Relationships between parent affect regulation, mindful parenting, attachment, and internalizing and externalizing symptoms in a clinical adolescent sample

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Julia R. G. Vernon

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Declaration of Committee

Name:	**Julia R. G. Vernon**
Degree:	**Master of Arts**
Thesis title:	**Relationships between parent affect regulation, mindful parenting, attachment, and internalizing and externalizing symptoms in a clinical adolescent sample**
Committee:	**Chair:** **Natalie Goulter** University Research Associate, Psychology
	Marlene M. Moretti Supervisor Professor, Psychology
	Tanya Broesch Committee Member Associate Professor, Psychology
	Catherine Costigan Examiner Professor, Psychology University of Victoria

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Abstract

Adolescents are vulnerable to the onset of psychological disorders, yet research on parenting factors that promote adolescent mental health is sparse. Attachment security is a strong predictor of mental health outcomes. Identifying parenting factors that support attachment security among adolescents may offer insight into modifiable factors that can be targeted in intervention. In a sample of 785 families, this study examined the relationships between mindful parenting, parent affect regulation, adolescent-parent attachment anxiety and avoidance, and adolescent internalizing and externalizing symptoms. Analyses modelled the pathways from mindful parenting and parent affect regulation to attachment anxiety and avoidance, and, in turn, internalizing and externalizing symptoms. Mindful parenting and parent affect regulation were differentially related to attachment anxiety and avoidance, and indirectly predicted internalizing and externalizing symptoms through attachment anxiety and avoidance. These factors may be useful clinical targets for interventions aiming to promote attachment security and mental health in adolescents.

Keywords: attachment; adolescence; internalizing symptoms; externalizing symptoms; mindful parenting; affect regulation

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Introduction

Adolescence is a period of vulnerability to the onset and exacerbation of psychological disorders (Kessler et al., 2005). While the typical age of onset varies across psychiatric diagnoses, recent estimates indicate that the median age of onset of disorders is 14 years (Jones, 2013). Adolescence is a therefore critical opportunity to study risk and protective factors for psychological disorders and implement evidence-based interventions.

The relationship between parenting factors and mental health has been investigated extensively in young children, but relatively fewer studies have examined the impact of parenting factors on adolescent mental health (Patton et al., 2016). Two parenting factors that have been associated with adolescent psychological functioning are parent affect regulation (Buckholdt et al., 2014; also termed emotion regulation) and mindful parenting (Guertzen et al., 2015; Parent, McKee, Rough, & Forehand, 2016). These parenting factors may also influence adolescent-parent attachment security, which is an important protective factor. Meta-analyses have demonstrated attachment security is negatively associated with both youth internalizing (Brumariu et al., 2018; Groh et al., 2012) and externalizing symptoms (Brumariu et al., 2018; Fearon et al., 2010) across child gender and age (Brumariu et al., 2018). The current study examines the ways in which parent affect regulation and mindful parenting relate to adolescent-parent attachment anxiety and avoidance, and investigates adolescent-parent attachment anxiety and attachment avoidance as pathways by which parent affect regulation and mindful parenting relate to internalizing and externalizing symptoms in a clinical adolescent sample.

Below, I examine the associations between parent affect regulation and adolescent mental health and mindful parenting and adolescent mental health. Then I highlight the critical role of caregiving in fostering secure attachment. Finally, I describe the existing literature connecting parent affect regulation and mindful parenting to adolescent-parent attachment to provide a rationale for proposing attachment as the mediating factor in the effects of parent affect regulation and mindful parenting on adolescent mental health.

Parent Affect Regulation and Adolescent Mental Health

Emotion regulation refers to the behaviours, skills, and strategies that modulate the experience and expression of emotion (Calkins & Hill, 2007; Gross, 1998). Emotion regulation problems have been implicated in a range of psychological disorders across the lifespan (e.g., Gross, 1998) and play a role in the development, maintenance, and treatment of mental health problems (Berking et al., 2008; Bradley et al., 2011; Buckholdt et al., 2014). Situating emotion regulation within the relational context of the family, parent response tendencies in emotionally salient interactions are likely also related to the psychosocial adjustment of adolescents (Lougheed, 2019).

Indeed, previous research has demonstrated links between parent emotion regulation and child and adolescent psychopathology. Kerns and colleagues (2017) found that mothers' inability to use effective emotion regulation strategies was positively associated with their child's anxiety symptoms. In another community sample of mothers of young children, mothers' lack of emotional awareness and emotion regulation difficulties were positively associated with their boys' and girls' internalizing and externalizing symptoms (Crespo et al., 2017). Among parents of children with and without clinically significant behaviour problems, parents' difficulty with impulse control and goal-directed behaviours when upset, and low self-efficacy in emotion regulation were associated with greater child externalizing symptoms (Quetsch et al., 2018). In one study that focused on adolescence, parent emotion regulation difficulties were positively associated with the invalidation of adolescents' emotions, which was in turn associated with youth internalizing and externalizing symptoms through its effects on adolescent emotion regulation difficulties (Buckholdt et al., 2014). In another community sample of adolescents, parents' emotion regulation difficulties were associated with greater internalizing symptoms in boys and girls (Cheung et al., 2020).

The predictive relationship between dysregulation of parental affect and child functioning has also been demonstrated in longitudinal studies. For example, mothers' expression of negative affect predicted child externalizing behaviour problems two years later, but baseline child externalizing symptoms were not associated with subsequent negative affect expression in mothers (Newland & Crnic, 2011). Further support of parent affect regulation as a predictive factor of youth mental health is provided by research showing that improvements in parent emotion regulation predict improvements

in child symptoms. In a study evaluating a behavioural training intervention for parents and their young children with externalizing behaviours, decreases in parent emotion dysregulation and increases in parents' use of cognitive reappraisal coincided with decreases in children's internalizing and externalizing symptoms from baseline to post-intervention (Zimmer-Gembeck et al., 2019). In summary, although most evidence is from studies with non-clinical samples, with younger children rather than adolescents, and without a focus on the consistency of effects across boys and girls, evidence suggests that parent emotion regulation abilities influence youth psychological functioning.

Mindful Parenting and Adolescent Mental Health

Mindfulness is a self-reflective state characterized by nonjudgmental awareness of the present moment (Davis & Hayes, 2011). Mindfulness interventions encourage a curious and compassionate approach and response to one's internal and external worlds (Brody et al., 2018). Interpersonal mindfulness extends this awareness and acceptance of the self to others (Pratscher et al., 2018; Skoranski et al., 2019). Mindful parenting is a form of interpersonal mindfulness related to caregiving, which includes attentive listening, emotional awareness, self-regulation, and nonjudgmental acceptance of the self and one's offspring (Duncan, 2007; Duncan et al., 2009). Like mindfulness, mindful parenting is a deliberate practice (Bögels et al., 2014) and it has been linked to productive parenting techniques and positive mental health outcomes for children and adolescents (Bögels & Emerson, 2019). Mindful parenting is associated with behaviours that are consistent with a curious and compassionate awareness of one's child's wellbeing, such as more supportive emotion socialization responses (McKee et al., 2017), greater responsiveness, and greater autonomy support, and negatively associated with behaviours that are incongruent such as psychological control (Guertzen et al., 2015), supporting the validity of the construct.

Mindful parenting is negatively associated with parent reports of children and adolescents' internalizing (Henrichs et al., 2019; Parent, McKee, Rough, & Forehand, 2016) and externalizing symptoms (Han et al., 2019; Henrichs et al., 2019; Parent, McKee, Rough, & Forehand, 2016), and positively associated with children and adolescents' self-reported wellbeing (Medeiros et al., 2016) in community samples. For studies that examined gender effects (Henrichs et al.; Parent, McKee, Rough, &

Forehand, 2016), findings were consistent for boys and girls. A meta-analysis of mindful parenting interventions reported small effect sizes for post-intervention changes in youth internalizing and externalizing symptoms, and small to medium effects at subsequent timepoints (Burgdorf et al., 2019), which suggests that promoting mindful parenting yields improvements in youth mental health. Among early teens, mindful parenting predicted fewer adolescent depression and anxiety symptoms beyond the variance accounted for by demographic variables, parent depression and anxiety, and positive and negative parenting practices (Guertzen et al., 2015), so it appears to be a unique determinant of youth psychological functioning. However, the prevalence of depression and anxiety symptoms in this sample was relatively low, so it is unknown whether the effects of mindful parenting on youth psychopathology generalize to youth with clinically significant emotional and behavioural problems. One study involving a clinical sample of children, most of whom had diagnoses of attention-deficit hyperactivity disorder or autism spectrum disorder, found that increases in mindful parenting following a mindful parenting training program were associated with decreases in child externalizing symptoms, but not internalizing symptoms (Meppelink et al., 2016). Taken together, there is evidence that mindful parenting is directly or indirectly related to internalizing and externalizing symptoms in normative community samples, however its role in clinical samples of adolescents remains to be discovered.

Fostering Attachment Security Through Parent Affect Regulation and Mindful Parenting

Attachment refers to the quality of parent-child interactions and the nature of these interactions is internally represented in models of the self, others, and interpersonal relationships (Ainsworth & Bowlby, 1991; Groh et al., 2017). The attachment relationship serves as an interpersonal regulatory system in which parents coregulate their children's emotions (Stuart-Parrigon et al., 2015). Early interpersonal experiences are the foundation for individuals' expectations about the availability of support from others, beliefs about the meaning others' actions, and self-worth (Brumariu et al., 2018; Kobak & Bosmans, 2019). Individual representations of the self and others are characterized by varying degrees of attachment anxiety and attachment avoidance (Ainsworth & Bowlby, 1991). Anxious attachment involves a fear of rejection or abandonment and a tendency to maximize signals of distress, whereas avoidant

attachment is marked by a preference for emotional distance and a tendency to minimize signals of distress (Ainsworth, 1985; Alonso et al., 2018; Zimmer-Gembeck et al., 2017).

A child's attachment security is contingent on the availability and responsiveness of their caregiver (Ainsworth, 1985; Ainsworth & Bowlby, 1991), which is evidenced by physical proximity in infanthood, and availability in times of need with increasing child age (Brumariu, 2015). The quality of relationships throughout development can powerfully alter attachment strategies (Kobak & Bosmans, 2019; Smit et al., 2018). Because attachment security may be amenable to change in adolescence and it is a strong predictor of mental health outcomes, there is value in identifying modifiable parenting factors that are related to adolescent attachment.

A significant body of research has investigated the caregiving practices that predict the development of secure attachment. Most notable is the role of parental sensitivity (Beijersbergen et al., 2012; De Wolff & van IJzendoorn, 1997), defined as the ability to sense, interpret, and promptly and appropriately respond to children's signals in ways that are developmentally attuned and constructive. Reflective functioning is a related concept (Falkenström et al., 2014; Fonagy et al., 2016; Kobak et al., 2017), which refers to a caregiver's ability to think about and understand their own and their child's behaviour as an expression of one's state of mind (Camoirano, 2017; Fonagy & Allison, 2012; Kelly et al., 2005). Mentalizing and mind-mindedness are terms also used in the literature to describe the identification, acceptance, or understanding of perspectives and subjective experiences (Gershy & Gray, 2020). Reflective functioning requires a parent to "step back" from a focus constrained to their own emotional experience to consider their child's mental state (Kelly et al., 2005).

Parent emotion regulation has been conceptualized as a key component of sensitive and responsive parenting, which facilitates the development of secure attachment. Mentalizing capacities are taxed in the context of high emotional arousal, such as intense family conflict (Asen & Fonagy, 2012), so individuals with better emotion regulation abilities likely have greater capacity for mentalization (Bateman & Fonagy, 2013). When parents manage their own emotions, they are more readily able attend to their child's emotional needs and successfully regulate their child's behaviours (Gershy & Gray, 2020; Rutherford et al., 2015; Shaffer & Obradović, 2017; Shaffer et al., 2018).

Conversely, parents with emotion regulation problems may struggle to respond sensitively to intense emotional interactions with their children (Buckholdt et al., 2014). Parents who are preoccupied with their own negative affective states may have difficulty responding with constructive parenting practices or may respond with intense emotions to their child's behaviour that overwhelm their child's capacity to regulate (Maliken & Katz, 2013; Shaffer & Obradović, 2017).

Indeed, parent emotion regulation problems are associated with more harsh and distressed responses to their children's expression of negative emotions (Mazursky-Horowitz et al., 2015), more coercive parenting (Zhang et al., 2020), and more physical aggression in response to misbehaviour (Lorber et al., 2017). Other research has linked parent emotion regulation difficulties with lower emotional availability (Kim et al., 2012), less parent-adolescent closeness in the relationship (Li et al., 2018), and lower parental sensitivity (e.g., Leerkes et al., 2015; Shaffer & Obradović, 2017; Su et al., 2018). Recent data showed that among mothers of infants, characteristic use of suppression as an emotion regulation strategy and overall difficulties with emotion regulation were positively associated with prementalizing, which refers to challenges in identifying or recognizing the child's mental states (Schultheis et al., 2019). Taken together, these findings suggest that parent emotion regulation plays an important role in sensitive parenting, and may therefore impact the nature of adolescent-parent attachment.

Research suggests that securely attached youth have better emotion regulation abilities themselves (Cooke et al., 2019; Zimmer-Gembeck et al., 2017), but research examining the direct link between parent emotion regulation and youth attachment is scant. A recent study found that mothers' emotion regulation difficulties predicted greater likelihood of infants' classification as disorganized compared to secure in their attachment to their mother (Leerkes et al., 2020). As such, theory (e.g., Hajal & Paley, 2020) and data from this infant study (Leerkes et al., 2020) suggest that parent emotion regulation may be an important determinant of adolescent attachment security, but empirical work investigating the relationship between parent emotion regulation and adolescent attachment is lacking.

Mindful parenting practices, such as attentiveness and nonjudgmental acceptance, are also congruent with attuned and self-reflective parenting. Mindful parenting was found to be negatively associated with parent emotion dysregulation in

one study (Gouveia et al., 2019) and mindful parenting interventions have yielded improvements in parents' emotion regulation skills (e.g., Townshend et al., 2016), suggesting that parent emotion regulation abilities and mindful parenting are correlated and complementary. Furthermore, mindful parenting is positively associated with an authoritative parenting style, and negatively associated with authoritarian and permissive parenting styles (Gouveia et al., 2016), which are positively and negatively related to attachment security (Nair & Murray, 2005), respectively.

Theoretical linkages have been drawn between mindful parenting and secure attachment relationships (e.g., Coatsworth et al., 2018; Duncan et al., 2009; Snyder et al., 2012; Townshend, 2016), but thus far, little empirical research has examined mindful parenting and attachment. In a community sample of parents of school-aged children, parent attachment anxiety and avoidance were associated with lower mindful parenting (Moreira & Canavarro, 2015), but this study did not examine children's attachment. In another nonclinical sample, mindful parenting was associated with greater attachment security, and was related to child and adolescent well-being through its effects on child attachment security (Medeiros et al., 2016). Although these studies are consistent with theory, only one has examined mindful parenting in relation to child attachment, and these findings are yet to be replicated, extended to clinical populations, and examined in terms of specific dimensions of youth attachment. It remains to be seen how mindful parenting and parent emotion regulation relate to dimensions of adolescent attachment.

Current Study

This study examines the relationships between parent emotion regulation and mindful parenting and adolescent attachment security and mental health outcomes in a clinical sample of youth aged 8 to 18 years. Based on the existing literature documenting the link between attachment and mental health outcomes, I hypothesized that adolescent attachment anxiety and attachment avoidance would be positively associated with adolescent internalizing and externalizing symptoms. Consistent with previous research with nonclinical samples and younger children, I predicted that parents' difficulties with emotion regulation (affect dysregulation and suppression) and mindful parenting would be associated with adolescent internalizing and externalizing symptoms, with emotion regulation difficulties predicting more severe and mindful parenting predicting less severe internalizing and externalizing symptoms. Due to the strong

theoretical basis for exploring parent affect regulation and mindful parenting as foundations of secure attachment, and preliminary research in support of this, I hypothesized that parent affect dysregulation and affect suppression would be associated with more adolescent attachment anxiety and avoidance, and mindful parenting would be associated with less adolescent attachment anxiety and avoidance. Finally, I hypothesized that parent affect regulation and mindful parenting would be related to adolescent internalizing and externalizing symptoms through their respective effects on adolescent attachment anxiety and avoidance. Because age and gender have not emerged as moderators of the relationships between these factors in previous research, I predicted that the relationships amongst mindful parenting, parent emotion regulation, attachment, and mental health outcomes would be consistent across adolescent age and gender.

Methods

Data Collection Procedures

This study used caregiver self-reports of their emotion regulation, mindful parenting, youth attachment, and youth internalizing and externalizing symptoms drawn from the baseline assessment protocol of a longitudinal evaluation of the effectiveness of an attachment-based parenting program for caregivers of youth with serious behavioural and social-emotional problems (Connect; Moretti et al., 2017; http://connectattachmentprograms.org/). Caregivers were referred for treatment by urban and rural community mental health agencies, schools, or hospitals due to concerns about their child's mental health and behavioural functioning. Parental consent was obtained for participation in the study.

Parents were excluded if they anticipated they would be unable to attend the majority of program sessions or based on exclusion criteria for youth, which included acute suicidality, psychosis, or low intellectual functioning as reported by the parent. Youth experiencing acute psychosis or at imminent risk of suicide were ineligible and referred for immediate alternative services. Baseline data collection took place between January 2014 and January 2017. Prior to the start of the intervention, parents completed the battery of questionnaires via an online survey platform or hardcopy, which was mailed to the study coordinator. Participants completing the measures off-site were invited to reach out to study personnel if they wished to have support in responding to the questionnaires. Study procedures were reviewed and approved by the research ethics board of Simon Fraser University.

Sample

The total sample included 877 caregiver reports. There were 63 instances with duplicate family identification numbers due to more than one caregiver reporting on the same child (n = 54), parents reporting on more than one child (n = 6), or a duplicate questionnaire with little to no data (n = 3). In these cases, to avoid redundancy, participants were selected to retain based on the following criteria in order: (1) maternal over paternal report, as the number of mothers far exceeded the number of fathers in the

sample and the exploration of gender differences pertained to adolescent gender; (2) the child that was living within the home; (3) the child with the more severe symptoms (as assessed by greater baseline externalizing, then internalizing symptoms); (4) the oldest child. The present study included families drawn from this sample with a child aged 8 to 18. This yielded a sample of 785 families. Demographic characteristics for the cases used in the current study are presented in Table 1.

Table 1. Participant Demographic Characteristics

Variable	***M***	***SD***	**Minimum**	**Maximum**
Child age[a]	13.78	2.45	8.03	18.95
Caregiver age[b]	44.09	8.00	24.00	73.00
	Child		**Caregiver**	
Ethnicity	***n***	**%**	***n***	**%**
Indigenous	112	14.27	73	9.30
White	500	63.69	590	75.16
Asian	43	5.48	49	6.24
Other	65	8.28	32	4.08
Not reported	65	8.28	41	5.22
Child Gender	***n***	**%**		
Girls	423	53.89		
Boys	361	45.99		
Not reported	1	0.13		
Caregiver Type	***n***	**%**		
Biological mother	583	74.27		
Biological father	95	12.10		
Adoptive parent	48	6.11		
Foster parent	13	1.66		
Stepparent	11	1.40		
Other[c]	35	4.46		
Caregiver education	***n***	**%**		
Some or no high school	70	8.92		
Completed high school	139	17.71		
Some college or university	123	15.67		
Completed college or university	363	46.24		
Graduate degree	30	3.82		
Not reported	60	7.64		
Family Income	***n***	**%**		
Less than $25,000	186	23.69		
$25,000-$50,000	174	22.17		
$50,000-$75,000	144	18.34		
More than $75,000	223	28.41		
Not reported	58	7.39		

Note. [a] 3 (0.38%) cases did not report child age. [b] 23 (4.20%) cases did not report caregiver age. [c] Other caregiver types included grandparent, aunt, and other relative.

Measures

Internalizing and Externalizing Symptoms

The Brief Child and Family Phone Interview (BCFPI; Boyle et al., 2009; Cunningham et al., 2009) is a questionnaire measuring child and adolescent psychopathology, originally designed to be administered to parents via a telephone interview. The BCFPI has six subscales, which approximated Diagnostic and Statistical Manual of Mental Disorders (4th ed.; American Psychiatric Association, 1994) manual criteria for six disorders: regulating attention, impulse control, and activity level (attention-deficit hyperactivity disorder); cooperation with others (oppositional-defiant disorder); conduct (conduct disorder); separating from parents (separation anxiety disorder); managing anxiety (generalized anxiety disorder); and managing mood (major depressive disorder). Each subscale has six items rated on a three-point scale ranging from 1 (*never true*) to 3 (*often true*). Subscale scores range from 0 to 12, with higher scores indicating more symptoms. Andersson and colleagues (2018) observed $\alpha = .84$ for each of the internalizing and externalizing symptom composite scales and found good agreement between the internalizing and externalizing scales of the BCFPI and diagnoses determined through semistructured diagnostic interviews.

In the present study, internalizing symptoms scores were calculated by summing item responses for the separation anxiety disorder, generalized anxiety disorder, and major depressive disorder subscales, and externalizing symptom scores were calculated by summing item responses for the attention-deficit hyperactivity disorder, oppositional-defiant disorder, and conduct disorder scale scores. Internalizing and externalizing symptom scores had a possible range from 8 to 54. The present analyses used t-scores, which are computed based on norms for gender and age. A score of 50 ($SD = 10$) represents the mean in the general population. The externalizing scale had an internal consistency of .89 and the internalizing scale had an internal consistency of .88.

Attachment

Adolescent attachment was measured using the Adolescent Attachment Anxiety and Avoidance Inventory (AAAAI; Moretti & Obsuth, 2009). This instrument has two factors, which measure attachment avoidance and attachment anxiety. The original

scale has 36 items. Sixteen items were included in the questionnaire battery for the present study, based on having the highest factor loadings in a comprehensive factor analysis of the scale (Moretti et al., 2015; Steiger, 2008). Seven of the attachment avoidance items are reverse coded. Items are rated on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) and were averaged to yield subscale scores ranging from 1 to 7. A sample item from the attachment avoidance subscale is "My child tries to avoid getting too close to me" and a sample item from the attachment anxiety subscale is "My child worries about being abandoned by me." The internal consistency reliabilities of the attachment anxiety and attachment avoidance subscales of the full 36-item AAAAI were .88 and .90, respectively (Moretti et al., 2015). In this sample, the items loaded onto two factors – attachment anxiety and attachment avoidance – replicating the factor structure in previous work (Moretti et al., 2015). Internal consistency reliability of the attachment anxiety subscale was .83 and internal consistency reliability for the attachment avoidance scale was .91.

Affect Regulation

Parents completed the Affect Regulation Checklist (Moretti, 2003), a 12-item, three factor scale. Two factors – dysregulation and affect suppression – are considered maladaptive and the third factor – adaptive reflection – measures adaptive affect regulation. Items include "I have a hard time controlling my feelings" (affect dysregulation), "I try hard not to think about my feelings" (affect suppression), and "Thinking about why I have different feelings helps me to learn about myself" (adaptive reflection). Parents respond to 12 items by indicating the degree to which each statement described them in the past six months. Responses range from 1 *(not like me)* to 5 (*a lot like me*), yielding scores ranging from 4 to 20 for each subscale.

In this study, an adapted version of the scale was created to assess parents' affect regulation in the context of the parent-child relationship. For example, "I have a hard time controlling my feelings" was changed to "I have a hard time controlling my feelings about my child and our relationship" and "I try not to think about my feelings" was changed to "I try hard not to think about my feelings about my child and our relationship." Only the dysregulation and suppression subscales were used, as the existing evidence suggests that parents' difficulties with affect regulation are associated with adolescent health outcomes (Buckholdt et al., 2014; Cheung et al., 2020).

Consistent with previous applications of the scale (Craig & Moretti, 2019; Moretti & Obsuth, 2009; Penney & Moretti, 2010), the adapted items loaded onto the dysregulation and suppression factors as expected. Internal consistency of the subscales in this sample were .88 for dysregulation and .79 for suppression.

Mindful Parenting

The Interpersonal Mindfulness in Parenting Scale (Duncan, 2007) has 8 items, which are rated on a five-point scale ranging from 1 (*never true*) to 5 (*always true*). The four subscales are (1) listening with full attention ("I find myself listening to my child with one ear because I am busy doing or thinking about something else at the same time" and "I rush through activities with my child without being really attentive to him/her;" both items reverse coded), (2) nonjudgmental acceptance ("I listen carefully to my child's ideas, even when I disagree with them" and "Even when it makes me uncomfortable, I allow my child to express his/her feelings"), (3) emotional awareness ("I notice how changes in my child's mood affect my mood" and "I am aware of how my moods affect the way I treat my child"), and (4) self-regulation in the parenting relationship ("When I'm upset with my child, I notice how I am feeling before I take action" and "When I am upset with my child, I calmly tell him/her how I am feeling"). Subscale scores were computed by summing scores on the items comprising the scale and range from 2 to 10.

In the initial validation study (Duncan, 2007), the eight-item scale had an internal consistency reliability of α = .72. For listening with full attention, the internal consistency was α = .61; for self-regulation, it was α = .61; and for the nonjudgmental acceptance scale it was α = .66 (Duncan, 2007). Internal consistency of the emotional awareness subscale was poorer (α = .45). In this sample, the internal consistency reliability for the four two-item scales were as follows: α = .66 for listening with full attention, α = .63 for self-regulation, α = .69 for nonjudgmental acceptance, and α = .37 for emotional awareness.

Analytic Procedure

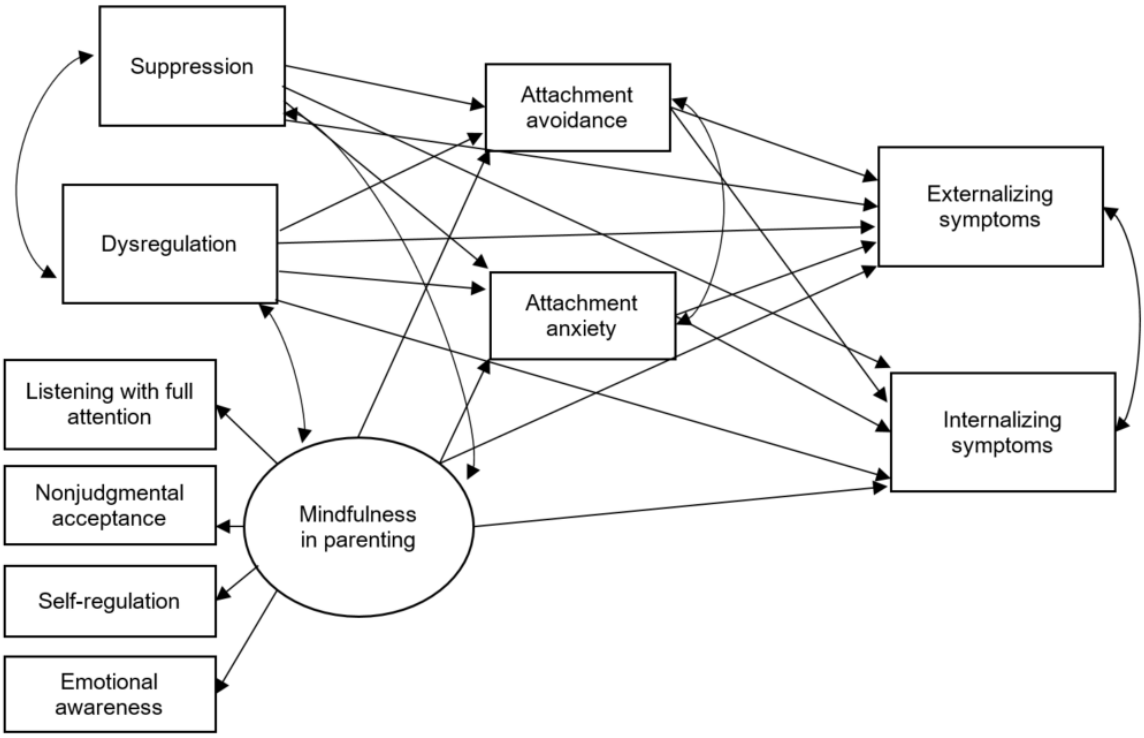
Before proceeding with statistical modeling, data were screened to verify the assumptions underlying full information maximum likelihood estimation were met using IBM SPSS Statistics for Windows, Version 26. The skewness and kurtosis of each

variable were examined to assess univariate normality. Bivariate scatterplots were examined to determine whether the relationships among variables were linear. Homoscedasticity of residuals was verified by examining scatterplots of residuals. Data were screened for collinearity by examining the variance inflation factor of each variable. Little's missing completely at random test (Little & Rubin, 2002) was used to examine whether the absence of item responses was correlated with independent and dependent variables. The presence of multivariate outliers was examined by calculating the Mahalanobis distance.

Statistical modeling was performed using MPlus, Version 8.3 (Muthén & Muthén, 2019). Path modeling was used to explore the hypothesized interrelationships among the constructs of interest using full-information maximum likelihood to account for missing data (Baraldi & Enders, 2010). Observed scores were used for measures of internalizing symptoms, externalizing symptoms, attachment anxiety, attachment avoidance, affect dysregulation, and affect suppression. A latent variable for mindful parenting composed of the Interpersonal Mindfulness in Parenting Scale (Duncan, 2007) subscales was used in keeping with the intended use of the measure in the original validation study. In contrast to variables derived from the sum of scores on subscales, indicators of latent variables can have different weights in the estimate of the latent construct (Kline, 2011). Since mindful parenting was operationalized as a latent variable, a confirmatory factor analysis of the Interpersonal Mindfulness in Parenting Scale (Duncan, 2007) was conducted to validate the factor structure in the present sample.

The path model examined the direct effects of attachment anxiety and attachment avoidance on internalizing and externalizing symptoms; the direct effects of affect dysregulation and suppression on internalizing symptoms, externalizing symptoms, attachment anxiety, and attachment avoidance; and the direct effects of mindful parenting on internalizing symptoms, externalizing symptoms, attachment anxiety, and attachment avoidance concurrently (see Figure 1). The MPlus Model Indirect command was used to examine the indirect effects of parent affect regulation and mindful parenting on internalizing and externalizing symptoms through attachment avoidance and attachment anxiety.

Figure 1. Hypothesized Direct Effects and Covariances



Note. Curved double-headed arrows indicate covariances.

Model fit was assessed by chi-square (χ^2), the root-mean-square error of approximation (RMSEA), the standardized root-mean-square residual (RMSR), the comparative fit index (CFI), and the Tucker-Lewis Index (TLI). A chi-square estimate with a *p* value greater than .05 supports the hypothesis that there is no discrepancy between the observed data and the estimates predicted in the model, although scholars have cautioned that small discrepancies can be statistically significant in large samples (Kline, 2011). The CFI and TLI range from 0 to 1, with values closer to 1 indicating better fit, and values closer to 0 for RMSEA and RMSR indicate better model fit (Kline, 2011; Wang & Wang, 2012). Recommendations for acceptable values for model fit statistics vary based on model features such as sample size, the magnitude of correlations in the data, and model complexity, with less conservative guidelines indicating that CFI and TLI values above 0.90 and RMSEA and RMSR of less than 0.10 represent acceptable model fit, and more conservative guidelines recommending values of 0.95 for CFI and TLI, 0.06 for RMSEA, and 0.08 for RMSR (Shi et al., 2019).

After testing the model in the full sample, invariance across adolescent gender was tested using a chi-square difference test comparing (1) a model in which

relationships between the variables of interest were allowed to vary across boys and girls and (2) a model in which the relationships amongst the variables were constrained to be equal across the subgroups. To explore whether findings were consistent across age, the model was tested with and without adolescent age as a covariate. Although the sample included a variety of caregiver types, it was not possible to perform a chi-square difference test for invariance as most (74.3%) of the sample identified as biological mothers, so instead the model was examined with data from biological mothers only, biological mothers and fathers only, and all caregivers to explore whether the findings were consistent in terms of statistical significance and magnitude of the standardized path coefficient estimates.

Results

Assumptions

Means, standard deviations, minima, maxima, skewness, and kurtosis values are reported in Table 2. Skewness of each variable was below 3 and kurtosis of each variable was below 10, indicating univariate normality (Kline, 2011). The variance inflation factor of each variable in the model was less than 10, suggesting none of the variables in the model were redundant (Kline, 2011). Scatterplots of regression equation residuals as a function of predicted values of the outcome variable were evenly spread around 0 on the horizontal and vertical axes for both internalizing and externalizing symptoms, indicating homoscedasticity and multivariate normality. Little's missing completely at random test indicated that the probability of missing item responses was uncorrelated with the independent and dependent variables in the model (χ^2 (127) = 149.88, p = .08).

Table 2. Descriptive Statistics

Variable	*n*	Minimum	Maximum	*M*	*SD*	Skewness	Kurtosis
Internalizing	742	36.42	108.44	67.86	14.30	0.21	-0.37
Externalizing	744	35.39	109.12	72.17	13.05	-0.18	-0.32
Attachment anxiety	747	1.00	7.00	3.31	1.27	0.27	-0.46
Attachment avoidance	752	1.00	6.89	3.29	1.32	0.38	-0.50
Dysregulation	746	4.00	20.00	9.95	4.07	0.44	-0.47
Suppression	741	4.00	20.00	7.64	3.29	0.88	0.39
Listening with full attention	747	2.00	10.00	6.66	1.50	-0.08	-0.17
Nonjudgmental acceptance	746	3.00	10.00	7.62	1.42	-0.30	-0.19
Self-regulation	746	2.00	10.00	6.16	1.47	-0.17	0.16
Emotional awareness	748	2.00	10.00	7.53	1.23	-0.41	1.34

Six cases were identified as multivariate outliers based on the Mahalanobis distance (χ^2 (10) > 29.59, p < .01). Because the results did not differ with and without these six cases, they were retained in the final analyses reported below. Results did not differ for biological mothers, biological mothers and fathers, or data from all caregivers, so all cases were retained in the results reported below. Henceforth, *parent* is used to refer to all caregiver types. Similarly, results did not differ when age was included as a

covariate with the variables with which it was associated in the bivariate correlations, so results are reported without age in the model.

Factor Structure of the Interpersonal Mindfulness in Parenting Scale

Inter-item correlations amongst the scale items are presented in Table 3. A confirmatory factor analysis with eight items loading onto four factors had acceptable model fit (see Table 4). While listening with full attention, nonjudgmental acceptance, and self-regulation subscales were all positively correlated, the emotional awareness subscale was negatively correlated with listening with full attention, positively correlated with nonjudgmental acceptance, and uncorrelated with self-regulation.

Table 3. Inter-item Correlations, Interpersonal Mindfulness in Parenting Scale

Item	1	2	3	4	5	6	7	8
1	1							
2	.22**	1						
3	-.14**	.05	1					
4	.38**	.35**	0.01	1				
5	-.09*	.12**	.23**	.10**	1			
6	.23**	.28**	-0.03	.53**	.13**	1		
7	.23**	.46**	-.07*	.39**	.05	.36**	1	
8	.49**	.21**	-.09*	.39**	-.05	.27**	.20**	1

Note. * $p < .05$, ** $p < .01$. Correlation *n*s range from 745 to 748.

Examining mindful parenting as a latent variable with each of the four subscales as indicators of the latent construct, three of the four subscales had significant factor loadings, whereas emotional awareness did not (see Table 5). This suggests the two items that make up the emotional awareness subscale did not fit well with and were not performing consistently with the other subscale items in this sample. Because of the poor internal consistency, inconsistent relationships with other indicators, and nonsignificant factor loading, emotional awareness was omitted from the mindful parenting latent construct in subsequent analyses.

Table 4. Confirmatory Factor Analysis of the Interpersonal Mindfulness in Parenting Scale

Model fit index	*df*		Estimate	*p*	
χ^2	14		39.94	< .001	
RMSEA			0.050		
RMSR			0.032		
CFI			0.976		
TLI			0.952		
Subscale	**Item**	**Estimate**	***SE***	***Z***	***p***
1. Listening with full attention	1	0.71	0.03	21.03	< .001
	8	0.69	0.03	20.45	< .001
2. Self-regulation	2	0.64	0.04	17.83	< .001
	7	0.72	0.04	19.46	< .001
3. Emotional awareness	3	0.37	0.07	5.01	< .001
	5	0.61	0.11	5.43	< .001
4. Nonjudgmental acceptance	4	0.83	0.03	28.33	< .001
	6	0.64	0.03	21.41	< .001
Correlations					
Subscale	1	2	3	4	
1	1				
2	.45**	1			
3	-.22**	.14	1		
4	.64**	.68**	.18**	1	

Note. RMSEA = root mean square of approximation, RMSR = standardized root mean square residual; CFI = comparative fit index, TLI = Tucker-Lewis index. * $p < .05$, ** $p < .01$.

Table 5. Measurement Model of the Mindful Parenting Latent Variable

Model fit index	*df*	Estimate		*p*
χ^2	2	30.71		<.001
RMSEA		0.139		
RMSR		0.045		
CFI		0.920		
TLI		0.759		
Subscale	**Estimate**	***SE***	***Z***	***p***
Listening with full attention	0.51	0.04	12.85	< .001
Self-regulation	0.56	0.04	13.78	< .001
Emotional awareness	0.05	0.04	1.19	.235
Nonjudgmental acceptance	0.82	0.05	17.12	< .001

Note. RMSEA = root mean square of approximation, RMSR = standardized root mean square residual; CFI = comparative fit index, TLI = Tucker-Lewis index.

Descriptive Analyses

Bivariate correlations are presented in Table 6. As expected, attachment anxiety was positively associated with internalizing symptoms and externalizing symptoms, whereas attachment avoidance was unrelated to internalizing symptoms, but positively associated with externalizing symptoms. Consistent with the hypotheses, parent affect dysregulation was positively associated with adolescent internalizing and externalizing symptoms. Parent affect suppression was unrelated to adolescent internalizing symptoms, but positively associated with adolescent externalizing symptoms. Parent affect dysregulation and suppression were both positively associated and with adolescent attachment anxiety and attachment avoidance.

Table 6. Bivariate Correlations, Total Sample

Variable	INT	EXT	ANX	AVOID	DYS	SUP	LFA	NJ	SR	Age
INT	1									
EXT	.27**	1								
ANX	.36**	.23**	1							
AVOID	-.02	.27**	.19**	1						
DYS	.14**	.27**	.31**	.29**	1					
SUP	.03	.17**	.22**	.30**	.35**	1				
LFA	-.07	-.11**	-.29**	-.13**	-.26**	-.19**	1			
NJ	.02	-.16**	-.19**	-.29**	-.32**	-.24**	.42**	1		
SR	.13**	-.07	-.13**	-.20**	-.34**	-.19**	.29**	.46**	1	
Age	.05	.11**	-.06	.24**	.09*	.13**	.11**	-.06	.02	1

Note. INT = internalizing symptoms, EXT = externalizing symptoms, ANX = attachment anxiety, AVOID = attachment avoidance, DYS = dysregulation, SUP = suppression, LFA = listening with full attention, NJ = nonjudgmental acceptance, SR = self-regulation. * $p < .05$, ** $p < .01$. Correlation *n*s range from 729 to 782.

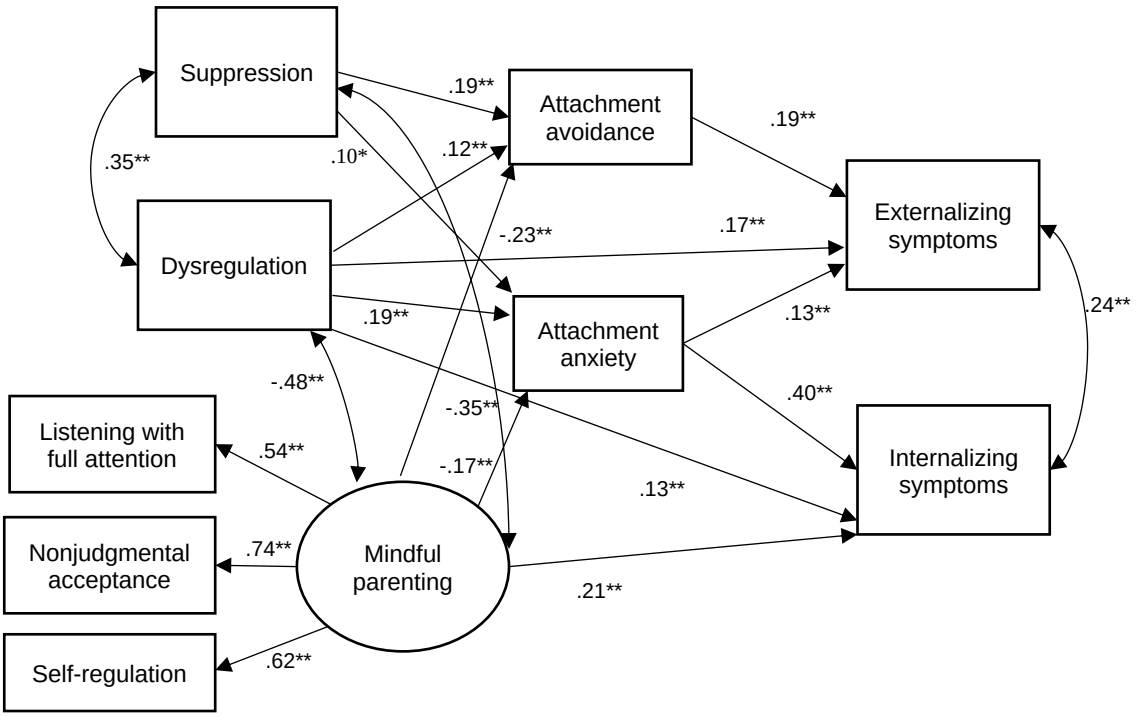
To examine the associations between mindful parenting and adolescent attachment and mental health outcomes irrespective of the other predictors in the model, each endogenous variable was regressed on the mindful parenting latent variable separately. Mindful parenting was unrelated to adolescent internalizing symptoms (β = 0.04, p = .33), but negatively associated with adolescent externalizing symptoms (β = -0.19, $p < .01$). Mindful parenting was also negatively associated with adolescent attachment anxiety (β = -0.30, $p < .01$) and attachment avoidance (β = -0.34, $p < .01$).

Path Analyses

Direct Paths

The model results are depicted in Figure 2. Model fit indices were χ^2 (12) = 65.58, $p < .001$; RMSEA=0.077; RMSR= 0.032; CFI = 0.946; and TLI = 0.844.

Figure 2. Direct Effects in Full Sample



Note. Only significant paths are shown. Curved double-headed arrows indicate covariances. Covariance between attachment avoidance and attachment anxiety was not significant. Estimates are standardized. N = 759 (n = 26 missing data on all variables). * $p < .05$, ** $p < .01$.

Adolescent Attachment and Mental Health Outcomes

Controlling for all other variables in the model, attachment anxiety was positively associated with adolescent internalizing and externalizing symptoms. Attachment avoidance was positively associated with adolescent externalizing symptoms, but not with internalizing symptoms.

Parent Affect Regulation and Adolescent Mental Health Outcomes and Attachment

Controlling for all other variables, parent affect dysregulation remained a significant predictor of internalizing and externalizing symptoms. In contrast, parent affect suppression was no longer directly related to internalizing or externalizing symptoms. Controlling for affect suppression and mindful parenting, affect dysregulation was still positively associated with attachment anxiety and attachment avoidance. Similarly, controlling for dysregulation and mindful parenting, suppression was still positively associated with attachment anxiety and attachment avoidance.

Mindful Parenting and Adolescent Mental Health Outcomes and Attachment

Surprisingly, although mindful parenting was unrelated to internalizing symptoms when it was the sole predictor, controlling for all other variables, mindful parenting was positively associated with internalizing symptoms. Post-hoc analyses to explore this unexpected relationship are presented following the gender effects. Controlling for all other variables, the direct effect of mindful parenting on externalizing symptoms was no longer significant. However, controlling for affect dysregulation and suppression, mindful parenting was still associated with less attachment anxiety and attachment avoidance.

Indirect Paths

Parent Affect Regulation to Adolescent Mental Health via Attachment

Dysregulation had a significant indirect effect on internalizing symptoms through its effects on attachment anxiety (β = 0.08, p < .01), and significant indirect effects on externalizing symptoms through its effects on both attachment anxiety (β = 0.02, p < .01) and attachment avoidance (β = 0.02, p < .05). Similarly, affect suppression was indirectly associated with internalizing symptoms through its effects on attachment anxiety (β = 0.04, p < .05) and was indirectly associated with externalizing symptoms through its effects on both attachment anxiety (β = 0.01, p < .05) and attachment avoidance (β = 0.04, p < .01).

Mindful Parenting to Adolescent Mental Health via Attachment

Mindful parenting was associated with lower internalizing symptoms through its effect on attachment anxiety (β = -0.07, p < .01). Mindful parenting was associated with

lower externalizing symptoms through its effects on both attachment anxiety (β = -0.02, $p < .05$) and attachment avoidance (β = -0.04, $p < .01$).

Gender Effects

Descriptive statistics are reported by gender in Table 7. Boys had lower internalizing symptom t-scores (mean difference = 4.41; 95% CI 2.38, 6.44), lower externalizing symptom t-scores (mean difference = 3.59; 95% CI 1.74, 5.45), and less attachment anxiety (mean difference = 0.19; 95% CI 0.01, 0.38) relative to girls. Mean scores did not differ on any other measures. Bivariate correlations are presented by gender in Table 8. For boys, suppression was unrelated to internalizing symptoms, however bivariate relationships were otherwise consistent.

Table 7. Descriptive Statistics by Gender

Boys					
Variable	***n***	**Minimum**	**Maximum**	***M***	***SD***
Internalizing	340	36.99	106.91	65.47	13.52
Externalizing	339	35.39	103.44	70.21	12.20
Attachment anxiety	341	1.00	6.86	3.20	1.21
Attachment avoidance	343	1.00	6.78	3.30	1.25
Dysregulation	343	4.00	20.00	9.84	3.85
Suppression	342	4.00	19.00	7.62	3.38
Listening with full attention	343	2.00	10.00	6.55	1.50
Nonjudgmental acceptance	342	4.00	10.00	7.59	1.46
Self-regulation	343	2.00	10.00	6.16	1.46
Girls					
Variable	***n***	**Minimum**	**Maximum**	***M***	***SD***
Internalizing	402	36.42	108.44	69.88	14.64
Externalizing	405	39.36	109.12	73.80	13.52
Attachment anxiety	405	1.00	7.00	3.40	1.32
Attachment avoidance	408	1.00	6.89	3.29	1.38
Dysregulation	402	4.00	20.00	10.05	4.26
Suppression	398	4.00	20.00	7.67	3.21
Listening with full attention	403	2.00	10.00	6.75	1.49
Nonjudgmental acceptance	403	3.00	10.00	7.65	1.39
Self-regulation	402	2.00	10.00	6.15	1.48

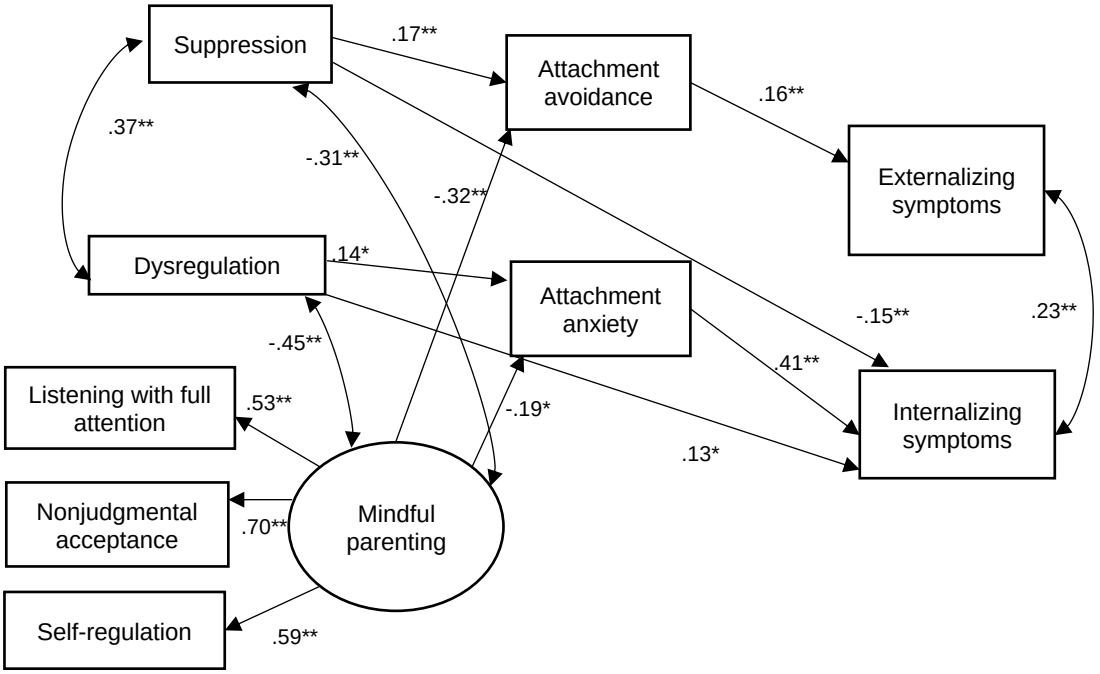
Table 8. Bivariate Correlations by Gender

Variable	INT	EXT	ANX	AVOID	DYS	SUP	LFA	NJ	SR
INT	1	.28**	.35**	.00	.15**	.12*	-.03	.03	.16**
EXT	.24**	1	.23**	.28**	.31**	.20**	-.09	-.12*	-.07
ANX	.37**	.21**	1	.16**	.33**	.22**	-.30**	-.22**	-.15**
AVOID	-.05	.26**	.23**	1	.30**	.30**	-.11*	-.25**	-.23**
DYS	.13*	.22**	.27**	.28**	1	.33**	-.25**	-.34**	-.40**
SUP	-.07	.14**	.22**	.30**	.37**	1	-.12**	-.24**	-.23**
LFA	-.15**	-.17**	-.31**	-.16**	-.28**	-.18**	1	.45**	.37**
NJ	.01	-.23**	-.16**	-.35**	-.29**	-.23**	.39**	1	.49**
SR	.10	-.07	-.11*	-.17**	-.26**	-.15**	.21**	.42**	1

Note. Correlations for girls are above the diagonal and correlations for boys are below the diagonal. INT = internalizing symptoms, EXT = externalizing symptoms, ANX = attachment anxiety, AVOID = attachment avoidance, DYS = affect dysregulation, SUP = affect suppression, LFA = listening with full attention, NJ = nonjudgmental acceptance, SR = self-regulation. * $p < .05$, ** $p < .01$. Correlation *n*s range from 333 to 343 (boys) and 390 to 408 (girls).

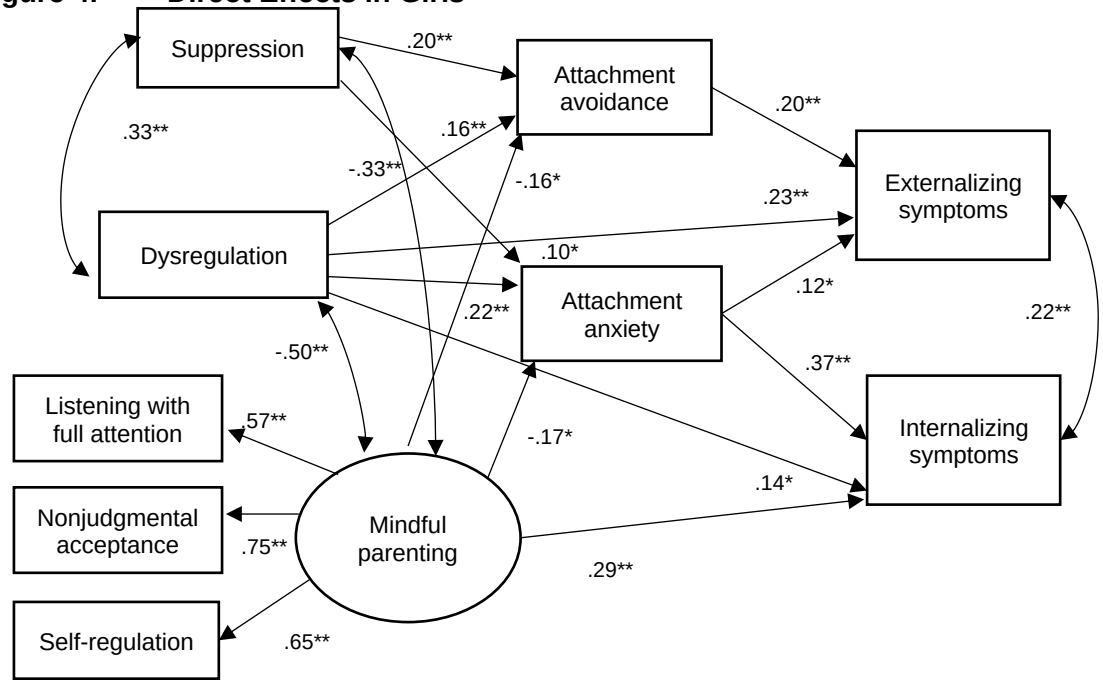
The model results are displayed by gender in Figures 3 and 4. Model fit indices were χ^2 (28) = 86.83, $p < .001$ (χ^2 contribution boys = 44.85; χ^2 contribution girls = 41.98); RMSEA = 0.074; RMSR = 0.045; CFI = 0.941; TLI = 0.853. Despite gender similarities in descriptive analyses, the chi-square difference test on the models with and without the relationships between variables constrained to be equal across groups indicated that the model estimates were significantly different for girls and boys (χ^2 (21) = 46.20, $p = .001$). Gender differences are described below.

Figure 3. Direct Effects in Boys



Note. Only significant paths are shown. Curved double-headed arrows represent covariances. Covariance between attachment avoidance and attachment anxiety was not significant. Estimates are standardized. N = 348 (n = 13 missing data on all variables). * p < .05, ** p < .01.

Figure 4. Direct Effects in Girls



Note. Only significant paths are shown. Curved double-headed arrows represent covariances. Covariance between attachment avoidance and attachment anxiety was not significant. Estimates are standardized. N = 410 (n = 13 missing data on all variables). * p < .05, ** p < .01.

Direct Paths

Adolescent Attachment and Mental Health Outcomes

Controlling for all other variables, attachment anxiety was positively associated with externalizing symptoms for girls, but not boys.

Parent Affect Regulation and Adolescent Mental Health Outcomes and Attachment

Controlling for the other predictors in the model, parental affect dysregulation predicted greater externalizing symptoms among girls only. In contrast with the model results for the overall sample, suppression was negatively associated with internalizing symptoms for boys, but this relationship was not significant for girls. Controlling for suppression and mindful parenting, parent affect dysregulation was positively associated with attachment avoidance in girls, but not boys.

Mindful Parenting and Adolescent Mental Health Outcomes and Attachment

Mindful parenting was unrelated to internalizing symptoms among boys, but it was associated with greater internalizing symptom severity among girls, consistent with the results for the overall sample.

Indirect Paths

Parental affect dysregulation had significant indirect effects on externalizing symptoms through both attachment anxiety ($\beta = 0.03$, $p < .05$) and attachment avoidance ($\beta = 0.03$, $p < .05$) in girls, but no significant indirect effect on externalizing symptoms through attachment anxiety or attachment avoidance among boys. The indirect effects were otherwise were consistent for boys and girls.

Post-Hoc Analyses on Mindful Parenting and Internalizing Symptoms

Contrary to predictions, mindful parenting was associated with greater internalizing symptoms controlling for other predictors. Post-hoc analyses were completed to better understand this finding. First, examining bivariate correlations, self-regulation was the only component of the mindful parenting latent variable that was

positively associated with internalizing symptoms (r = .13, p < .01). As such, I explored the moderating effects of attachment anxiety and attachment avoidance on the relationship between parent self-regulation and adolescent internalizing symptoms. The interaction term parent self-regulation X youth attachment anxiety predicted internalizing symptoms (β = 0.24, p < .01), and the path from mindful parenting to internalizing symptoms became nonsignificant (β = 0.07, p = .30) when the interaction term was added to the model, indicating that as attachment anxiety increased, self-regulation became associated with greater internalizing symptoms. Similarly, the interaction term parent self-regulation X youth attachment avoidance was a significant predictor of internalizing symptoms (β = 0.26, p < .01), and the path from mindful parenting to internalizing symptoms became nonsignificant (β = 0.05, p = .45) when the interaction term was added to the model.

To further explore the moderation effect of attachment anxiety and attachment avoidance, I examined the direct paths from mindful parenting to internalizing symptoms for youth who were rated very high or low in attachment anxiety and for youth who were rated very high or low in attachment avoidance. Among those with attachment anxiety scores 1.5 *SD* or more above the sample mean (≥5.220; n = 73), mindful parenting was positively associated with internalizing symptoms (β = 0.66, p < .01) whereas it was unrelated to internalizing symptoms (β = 0.04, p = .88) among those with attachment anxiety scores 1.5 *SD* or more below than the sample mean (≤1.396; n = 46). The same pattern was found among adolescents with extreme scores in attachment avoidance; among those with attachment avoidance scores 1.5 *SD* or more above the sample mean (≥5.280; n = 71), mindful parenting was positively associated with internalizing symptoms (β = 0.51, p < .01), whereas it was unrelated to internalizing symptoms (β = -0.08, p = .74) among those with attachment avoidance scores 1.5 *SD* or more below the sample mean (≤1.307; n = 37).

Discussion

This study examined the associations between parents' affect dysregulation and suppression in the context of their relationships with their adolescent, mindful parenting, adolescent attachment, and adolescent mental health symptoms. Consistent with predictions and prior research, more attachment anxiety and avoidance predicted greater internalizing and externalizing symptoms, respectively, for both girls and boys. These results provide further evidence of differential relationships between dimensions of attachment security and youth internalizing and externalizing symptoms (Madigan et al., 2016) and echo previous findings that reductions in attachment anxiety predict decreases in internalizing symptoms, while reductions in attachment avoidance predict decreases in externalizing symptoms in clinical adolescent samples (Barone et al., 2020; Moretti et al., 2015).

As expected, parent affect dysregulation predicted greater internalizing symptoms directly and through its effects on attachment anxiety; and parent affect suppression predicted greater externalizing symptoms through its effects on attachment avoidance. In other words, when parents showed more emotional volatility in their interactions with their child, adolescents were more anxious about the availability of parents to meet their emotional needs, and experienced depressed mood and anxiety. Similarly, when parents suppressed and disengaged with their emotions in their interactions with their child, adolescents were more avoidant and reluctant to reach out for support and, in turn, engaged in more disruptive behaviour. These findings are consistent with a recent study linking parent emotion regulation with infant attachment (Leerkes et al., 2020). In addition, this study demonstrates that the types of emotion regulation difficulties experienced in parent-adolescent interactions may have distinct influences on adolescent attachment anxiety and avoidance. The existing literature has primarily examined parent emotion regulation or dysregulation (e.g., Buckholdt et al., 2014; Cheung et al., 2020; Mazursky-Horowitz et al., 2015), with less of a focus on suppression. Recent studies examining suppression in parents of infants (Schultheis et al., 2019) and young children (Zimmer-Gembeck et al., 2019) found that suppression was associated with poorer reflective functioning, but did not examine attachment. Previous studies examining parent suppression and child health outcomes found no relationship between suppression and externalizing symptoms (Zimmer-Gembeck et al.,

2019) or depression symptoms (Doan et al., 2018), but they may have been underpowered to detect small effects.

An advantage of this study is that it focused on emotion regulation in the context of parent-adolescent interactions. This measure, adapted from the original affect regulation checklist (Moretti, 2003), provides a more proximal indicator of affective processes in the parent-adolescent relationship as compared to assessments of general emotion regulation strategies used in previous studies (Buckholdt et al., 2014; Cheung et al., 2020; Doan et al., 2018; Mazursky-Horowitz et al., 2015; Schultheis et al., 2019, Zimmer-Gembeck et al., 2019). The application of emotion regulation strategies varies across contexts and relationships (Campos et al., 2011). For example, although there is likely a relationship between emotion regulation strategies across different relationships, parent-teen relationships may be particularly provocative and some parents may experience significant difficulty regulating intense emotions in interactions with their teens if they feel disrespected or rejected by their adolescent, or if they feel their teen is at risk. As such, this study is novel in finding that both uncontrolled and suppressed emotional expression, particularly within parent-adolescent interactions, are related to the quality of adolescent-parent attachment and adolescent mental health.

While mindful parenting was negatively correlated with externalizing symptoms as hypothesized, and as previously documented in nonclinical samples (Han et al., 2019; Henrichs et al., 2019; Parent et al., 2016) and children with attention-deficit hyperactivity disorder or autism spectrum disorder (e.g., Meppelink et al., 2016), this relationship was not significant when controlling for parent affect regulation and adolescent attachment. In contrast with past research (Guertzen et al., 2015; Henrichs et al., 2019; Parent, McKee, Rough, & Forehand, 2016), when accounting for parent affect regulation and adolescent attachment, mindful parenting was associated with greater internalizing symptoms. Post-hoc analyses revealed that this effect was driven by the self-regulation aspect of mindful parenting and this relationship was present amongst families in which the child was high in attachment anxiety or high in attachment avoidance. Among youth who fear rejection or abandonment by caregivers (high in attachment anxiety), or who are hesitant about or mistrustful of intimacy (high in attachment avoidance), caregivers' self-control could be construed as emotionally distant or dismissing, contributing to anxiety and low mood (Dykas & Cassidy, 2011; Kobak & Bosmans, 2019). Parents' increased self-regulation could also be in response

to the presence of internalizing symptoms, such that caregivers censor their reactions in an effort to avoid exacerbating their child's anxiety and depression (Armitage et al., 2020; Meyer et al., 2018). These possible explanations warrant further investigation, but nevertheless, mindful parenting may be experienced differentially depending on the nature of the child's attachment and the quality of the caregiver-child relationship.

As hypothesized, and in accordance with theory postulating that mindful parenting promotes secure attachment (Duncan et al., 2009; Snyder et al., 2012; Townshend, 2016), mindful parenting was associated with lower adolescent attachment anxiety and avoidance. Consistent with prior research on mindful parenting and parent emotion regulation (Gouveia et al., 2019), mindful parenting was also negatively associated with parent affect dysregulation and suppression. Results confirmed the hypothesis that mindful parenting predicts lower internalizing and externalizing symptoms through its effects on attachment anxiety and avoidance. This corroborates findings in a psychologically healthy sample (Medeiros et al., 2016), and extends the literature by examining the constructs in a clinical sample, and by providing more specificity about the effects of mindful parenting on internalizing and externalizing symptoms through attachment anxiety and avoidance.

Strengths and Limitations

The present research is an extension of the literature to a clinical sample of children and adolescents with significant and diverse emotional and behavioural problems. Past work has primarily examined parent emotion regulation in younger children (Crespo et al., 2017; Quetsch et al., 2018; Zimmer-Gembeck et al., 2019) and nonclinical samples (Buckholdt et al., 2014; Cheung et al., 2020) and has examined mindful parenting in either community samples (e.g., Guertzen et al., 2015; Han et al., 2019; Henrichs et al., 2019; Medeiros et al., 2016; Moreira & Canavarro, 2015; 2018) or amongst parents of children with attention-deficit hyperactivity disorder or autism spectrum disorder (e.g., Meppelink et al., 2016). This study is novel in its exploration of how parent emotion regulation and mindful parenting relate to attachment anxiety and avoidance, its focus on emotion regulation in the context of parent-adolescent interactions, and its findings regarding parent emotional suppression. The sample size is an additional strength, as there were enough cases per model parameter to estimate the

hypothesized series of relationships amongst the variables simultaneously, and to examine gender effects.

These strengths notwithstanding, it is important to note that this study was not longitudinal and thus precludes causal conclusions about the direction of effects amongst the variables measured in this study. Importantly, youth attachment and mental health problems are conceivably as predictive of parent affect regulation and mindful parenting as the opposite. Future work with longitudinal repeated measures designs and experimental manipulation could shed more light on the causal and transactional relationships between parent emotion regulation, mindful parenting, adolescent attachment, and adolescent mental health outcomes. Additionally, the reliance on self-report measures is a notable limitation. Assessment using interview or observational measures was not feasible given the sample size and scope of the study, and it is important to use these methods in future research to determine the validity of the current results. Another limitation is that only data provided by caregivers were used in the present analyses, as data on attachment security and internalizing and externalizing symptoms were available from some, but not all, children (577 of 785). Based on self-report from these cases, greater attachment anxiety and avoidance were correlated with increased internalizing and externalizing symptoms, and parents' reports of increased suppression and dysregulation were correlated with more attachment anxiety and avoidance. As such, some of the findings based on parent report were replicated across sources of information.

In terms of generalizability, results based on a clinical sample may not represent the nature of relationships between these variables in typically developing parents and adolescents. Since this study excluded adolescents experiencing psychosis or acute suicidality, and with low intellectual functioning, it is also unknown whether the findings generalize to individuals with these characteristics. The current sample consisted of primarily White Canadian parents and teens, although a sizable portion of the sample was of Indigenous heritage (9.30% of parents and 14.27% of youth). While the significance of secure attachment and mental health outcomes have been documented across cultures (van IJzendoorn & Sagi-Schwartz, 2008), there may be sociocultural differences in what constitutes appropriate emotional expression, optimally sensitive parenting, and the conditions that foster secure attachment (Molitor & Hsu, 2011).

Finally, while the four-factor structure of the Interpersonal Mindfulness in Parenting Scale (Duncan, 2007) fit the data well, the emotional awareness subscale did not operate the same way as it has in previous literature. In contrast to previous studies (e.g., Duncan, 2007; McKee et al., 2017), the factor loading for emotional awareness was not significant. The construct validity of the emotional awareness factor in this sample is therefore questionable. It is possible that when used in a clinical sample, emotional awareness items tap different underlying aspects of parent-adolescent relationships, as compared to those found in typically developing populations. Results from this study showing that emotional awareness was positively associated with parent affect dysregulation ($r = .17$, $p < .01$), internalizing ($r = .18$, $p < .01$) and externalizing symptoms ($r = .14$, $p < .01$), and attachment anxiety ($r = .11$, $p < .01$) provide support for this explanation, suggesting that emotional awareness may be associated with distress in clinical populations. Additional research examining mindful parenting factors in clinical populations is needed to further investigate this possibility.

Conclusions

This study examined the relationships between parent affect regulation, mindful parenting, and adolescent-parent attachment in a clinical sample. Further, this research explored the association of parent affect regulation and mindful parenting with adolescent mental health difficulties through their effects on adolescent-parent attachment. Results generally supported the predictions, suggesting that interventions designed to help parents develop skills in regulating their affect within their relationship with their teen, and in mindful parenting, may promote adolescent attachment security and mental health.

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Appendix

Adolescent Attachment Anxiety and Avoidance Inventory

We are interested in your opinions of your child's behaviour and attitudes. Please read each sentence and circle the number to show how much you agree or disagree with the statement regarding your child, in your opinion, over the past 6 months, on average.

1. My child needs a lot of reassurance that he/she is loved by me.
2. My child worries that I don't care about him/her as much as he/she cares about me.
3. My child feels comfortable depending on me. *(reverse coded)*
4. My child worries about being abandoned by me.
5. My child wishes that my feelings for him/her were as strong as his/her feelings for me.
6. My child tries to avoid getting too close to me.
7. My child worries a lot about his/her relationship with me.
8. My child tells me just about everything. *(reverse coded)*
9. Often my child wants to be really close to me and this makes me feel like backing away.
10. My child usually discusses his/her problems and concerns with me. *(reverse coded)*
11. My child finds it relatively easy to get close to me. *(reverse coded)*
12. Whenever we get close, my child pulls back from me.
13. My child doesn't mind asking me for comfort, advice, or help. *(reverse coded)*
14. My child feels that I don't want to get as close as he/she would like.
15. My child turns to me for many things, including comfort and reassurance. *(reverse coded)*
16. My child is comforted by turning to me in times of need. *(reverse coded)*

Attachment anxiety: items 1, 2, 4, 5, 7, 9, 14

Attachment avoidance: items 3, 6, 8, 10, 11, 12, 13, 15, 16

Response options:

1= strongly disagree

2 = disagree

3 = mildly disagree

4 = neutral

5 = mildly agree

6 = agree

7 = strongly agree

Affect Regulation Checklist

Please read each statement below and think about how you feel when interacting with your child and your relationship in the past 6 months. Circle one answer that best describes the relationship, in your opinion.

Over the past 6 months, on average…

1. I have a hard time controlling my feelings about my child and our relationship.
2. It's very hard for me to calm down when I get upset about my child and our relationship.
3. My feelings about my child and our relationship just take over me and I can't do anything about it.
4. When I get upset about my child and our relationship, it takes a long time for me to get over it.
5. Thinking about why I have different feelings about my child helps me to learn about our relationship.
6. Thinking about why I act in certain ways toward my child helps me to understand our relationship.

7. The time I spend thinking about what's happened between me and my child helps me to understand our relationship.
8. Thinking about my feelings toward my child just makes our relationship worse. *(reverse coded)*
9. I try hard not to think about my feelings about my child and our relationship.
10. It's best to keep my feelings about my child and our relationship in control and not to think about them.
11. I keep my feelings about my child and our relationship to myself.
12. I try to do other things to keep my mind off how I feel about my child and our relationship.

Dysregulation: items 1, 2, 3, 4

Adaptive reflection: items 5, 6, 7, 8

Affect suppression: items 9, 10, 11, 12

Response options:

1 = not like me

3 = somewhat like me

5 = a lot like me