or for families in urban environments where child management practices like monitoring present different challenges.

Despite these limitations, results from this pilot study suggest that a mindful parenting program that includes training in both mindfulness skills and parent behavioral management skills can enhance parents' mindfulness, strengthen their use of child management skills and build stronger parent–child relationships.

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