



Published in final edited form as:

Mindfulness (N Y). 2016 February ; 7(1): 246–254. doi:10.1007/s12671-015-0440-5.

Mindful Parenting and Parents' Emotion Expression: Effects on Adolescent Risk Behaviors

Caitlin C. Turpyn* and Tara M. Chaplin

Department of Psychology, George Mason University, 4400 University Dr., MSN-3F5, Fairfax, VA 22030, USA.

Abstract

Mindful parenting is associated with greater adjustment and fewer behavior problems in children and adolescents. However, the mechanisms by which mindful parenting functions to mitigate risk in adolescence is not well understood. This study investigated parent emotional expression as a potential mechanism in the relationship between low mindful parenting and adolescent risk behaviors. A sample of 157 12-14 year old adolescents (**49% female**) and their primary caregivers (**99% female**) participated in an emotionally-arousing conflict interaction. Parents reported on their mindful parenting practices, and parents' emotion expressions during the conflict interaction were coded including negative emotion, positive emotion, and shared parent-youth positive emotion. Adolescent substance use and sex behaviors were assessed through self-report, interview, and physical toxicology screens. Results indicated that mindful parenting was associated with less parental negative emotion and greater shared positive emotion during the parent-adolescent conflict. Further, results revealed a significant indirect effect of mindful parenting on youth's substance use through shared parent-adolescent positive emotion. Findings highlight the relevance of emotional functioning in the context of stressful parenting situations in mindful parenting.

Keywords

Parenting; Mindfulness; Parental emotion; Risk behaviors

Introduction

Parents of adolescents are faced with a multitude of novel stressors as they adapt to their changing roles as parents, with adolescents spending less time with family and more time with peers, asserting autonomy in parent interactions, and experiencing heightened

*Corresponding author: Ph: 1-703-993-5066. Fax: 1-703-993-1359. cmauger@gmu.edu.

Conflict of Interest

All authors declare that they have no conflict of interest.

Informed Consent

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

Animal Rights

This article does not contain any studies with animals performed by any of the authors.

Compliance with Ethical Standards

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

emotional arousal (Steinberg 2002). Despite these challenges, effective parenting and the parent-adolescent bond is crucial for youth's positive development, especially during this period of heightened risk (Collins and Laursen 2004; Hawkins 1992; Hovee et al. 2009). Rates of risk-taking behaviors including substance use and high-risk sexual behaviors (e.g., sex without a condom, sex under the influence of alcohol or drugs) increase dramatically across this developmental period (Arnett 1992; Chambers et al. 2003). Given the potential deleterious effects, understanding protective social mechanisms within the family context is critical in preventing adolescent's engagement in risk behaviors (Resnick et al. 1997).

An evolving interpersonal construct in mindfulness, commonly referred to as *mindful parenting*, may have important implications for parents of adolescents. Mindful parenting refers to the ability to bring non-judgmental, present-centered awareness to parent-child interactions and the experiences of parenting (Duncan 2007; Duncan et al. 2009). In doing so, parents may be better able to exercise self-regulation, avoid cycles of reactivity and negative parenting behaviors, and thus provide a relationship context of greater warmth and closeness (Duncan et al. 2009). Importantly, research has found that parent mindfulness is related to greater psychological adjustment and fewer problem behaviors in children and adolescents (Geurtzen et al. 2014; Parent et al. 2010; Williams and Wahler 2010). Parent and colleagues found that parents with greater dispositional mindful attention and awareness had children ($n = 160$; mean age = 11.49) with fewer internalizing and externalizing behavioral symptoms (e.g., depression, anxiety, and acting-out behaviors) (Parent et al., 2010). In another study investigating mindful parenting in a large sample of parent and youths ($n = 615$), greater mindfulness in parenting was associated with fewer adjustment problems across developmental periods—early childhood, middle childhood, and adolescence (Parent et al. 2015). Furthermore, several initial intervention studies suggest that training in mindful parenting reduces parental stress, improves parent-adolescent relationship quality, and decreases child psychopathology symptoms and problem behaviors (Bögels et al. 2014; Coatsworth et al. 2010; Coatsworth et al. 2015; Singh et al. 2006, 2007, 2010). While evidence suggests mindful parenting may significantly reduce psychological problems in youth, no research to date has specifically examined its relation with adolescent health-related risk behaviors, such as youth's substance use and sexual behaviors. However, mindful parenting may be particularly important for those outcomes as disrupted parent-child relationship factors, such as high levels of conflict and low bonding, are key risk factors for adolescent substance use and engagement in risky sex (Ackard et al. 2006; Laursen et al. 1998). Research elucidating these relations and their acting mechanisms is important for informing points of intervention in preventing adolescents' engagement in risk behaviors.

Despite accumulating evidence relating mindful parenting with improved youth outcomes, the mechanisms by which mindful parenting achieves its positive effects on adolescent behavior are not well characterized. One important mechanism in mindful parenting may involve parents' emotional functioning within the parent-child relationship. To date, mounting evidence from the mindfulness literature finds robust associations between high levels of dispositional mindfulness and formal training in meditation practices with better emotional functioning (Chambers et al. 2009; Hölzel et al. 2011). Research suggests an individual's dispositional mindfulness, their general tendency to be mindful in daily life, is

related to less emotion reactivity (Arch and Craske 2010), greater emotional awareness (Erisman and Roemer 2010) and less emotion lability and dysregulation (Hill and Updegraff 2012). Moreover, evidence from mindfulness intervention studies (e.g., Mindfulness-Based Stress Reduction, Mindfulness-Based Cognitive Therapy) demonstrates changes in participants' emotion reactivity and regulation following training in mindfulness (Chambers et al. 2009).

Indeed, Duncan, Coatsworth, and Greenberg (2009), in their model of mindful parenting, postulated that parents' emotional *nonreactivity* in interactions with youth is a key quality of mindful parenting. Specifically, reduced emotional reactivity may allow parents the ability to pause in stressful parenting interactions and behave in accordance with their parenting values and goals (Dumas 2005), which may in turn reduce adolescent problem behaviors. In their randomized control trial of a mindfulness enhanced parent training program, the Mindfulness-Enhanced Strengthening Families Program (MSFP), Coatsworth and colleagues (2010) found that mothers who completed MSFP reported a trend for greater decreases in negative affective behavior and greater increases in positive affective behavior in interactions with their youth relative to the original program and the delayed intervention condition. Additionally, Duncan (2007) found that parents' self-reported affective quality mediated the relationship between mindful parenting and adolescents' adaptive functioning as measured by adolescents' goal orientation.

Parents' ability to engage in affectively positive interactions may influence adolescents' propensity toward substance use and sexual risk taking in a number of ways. Importantly, parenting literature indicates the quality of the parent-adolescent relationship is a critical protective agent in adolescents' decision to engage in risk behaviors (Brody and Ge 2001; Duncan et al. 1994; Henrich et al. 2006) and that the amount of positive and negative emotion expressed in the parent child relationship is one of the most distinguishing aspects of relationship quality (Collins and Russell 1991). Especially as adolescents navigate changing peer and school networks, close family relations and emotional support are key factors consistently associated with fewer risk behaviors in youth, and families with high positive and low negative affect may be closer (Wills and Yaeger 2003).

Furthermore, parent's emotion expression is crucial for youth's social and emotional development (Dix 1991), which may influence risk behavior. That is, the frequency, intensity, and valence of parental emotional expressions are considered important aspects in determining a family's affective environment, factors shown to contribute to youth's emotional and social competencies (Bariola et al. 2011; Eisenberg 1998). In turn, youth's emotional competence, or ability to regulate emotion, is associated with lower risk behaviors, such as drug abuse, number of sexual partners, and behavioral adjustment problems (Hessler and Katz 2010). Thus, the manner in which parents relate emotionally to their children may have important implications for youth's ability to manage their own emotional states without deferring to maladaptive strategies such as substance use or risky sexual engagement.

Taken together, parents' emotional reactivity and expression in interactions with their adolescents may be a key mechanism relating mindful parenting to youths' greater

behavioral adjustment. However, no study to our knowledge has investigated parental emotion expression as a mechanism through which mindful parenting influences adolescent risk behaviors. Furthermore, only one study to our knowledge has employed observational measures to understand mindful parenting. Specifically, Duncan (2015) found evidence to support relations between mindful parenting and *observed* mother-adolescent interactions, as higher self-reported mindful parenting was related to greater levels of observed positive parenting and lower levels of observed harsh parenting. However, no study to our knowledge has examined observed parent emotionality in relation to mindful parenting, as most studies have utilized self-report measurements of emotion. While self-reports of parent emotionality are useful, they may be limited by reporting biases, and further observational investigations are necessary to complement these studies. Therefore, the present study investigated parents' emotional expression in an ecologically valid conflict interaction between parent and adolescent and examined relations with mindful parenting and adolescent risk behavior. The present study sought to test the following hypotheses:

- 1.) Mindful parenting will be associated with fewer risk behaviors in youth, including substance use and sex behaviors.
- 2.) Mindful parenting will be related to less observed parent negative emotion, greater parent positive emotion, and greater parent-adolescent shared positive emotion during a parent-adolescent conflict interaction.
- 3.) Mindful parenting will be related to adolescent risk behaviors indirectly through parent emotion expressions during a parent-adolescent conflict interaction.

Method

Participants

Participants were 157 community adolescents (49% females) and their primary caregivers. Adolescents ranged from 12 – 14 years old ($M = 12.7$, $SD = 0.7$). Most adolescents were European American (64.1%; 14.4% African American; 9.8% Latin American; 1.3% Asian American; 10.4% mixed /other; $n = 153$) and most had family household annual incomes above \$100,000 (58.6%; 12.7% between \$75,000-100,000; 4.5% between \$60,000-74,999; 1.9% between 45,000-59,999; 3.2% between 35,000-44,999; 4.5% between 25,000-34,999; 3.2% between 15,000-24,999; 7.6% below 15,000; 3.8% reported “don't know/other”). Caregivers were mostly biological mothers (96%) with two biological fathers and one adoptive mother, grandmother, aunt, sister, and legal guardian. Families with adolescents in two metropolitan areas in the Eastern Atlantic United States were recruited through advertisements, flyers, and mailings. The larger study was described to parents as a study of family interactions and emotional development in adolescence. Families were included if they had an adolescent between the ages of 12 to 14 years and were excluded if the child had a developmental disability or an $IQ < 70$.

Procedures

Families attended two sessions, each spaced about one week apart. Informed parental consent and adolescent assent were obtained, and the study protocol was approved by the university's Institutional Review Board.

In the first session, adolescents and primary caregivers completed questionnaires, computer tasks, and interviews assessing cognitive and emotional functioning, psychological symptoms, and alcohol and substance use as well as breath and urine drug screens. Relevant to this report, during this session, parents completed the mindful parenting questionnaire and adolescents completed a risk behavior survey (described below in “Measures”). .

In the second session, adolescents and the primary caregiver parents completed the parent-adolescent interaction task. The parent-adolescent interaction task (PAIT) was based on conflict tasks performed in prior research (e.g., Sheeber et al. 1997). Adolescents and their parents participated in a 25-minute adaptation period, a 10-minute video-recorded conflict interaction, and then they completed a one-hour recovery period during which time they completed physiological measures, which are not used in the present study. Participants also completed an additional 10-minute substance use discussion directly following or preceding the conflict interaction (order was randomly assigned as part of the larger study). This report does not focus on the substance use discussion data.

Upon arriving, parent and adolescent reported to separate laboratory rooms. Both parent and adolescent completed the Issues Checklist (IC; Prinz et al. 1979), a checklist of common family conflict topics (e.g., youth cleaning their bedroom) that has been used in prior research on parent-adolescent conflict (e.g. Sheeber et al. 1997). Both parent and adolescent indicated which topics from the IC they discussed in the past month and then reported the level of anger they experienced (1 “calm” to 5 “angry”) during the discussions. After completing the IC, parents and adolescents completed a 25-minute adaptation period in which participants listened to two 5-minute relaxation tapes that guided them through calming imagery and muscle relaxation. During this adaptation period, physiological measures were taken periodically. After completing the adaptation period, adolescents and their primary caregivers were asked to discuss the mutually highest-rated conflict topic from the IC. When the parent and adolescent endorsed different conflict topics, the parent's top-rated response was chosen. To begin the interaction, the dyad was asked to “use the next 10 minutes to discuss the issue and to try to reach a solution that you think will work for you” and to “discuss the issue as if you were at home.”

Measures

Observed emotion expression—Parent negative and positive emotion expression and parent-adolescent shared positive emotion expression during the conflict interaction were coded using the Parent-Adolescent Interaction Task (PAIT) Coding System (Second Author 2010). Emotion expression coding assessed facial, vocal, gestural, and postural cues of negative and positive emotion based on emotion coding systems in the literature (Cole et al. 1992; Ekman and Friesen 1978; Izard 1979). Emotion expression codes were rated on a scale from 1 to 5 (“none” to “high”). Negative emotion coding was based on cues for sadness, anger, fear, contempt and aggression (e.g., furrowed brows, crying). Positive emotion coding was based on cues for happiness (e.g., smiling with crinkling around eyes, laughing). Shared positive emotion coding was based on the proportion of positive emotion events in which both the parent and adolescent expressed positive emotion at the same time while looking at one another. This proportion was represented by the total number of

simultaneous parent-adolescent positive emotion expressions divided by the total number of positive emotion expressions of the partner (parent or adolescent with the fewest positive emotion expressions during the conflict task). Coders were trained on the PAIT coding system for 6 hours and attended bi-monthly coding meetings to discuss coding questions. Thirty-three of the videotapes (22.4%) were chosen at random, double-coded and checked for inter-rater reliability. The intraclass correlation coefficients (ICC's) were acceptable for negative, positive, and shared positive emotion expression ($ICC = .82$, $ICC = .81$, $ICC = .83$, respectively).

Mindful parenting—Parents completed the *Interpersonal Mindfulness in Parenting Scale* (IM-P Scale, Duncan, 2007). The IM-P scale is a 10-item questionnaire designed to assess mindful parenting including the following dimensions: 1.) “awareness and present-centered attention”, 2.) “nonjudgment” 3.) “non-reactivity” (Duncan 2007, p. 78). Items are rated from 1 to 5 (“never true” to “always true”). The IM-P has demonstrated concurrent and discriminant validity (Duncan 2007). **In the present study, $\alpha = .66$.**

Adolescent risk behaviors—Adolescent risk behaviors were assessed using self-report, interview, and physical toxicology screens. Lifetime substance use was assessed through a combination of measures including the *Youth Risk Behavior Survey* (YRBS; Brener et al. 2002), the Problem Oriented Screening Instrument for Teenagers (POSIT; Rahdert 1991), *Teen Addiction Severity Index* interview (T-ASI; Kaminer et al. 1991), a urine toxicology screen (using the Redwood Toxicology urine screen for opiates, cocaine, tetrahydrocannabinol, amphetamines, benzodiazapines), breath screen for alcohol, and carbon monoxide breathe screen for inhaled tobacco use. Adolescents were considered positive for lifetime substance use if they endorsed any lifetime use of alcohol, tobacco, or illicit drugs (i.e., marijuana, cocaine, inhalants, heroin, methamphetamines, ecstasy, hallucinogens, and non-medical pill use) or tested positively for one or more substances on the urine screen, alcohol or inhaled tobacco use breathe screen.

Sexual risk behaviors were assessed using the YRBS and the *Scale of Sexual Risk Taking* (Metzler et al. 1992). Given their early age (12 -14 years), youth were considered positive for sexual behaviors if they endorsed any of the following: engaging in sexual intercourse, having oral sex, engaging in unprotected sex, or engaging in sex while using drugs or alcohol.

Data Analyses

Preliminary analyses were conducted to examine bivariate correlations among study variables and to assess the percent of missing data. Due to video camera failure and participant drop out between questionnaire and conflict interaction sessions, 6.4% of participants were missing coded emotion expression data. In addition, 1.3% of participants were missing mindful parenting data and risk behavior data. Participants with missing data were not significantly different regarding age or gender. Little's test for MCAR was nonsignificant ($p = .46$), suggesting results would be equal to those conducted with no missing data (Rubin and Little 2002). Therefore, these cases were excluded in analyses involving those variables.

In order to test the first hypothesis that mindful parenting would be negatively associated with adolescent risk behaviors, two logistic regressions were conducted with adolescent risk behaviors (substance use, sex behaviors) as the dependent variables. For logistic regressions, we calculated odds ratios as measures of effect size, where 1.5 is small, 3.5 is medium, and 9 is large (Cohen 1988). To test the second hypothesis that mindful parenting will be associated with parents' emotion expressions, three linear regressions were conducted with emotion expression variables (parent negative emotion, positive emotion, and parent-adolescent shared positive emotion) as the dependent variables. For linear regressions, we examined standardized regression coefficients as measures of effect size, where 0.20 is small, 0.50 is medium, and 0.75 is large (Cohen 1988). To test the third hypothesis, the indirect effects through parents' emotion expressions were tested separately in a regression framework. Using the PROCESS macro in SPSS 18.0 (Hayes 2013), 95% bias-corrected bootstrap confidence intervals were generated to test the indirect effect based on 5,000 bootstrap resamples.

Child age and gender were included as covariates in all primary analyses along with parent depressive symptoms due to relevant relations between mindfulness and depression in the literature (e.g., Parent et al. 2011). Parent depressive symptoms were examined through the widely-used Center for Epidemiological Studies Depression Scale (CES-D, Radloff 1977), a 20-item questionnaire that assesses depressive symptoms experienced in the past seven days. For the present study, internal consistency for the CES-D was $\alpha = .89$.

Results

Table 1 provides bivariate correlations for mindful parenting, emotion expression, and adolescent risk behaviors. 21.4% of adolescents were positive for lifetime substance use, and 7.8% were positive for sex behaviors. Substance use and sex behaviors were positively related ($\chi^2[1] = 6.22, p < .05$). With respect to emotion expression variables, there were small but significant negative correlations between negative emotion and both positive and shared positive emotion. As expected, there was a moderate positive correlation between positive and shared positive emotion expression.

Results from logistic regressions supported hypothesis 1, as greater levels of mindful parenting were associated with decreased odds of adolescent substance use ($b = -0.14, SE = 0.06, OR = 0.88, 95\% CI [0.79, 0.97]$) and decreased odds of sexual engagement, $b = -0.28, SE = 0.09, OR = 0.78, CI (0.66, 0.94)$. Adolescent gender, age, and parent depressive symptoms were not significantly related to adolescent risk behaviors. Table 2 provides regression coefficients for covariates and primary study variables.

Results from linear regressions partially supported hypothesis 2, as mindful parenting was related to less parent negative emotion expression in the conflict interaction ($b = -0.04, SE = 0.02, \beta = -0.24, p < .01$) controlling for the effects of gender, age, and parent depressive symptoms. In addition, older adolescents had parents with higher levels of negative emotion expression in the conflict interaction.

Mindful parenting was not significantly associated with parent positive emotion by itself ($b = 0.03$, $SE = 0.02$, $\beta = 0.12$, $p = .14$); **however**, mindful parenting was significantly related to *shared* parent-adolescent positive emotion, $b = 0.06$, $SE = 0.03$, $\beta = 0.18$, $p < .05$. That is, parents who reported greater mindful parenting had a higher ratio of mutually positive emotion interactions during the conflict discussion. Additionally, parent depressive symptoms were negatively associated with both parent positive emotion expression and shared positive emotion.

With respect to indirect effects, results revealed that the indirect effect of mindful parenting on adolescent substance use through shared positive emotion was significant, $ab = -0.0208$, 95% CI $(-0.0654$ to $-0.0001)$. The direct effect of mindful parenting on adolescent substance use remained significant when shared positive emotion was entered into the model ($b = -0.11$, $SE = 0.06$, $OR = 0.89$, 95% CI $[0.80, 0.99]$). Figure 1 presents the **indirect effect** model with standardized path coefficients. Adolescent gender, age, and parent depressive symptoms were nonsignificant in the total effects model. Despite significant relations with mindful parenting, the indirect effect of mindful parenting on adolescent substance use through parent negative emotion expression was nonsignificant. In addition, the indirect effect through parent-only positive emotion expression was nonsignificant. Finally, as anticipated by the lack of correlations between parents' emotion expressions and adolescent sexual behaviors, there were no significant indirect effects of mindful parenting on adolescent sexual behaviors through parental emotion expression (negative, positive, or shared positive emotion).

Discussion

Research to date has identified relations between higher levels of mindful parenting and greater adjustment in children, with adolescents experiencing fewer depression, anxiety, and externalizing behavior problem symptoms (e.g., **Parent et al. 2015**). Despite these important findings, the present study is the first to our knowledge to directly investigate relations between mindful parenting and adolescent health-related risk behaviors, including engagement in substance use and sex. Furthermore, the present study examined parents' emotional expression during parent-child interactions as a mechanism through which mindful parenting may function to influence adolescent risk behavior. As anticipated, results revealed that mindful parenting was associated with decreased odds of adolescent substance use. Findings also indicated that mindful parents displayed fewer negative emotions during the emotionally-arousing conflict discussion and displayed a greater proportion of shared positive emotion with their adolescent. Results revealed small effect sizes for relations between mindful parenting and adolescent risk behaviors, and parent emotion. Finally, a **significant indirect effect** suggested that mindful parenting may operate indirectly to influence adolescent substance use, in part, through mutually positive emotion interactions between parent and adolescent.

Mindful parenting has been proposed as a meta-parenting construct encompassing parents' mindful attention, emotional non-reactivity, and nonjudgmental acceptance in parenting experiences (Duncan et al. 2009). These qualities may function to increase the parent-adolescent bond and decrease problem behaviors in youth (Duncan 2007). Our findings were

in support of this model and revealed negative relations between mindful parenting and adolescent risk behaviors. Specifically, parents who reported greater mindful parenting had children who were less likely to have a history of substance use or early sex behaviors. Given the harmful effects of these risk behaviors on adolescent development, this finding is important in elucidating protective social mechanisms within the family context.

In their model of mindful parenting, Duncan, Coatsworth, and Greenberg (2009) purported that mindful parenting may be related to emotion expression within the parent-child relationship; however, no study to our knowledge has examined relations with parents' observed emotions within the context of an ecologically-valid parent-child interaction task. Consistent with their model, parents with high levels of mindful parenting were hypothesized to show greater levels of positive emotion and lower levels of negative emotion in a conflict interaction with their adolescent. As expected, results indicated that mindful parenting was associated with less parental negative emotion during a conflict discussion. This finding is consistent with the conceptualization that mindful parents may be less reactive and better able to regulate their responses to stressful parenting interactions, including the way in which parents express themselves emotionally.

Interestingly, mindful parents did not exhibit more positive emotion in the conflict task as was originally anticipated. Instead, higher levels of mindful parenting were associated with a greater proportion of shared positive emotion between parent and adolescent. That is, when either parent or adolescent expressed positive emotions, they were reciprocated more often in dyads with greater levels of mindful parenting. This result may imply that simply expressing positive emotion in the context of an emotionally-arousing discussion with youth is not central to mindful parenting; but rather, engaging in moments of mutual positive affect is a meaningful component of this style of parenting. Perhaps, parents who are able to bring their full attention to parenting experiences while suspending judgment may allow for genuine and affectively positive exchanges with their adolescent to occur. Specifically, parents' mindful attention may enable them to notice and be more responsive to moments in which adolescents show positive affective behaviors, allowing them opportunities to share in these positive emotional experiences (Singh et al. 2010). On the other hand, adolescents may perceive their parents as invalidating if parents express emotions incongruent to their own emotional states. That is, if adolescents display negative or neutral emotions, parents who express incongruent positive emotion may be perceived as less sensitive, which may reflect less responsive parenting. This theorized response pattern might explain why mindful parenting was not significantly related to parental positive emotion expression only, particularly in the context of an emotional-arousing conflict discussion.

Finally, **analysis of indirect effects** suggested that mindful parenting may affect adolescent substance use in part through shared parent-adolescent positive emotion. This finding suggests that the proportion of mutual, and perhaps genuine, positive interactions between parents and their youth is of particular relevance in explaining the likelihood of adolescent substance use. The ability to capitalize on these affective moments may be especially important given the increasing amount of time adolescents spend outside of the family context during this developmental period (Steinberg 2002) and may strengthen the parent-child relationship, leading parents to be more effective at monitoring youth and thus

reducing risk for substance use. However, while mindful parenting was significantly related to the likelihood of adolescents engaging in sexual behaviors, parents' emotional expressions were not related to adolescent sexual behaviors and thus this indirect effect was nonsignificant. Perhaps, mindful parenting may affect sex behaviors through different mechanisms other than parental emotion expression. For example, child management practices (e.g., supervision, monitoring, discipline) are parenting behaviors also theorized to be influenced by mindful parenting (Duncan et al. 2009) and may play a larger role in the case of adolescent sexual behaviors as previous research indicates parental monitoring is associated with fewer sexual risk behaviors (Huebner and Howell 2003; Rodgers 1999). Furthermore, other research suggests higher levels of *sex-related* parent-child communication are related to fewer instances of intercourse and unprotected sex in youth (Hutchinson et al. 2003; Lefkowitz 2006). Thus, mindful parenting's effects on these risk behaviors may not be accounted for by micro-emotion behaviors in the parent-adolescent interaction, and other parenting practices and styles may be relevant. Notably, the lack of association between parent emotion expression and adolescent sexual behaviors may also be due, in part, to the low rate of sexual risk behaviors within this sample, especially given the adolescent sample's early age range (12 to 14 years). Perhaps, such relations may factor more prominently as adolescents develop in middle and late adolescence, when the rates of sexual risk-taking behaviors have been shown to increase (Martinez et al. 2011).

Despite these findings, the present study is not without limitations. First, the present study's sample was comprised of primarily European American families and middle to upper income families. These demographic characteristics limit the present study's ability to generalize to other ethnicities and to lower income populations. Furthermore, the cross-sectional nature of the data limits our ability to establish causal direction between constructs particularly in interpreting **indirect** effects. For example, it is possible that adolescents who engage in risk behaviors may elicit parenting styles and behaviors that are inconsistent with mindful parenting (e.g., avoidance, emotional reactivity). Future studies using longitudinal data or using experimental designs in which parents are randomly assigned to mindful parenting training or control will be important to determine temporal precedence in the relationship between mindful parenting and its mechanisms as well as the development of adolescent risk behaviors. In addition, parent's abilities to sensitively reflect their child's emotional state, both positive and negative, may be related to mindful parenting and have implications for adolescent risk behavior. While the present study utilized observational coding of parent-adolescent shared positive emotion, the study's coding system did not incorporate coding for shared negative emotion. Future work could benefit from examining both positive and negative affective processes in parent-adolescent dyads. More broadly, mindful parenting is considered a meta-parenting construct and may influence a range of parenting-related emotional processes, behaviors, and cognitions that may not be captured through the observed emotion behaviors in the parent-adolescent interaction task. As such, future studies should investigate other mechanisms by which mindful parenting may be linked to adolescent health-related risk behaviors.

In sum, we found important relations between mindful parenting and parents' emotional expressions during an emotionally arousing conflict discussion with implications for

adolescents' engagement in some risk behaviors. Findings relating mindful parenting and observations of parents' emotions are especially important given affective changes in the relationship between parents and their children during the adolescent years, with decreases in positive emotion and increases in negative emotion (Kim et al. 2001; Laursen and Collins 1994). Moreover, we found that mindful parenting may influence adolescents' engagement in substance use in part through shared parent-adolescent emotional experiences, at least in the context of a stressful conflict interaction. Given these relations, parents' mindful awareness, emotional regulation and attention to child positive emotion within stressful parenting interactions may be an important focus for interventions aimed to prevent adolescent risk behaviors and may be a key component of future mindful parenting training.

Acknowledgments

Support for this project was provided by the National Institutes of Health (NIH) through grants K01-DA024759 (PI: Chaplin), R01-DA033431 (PI: Chaplin) and by a grant from the ABMRF/Foundation for Alcohol Research (PI: Chaplin). The study sponsors did not have a role in study design, collection, analysis, and interpretation of data, the writing of the report, or the decision to submit the manuscript for publication. The authors gratefully acknowledge the study sponsors, the participating families, and the research staff who contributed significantly to the work—particularly Amysue Hansen, Alexandra Martelli, and Juliana Jacangelo.

References

- Ackard DM, Neumark-Sztainer D, Story M, Perry C. Parent-child connectedness and behavioral and emotional health among adolescents. *American Journal of Preventive Medicine*. 2006; 30(1):59–66. [PubMed: 16414425]
- Arch JJ, Craske MG. Laboratory stressors in clinically anxious and non-anxious individuals: The moderating role of mindfulness. *Behaviour Research and Therapy*. 2010; 48(6):495–505. [PubMed: 20303471]
- Arnett J. Reckless behavior in adolescence: A developmental perspective. *Developmental Review*. 1992; 12(4):339–373.
- Bariola E, Gullone E, Hughes EK. Child and adolescent emotion regulation: The role of parental emotion regulation and expression. *Clinical Child and Family Psychology Review*. 2011; 14(2): 198–212. [PubMed: 21424275]
- Brener ND, Kann L, McManus T, Kinchen SA, Sundberg EC, Ross JG. Reliability of the 1999 youth risk behavior survey questionnaire. *Journal of Adolescent Health*. 2002; 31(4):336–342. [PubMed: 12359379]
- Brody GH, Ge X. Linking parenting processes and self-regulation to psychological functioning and alcohol use during early adolescence. *Journal of Family Psychology*. 2001; 15(1):82. [PubMed: 11322087]
- Chambers R, Gullone E, Allen NB. Mindful emotion regulation: An integrative review. *Clinical Psychology Review*. 2009; 29(6):560–572. [PubMed: 19632752]
- Chambers RA, Taylor JR, Potenza MN. Developmental neurocircuitry of motivation in adolescence: A critical period of addiction vulnerability. *American Journal of Psychiatry*. 2003; 160(6):1041–1052. [PubMed: 12777258]
- Coatsworth JD, Duncan LG, Nix RL, Greenberg MT, Gayles JG, Bamberger KT, Demi MA. Integrating mindfulness with parent training: Effects of the mindfulness-enhanced strengthening families program. *Developmental Psychology*. 2015; 51(1):26. [PubMed: 25365122]
- Coatsworth JD, Duncan LG, Greenberg MT, Nix RL. Changing parent's mindfulness, child management skills and relationship quality with their youth: Results from a randomized pilot intervention trial. *Journal of Child and Family Studies*. 2010; 19(2):203–217. [PubMed: 24013587]
- Cohen, J. *Statistical power analysis for the behavioral sciences*. 2nd ed.. Erlbaum; Hillsdale, NJ: 1998.

- Cole PM, Barrett KC, Zahn-Waxler C. Emotion displays in two-year-olds during mishaps. *Child Development*. 1992; 63(2):314–324. [PubMed: 1611936]
- Collins WA, Laursen B. Parent-adolescent relationships and influences. *Handbook of adolescent psychology*. 2004; 2:331–362.
- Collins WA, Russell G. Mother-child and father-child relationships in middle childhood and adolescence: A developmental analysis. *Developmental Review*. 1991; 11(2):99–136.
- Dix T. The affective organization of parenting: Adaptive and maladaptive processes. *Psychological Bulletin*. 1991; 110(1):3–25. [PubMed: 1891517]
- Dumas JE. Mindfulness-based parent training: Strategies to lessen the grip of automaticity in families with disruptive children. *Journal of Clinical Child and Adolescent Psychology*. 2005; 34(4):779–791. [PubMed: 16232075]
- Duncan, LG. Assessment of mindful parenting among parents of early adolescents: Development and validation of the Interpersonal Mindfulness in Parenting scale. The Pennsylvania State University; 2007. Unpublished dissertation
- Duncan LG, Coatsworth JD, Gayles JG, Geier MH, Greenberg MT. Can mindful parenting be observed? Relations between observational ratings of mother-youth interactions and mothers' self-report of mindful parenting. *Journal of Family Psychology*. 2015; 29(2):276–282. [PubMed: 25844494]
- Duncan LG, Coatsworth JD, Greenberg MT. A model of mindful parenting: Implications for parent-child relationships and prevention research. *Clinical Child and Family Psychology Review*. 2009; 12(3):255–270. [PubMed: 19412664]
- Duncan TE, Duncan SC, Hops H. The effects of family cohesiveness and peer encouragement on the development of adolescent alcohol use: A cohort-sequential approach to the analysis of longitudinal data. *Journal of Studies on Alcohol and Drugs*. 1994; 55(5):588–599.
- Ekmán, P.; Friesen, WV. Facial action coding system: A technique for the measurement of facial movement. Consulting Psychologists Press; Palo Alto, CA: 1978.
- Eisenberg N, Cumberland A, Spinrad TL. Parental socialization of emotion. *Psychological Inquiry*. 1998; 9(4):241–273. [PubMed: 16865170]
- Erismán SM, Roemer L. A preliminary investigation of the effects of experimentally induced mindfulness on emotional responding to film clips. *Emotion*. 2010; 10(1):72. [PubMed: 20141304]
- Geurtzen N, Scholte RH, Engels RC, Tak YR, van Zundert RM. Association between mindful parenting and adolescents' internalizing problems: non-judgmental acceptance of parenting as core element. *Journal of Child and Family Studies*. 2014:1–12.
- Hawkins JD, Catalano RF, Miller JY. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*. 1992; 112(1):64–105. [PubMed: 1529040]
- Hayes, AF. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. Guilford Press; New York: 2013.
- Henrich CC, Brookmeyer KA, Shrier LA, Shahar G. Supportive relationships and sexual risk behavior in adolescence: An ecological-transactional approach. *Journal of Pediatric Psychology*. 2006; 31(3):286–297. [PubMed: 15827352]
- Hessler DM, Katz LF. Brief report: Associations between emotional competence and adolescent risky behavior. *Journal of Adolescence*. 2010; 33(1):241–246. [PubMed: 19481247]
- Hill CL, Updegraff JA. Mindfulness and its relationship to emotional regulation. *Emotion*. 2012; 12(1): 81. [PubMed: 22148996]
- Hoeve M, Dubas JS, Eichelsheim VI, Van der Laan PH, Smeenk W, Gerris JR. The relationship between parenting and delinquency: A meta-analysis. *Journal of Abnormal Child Psychology*. 2009; 37(6):749–775. [PubMed: 19263213]
- Hölzel BK, Lazar SW, Gard T, Schuman-Olivier Z, Vago DR, Ott U. How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science*. 2011; 6(6):537–559. [PubMed: 26168376]
- Huebner AJ, Howell LW. Examining the relationship between adolescent sexual risk-taking and perceptions of monitoring, communication, and parenting styles. *Journal of Adolescent Health*. 2003; 33(2):71–78. [PubMed: 12890597]

- Hutchinson MK, Jemmott JB, Jemmott LS, Braverman P, Fong GT. The role of mother–daughter sexual risk communication in reducing sexual risk behaviors among urban adolescent females: a prospective study. *Journal of Adolescent Health*. 2003; 33(2):98–107. [PubMed: 12890601]
- Izard, CE. The maximally discriminative facial movement coding system (MAX). University of Delaware, Instructional Resource Center; Newark, DE: 1979.
- Kaminer Y, Bukstein O, Tarter RE. The teen-addiction severity index: Rationale and reliability. *Substance Use & Misuse*. 1991; 26(2):219–226.
- Kim KJ, Conger RD, Lorenz FO, Elder GH Jr. Parent–adolescent reciprocity in negative affect and its relation to early adult social development. *Developmental Psychology*. 2001; 37(6):775–790. [PubMed: 11699752]
- Laursen B, Collins WA. Interpersonal conflict during adolescence. *Psychological Bulletin*. 1994; 115(2):197–209. [PubMed: 8165270]
- Laursen B, Coy KC, Collins WA. Reconsidering changes in parent-child conflict across adolescence: A meta-analysis. *Child Development*. 1998; 69(3):817–832. [PubMed: 9680687]
- Lefkowitz ES, Stoppa TM. Positive sexual communication and socialization in the parent-adolescent context. *New directions for Child and Adolescent Development*. 2006; 2006(112):39–55. [PubMed: 16869172]
- Martinez G, Copen CE, Abma JC. Teenagers in the United States: Sexual activity, contraceptive use, and childbearing, 2006–2010 National Survey of Family Growth. *Vital and Health Statistics*. 2011 Series 23, No.31.
- Metzler CW, Noell J, Biglan A. The validation of a construct of high-risk sexual behaviors in heterosexual adolescents. *Journal of Adolescent Research*. 1992; 7:233–249.
- Parent J, Garai E, Forehand R, Roland E, Potts J, Haker K, Compas BE. Parent mindfulness and child outcome: The roles of parent depressive symptoms and parenting. *Mindfulness*. 2010; 1(4):254–264. [PubMed: 21572927]
- Parent, J.; McKee, LG.; Rough, J.; Forehand, R. The association of parent mindfulness with parenting and youth psychopathology across three developmental stages.. *Journal of Abnormal Child Psychology*. 2015. doi: <http://dx.doi.org/10.1007/s10802-015-9978-x>
- Prinz RJ, Foster S, Kent RN, O'Leary KD. Multivariate assessment of conflict in distressed and nondistressed mother-adolescent dyads. *Journal of Applied Behavior Analysis*. 1979; 12(4):691–700. [PubMed: 541311]
- Rahdert, ER., editor. *The Adolescent Assessment/Referral System Manual*. National Institute on Drug Abuse; Rockville, MD: 1991.
- Radloff LS. The CES-D scale a self-report depression scale for research in the general population. *Applied Psychological Measurement*. 1977; 1(3):385–401.
- Resnick MD, Bearman PS, Blum RW, Bauman KE, Harris KM, Jones J, Udry JR. Protecting adolescents from harm: findings from the National Longitudinal Study on Adolescent Health. *JAMA*. 1997; 278(10):823–832. [PubMed: 9293990]
- Rodgers KB. Parenting processes related to sexual risk-taking behaviors of adolescent males and females. *Journal of Marriage and the Family*. 1999; 61:99–109.
- Rubin, DB.; Little, RJ. *Statistical analysis with missing data*. John Wiley & Sons; Hoboken, NJ: 2002.
- Sheeber L, Hops H, Alpert A, Davis B, Andrews J. Family support and conflict: Prospective relations to adolescent depression. *Journal of Abnormal Child Psychology*. 1997; 25(4):333–344. [PubMed: 9304449]
- Singh NN, Lancioni GE, Winton ASW, Fisher BC, Wahler RG, McAleavey K, et al. Mindful parenting decreases aggression, noncompliance, and self-injury in children with autism. *Journal of Emotional and Behavioral Disorders*. 2006; 14(3):169–177.
- Singh NN, Lancioni GE, Winton ASW, Singh J, Curtis JW, Wahler RG, et al. Mindful parenting decreases aggression and increases social behavior in children with profound developmental disabilities. *Behavior Modification*. 2007; 31:749–771. [PubMed: 17932234]
- Singh NN, Lancioni GE, Winton ASW, Singh J, Singh AN, Adkins AD, et al. Training in mindful caregiving transfers to parent–child interactions. *Journal of Child and Family Studies*. 2010; 19:167–174.
- Steinberg L, Silk JS. Parenting adolescents. *Handbook of Parenting*. 2002; 1:103–133.

- Williams KL, Wahler RG. Are mindful parents more authoritative and less authoritarian? An analysis of clinic-referred mothers. *Journal of Child and Family Studies*. 2010; 19(2):230–235.
- Wills TA, Yaeger AM. Family factors and adolescent substance use models and mechanisms. *Current Directions in Psychological Science*. 2003; 12(6):222–226.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

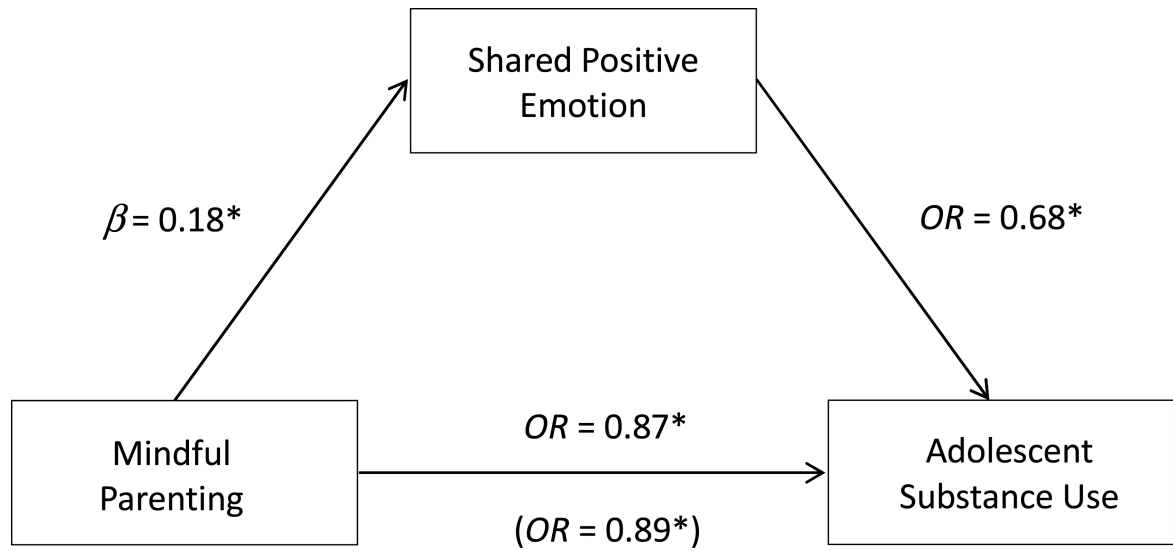


Figure 1. Standardized regression coefficient and odds ratios for the indirect effect of mindful parenting on adolescent substance use through parent-adolescent shared positive emotion, controlling for gender, age, and parent depressive symptoms. The odds ratio between mindful parenting and adolescent substance use, controlling for shared positive emotion (c'), is in parentheses.

Note. *OR* = Odds Ratio.

* $p < .05$

Table 1

Bivariate Correlations

	<i>M (SD)</i>	1	2	3	4	5
1. Mindful parenting	35.66 (4.03)					
2. Positive emotion	2.51 (0.84)	.11				
3. Negative emotion	1.62 (0.73)	-.20*	-.17*			
4. Shared positive emotion	3.73 (1.41)	.17*	.49**	-.18*		
5. Adolescent substance use ^a	--	-.24*	-.13	.16	-.24**	
6. Adolescent sex behaviors ^b	--	-.20*	-.02	.04	-.09	.20*

Note.

^a 1 = Positive for lifetime substance use

^b 1 = Positive for lifetime sexual behaviors.

* $p < .05$

** $p < .01$

Table 2

Regression Analyses

Predictor	Parent NE			Parent PE			Shared PE			Substance Use			Sex Behaviors		
	β	t-ratio	OR	β	t-ratio	OR	β	t-ratio	OR	β	t-ratio	OR	β	t-ratio	OR
<i>Covariates</i>															
Adolescent gender	-0.09	-1.13	0.13	1.58	0.02	0.19	0.60	(0.27, 1.31)	0.91	(0.28, 2.94)					
Adolescent age	0.20	2.44*	-0.08	-0.98	-0.03	-0.03	1.51	(0.85, 2.67)	2.00	(0.84, 4.72)					
Parent depressive symptoms	0.09	1.01	-0.20	-2.42*	-0.29	-3.53**	1.02	(0.97, 1.09)	1.03	(0.57, 1.86)					
<i>Primary variables</i>															
Mindful parenting	-0.24	-2.95**	0.12	1.48	0.18	2.19*	0.88*	(0.79, 0.97)	0.78**	(0.66, 0.94)					
Parent NE	--	--	--	--	--	--	1.67	(0.98, 2.82)	1.08	(0.50, 2.36)					
Parent PE	--	--	--	--	--	--	0.64	(0.37, 1.11)	0.98	(0.46, 2.26)					
Shared PE	--	--	--	--	--	--	0.68**	(0.51, 0.91)	0.80	(0.52, 1.28)					

Note. NE = Negative Emotion; PE = Positive Emotion; OR = Odds Ratio; CI = Confidence Interval. Primary variables were entered separately as predictors, controlling for adolescent gender, age, and parent depressive symptoms.

* $p < .05$

** $p < .01$