



Parent Emotion Regulation, Mindful Parenting, and Youth Attachment: Direct and Indirect Associations with Internalizing and Externalizing Problems

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Accepted: 12 September 2022

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Abstract

The direct associations between two dimensions of parent emotion regulation within the parent-youth relationship (dysregulation; suppression), mindful parenting, and youth internalizing and externalizing problems were examined among 759 parents of youth with significant behavioural or emotional problems. The indirect associations of parent emotion regulation and mindful parenting with youth functioning through youth attachment anxiety and avoidance were also investigated. Parent dysregulation was associated with internalizing symptoms both directly and through attachment anxiety, and with externalizing symptoms directly and through attachment anxiety and avoidance. Parent suppression was associated with internalizing symptoms through attachment anxiety, and with externalizing symptoms through attachment anxiety and avoidance. Mindful parenting was associated with lower internalizing symptoms through attachment anxiety and with lower externalizing symptoms through attachment anxiety and avoidance. Emotion regulation within parent-child relationships and mindful parenting may be critical components of parenting programs aimed at promoting youth attachment security and mental health.

Keywords emotion regulation · mindfulness · attachment · internalizing · externalizing

Adolescence is a sensitive period for the onset of mental health problems [1], yet evidence-based interventions that address developmentally relevant risk and protective factors are lacking. In contrast to research with young children, comparatively few studies have examined the impact of parenting factors on adolescent mental health [2]. A better understanding of parenting factors that are associated with risk and resilience during adolescence can be leveraged to inform the development and provision of effective prevention and treatment programs.

Research suggests that two aspects of parenting are associated with youth mental health: parent emotion regulation [3] and mindful parenting [4, 5]. Parent emotion regulation and mindful parenting may also influence attachment security, an important protective factor associated with

youth mental health. Meta-analyses have demonstrated that attachment security is associated with lower levels of youth internalizing [6, 7] and externalizing problems [6, 8] across child age and sex. The current study examines how parent emotion regulation and mindful parenting relate to youth internalizing and externalizing problems directly and through their associations with youth attachment anxiety versus attachment avoidance in a clinical sample of children and adolescents.

Parent Emotion Regulation and Child and Adolescent Mental Health

Emotion regulation problems have been implicated in a range of psychological disorders across the lifespan and play a role in the development, maintenance, and treatment of mental health problems [3, 9, 10]. Research shows that parent emotion regulation is concurrently and prospectively related to child internalizing [11–16] and externalizing symptoms [12, 17–19]. Additionally, improvements in

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parent emotion regulation predict reductions in child internalizing and externalizing symptoms [20]. While different types of emotion regulation problems have been identified in the literature, including under- and over-controlled emotional expression (dysregulation and suppression) [21], most studies have failed to distinguish between these types of problems in terms of parent emotion regulation. Importantly, it is not clear whether different types of parent emotion regulation problems are related to different youth mental health problems [22, 23]. Furthermore, previous literature has examined emotion regulation as a dispositional parent characteristic that prevails across relationships rather than within specific types of relationships. Yet measures that tap how parents regulate their emotions within specific parent-child relationships may be more sensitive in detecting associations between parent emotion regulation, parenting practices, and youth outcomes [24].

Mindful Parenting and Child and Adolescent Mental Health

Mindful parenting is a form of interpersonal mindfulness related to caregiving that includes attentive listening, emotional awareness, self-regulation, and nonjudgmental acceptance [25, 26]. Mindful parenting has been linked to child and adolescent internalizing and externalizing problems in community and clinical samples of children [4, 5, 27–29] controlling for other predictors of youth mental health, including parent depression and anxiety [4], and with child externalizing symptoms while controlling for parent dispositional mindfulness [30]. Furthermore, a meta-analysis of 18 studies of mindfulness interventions for parents, including six randomized controlled trials, confirmed that decreased parenting stress post-treatment was related to reductions in youth internalizing and externalizing symptoms [31]. Similarly, Meppelink and colleagues found that increases in mindful parenting were associated with decreases in externalizing symptoms, but not internalizing symptoms, in children diagnosed with attention-deficit hyperactivity disorder (ADHD) or autism spectrum disorder (ASD) [32]. Taken together, this research suggests that mindful parenting is related to youth health and wellbeing, yet few studies have included adolescents, especially those with clinically significant mental health problems.

Attachment, Parent Emotion Regulation, and Mindful Parenting

Parent-child attachment, parent emotion regulation, and mindful parenting are intricately interrelated across child development. The “serve and return” of parent-child interactions and its emotional tone form the foundations of attachment representations as they are consolidated into internal working models of the self, others, and interpersonal relationships [33]. These internal representations guide expectations about the availability and responsiveness of others to respond to attachment needs, and in turn, give rise to strategies to navigate interpersonal relationships and views of self-worth [6, 34].

Increasingly, research has focused on distinguishing between two underlying dimensions of insecure attachment, namely attachment anxiety versus attachment avoidance. Attachment anxiety is characterized by hyperactivation of the attachment system, proximity seeking, vigilance regarding the availability and responsiveness of attachment figures, and a tendency to exaggerate the expression of attachment needs; in contrast, attachment avoidance is characterized by deactivation of the attachment system, avoidance of attachment figures, and suppression of emotions [35]. Recent studies have linked these two dimensions of attachment insecurity with differential activation of brain regions related to the overestimation of emotional intensity and threat, and separation information [36]. Additionally, research has observed neural networks related to the suppression of the attachment system, namely the orbital frontal cortex and inferior temporal gyrus [36]. Importantly, reductions in attachment anxiety predict decreases in internalizing symptoms, while reductions in attachment avoidance predict decreases in externalizing symptoms in clinical adolescent samples, suggesting that there may be unique relationships between types of attachment problems and clusters of mental health syndromes [37–39].

Parent emotion regulation plays an important role in shaping the nature and quality of parent-child interactions and attachment. When parents effectively regulate their emotions, they are more readily available to support their child’s emotional regulation [40–42]. Conversely, parents with emotion regulation problems struggle to respond sensitively during interactions with their children [3] and may respond with intense emotions that overwhelm their child’s capacity to regulate, or emotionally withdraw [43, 44]. Infants of mothers who struggle with emotion regulation are more likely to be classified as disorganized compared to secure in their attachment [45]. Likewise, in adolescence, parent emotion regulation problems are related to lower parental sensitivity [41, 46], a predictor of insecure attachment [47], and less closeness within the parent-teen relationship [48].

Linkages have also been drawn between mindful parenting and attachment security [26, 49–52]. However, few studies have explored this association. Medeiros and colleagues found that mindful parenting, which is lower among parents who lack attachment security themselves [53], was positively associated with child attachment security [29]. Additionally, mindful parenting interventions have been shown to increase attuned parental responsiveness [47], which is related to child attachment security [54].

Taken together, research suggests that both parent emotion regulation and mindful parenting play an important role in promoting attachment security and mental health in children. Yet while it has been shown that parents who struggle in regulating their emotions engage in less mindful parenting [55], it is unclear whether these factors are distinct or redundant in relation to youth attachment security and mental health. To date, few studies have examined the shared and unique associations between parent emotion regulation, mindful parenting, and youth attachment security and mental health, including the direct and indirect pathways amongst these variables. The current study examines these relationships. Based on the unique conceptualization of each construct, and prior research showing associations with child attachment, we anticipated that parent emotion regulation and mindful parenting would each contribute directly and indirectly to youth mental health outcomes through their associations with youth attachment security. The current study adds to prior work by investigating these associations within an adolescent sample, a developmental period which has been largely unexamined in past work and during which there is a heightened sensitivity to the caregiving environment [56, 57]. This study also adds to prior research by examining these associations within a large clinical sample of youth with significant behavioural or emotional problems.

Current Study

This study examines the direct and indirect associations between parent emotion regulation and mindful parenting, attachment anxiety and attachment avoidance, and internalizing and externalizing symptoms in a clinical sample of youth aged 8 to 18 years. We predicted that both parent emotion regulation problems (dysregulation and suppression) and low levels of mindful parenting would be directly associated with youth attachment anxiety and avoidance and with internalizing and externalizing symptoms. Further, based on prior research, we predicted that attachment anxiety would be related to internalizing problems while attachment avoidance would be related to externalizing problems. In light of past research and the theoretical relationships

between parent emotion regulation, mindful parenting, and child attachment, we also examined indirect pathways between these parenting factors and youth internalizing and externalizing problems through attachment anxiety and avoidance. Finally, based on limited research examining the pertinence of these parenting factors across age groups, and in response to calls to employ sex and gender-based analysis in health research [58], we tested for model invariance by youth age group (8 to 13 years vs. 14 to 18 years) and sex.

Methods

Participants

This study used caregiver reports on emotion regulation, mindful parenting, youth attachment, and youth internalizing and externalizing symptoms drawn from a baseline assessment protocol of a study evaluating a parenting program for caregivers of youth with serious behavioural and emotional problems (Connect; connectattachmentprograms.org/) [59]. Caregivers were referred from community mental health agencies, schools, or hospitals due to concerns about their child's mental health and behavioural functioning.

The sample was comprised of 759 parents and caregivers who ranged in age from 24 to 73 years ($M=44.06$, $SD=8.01$) and reported on youth aged 8 to 18 ($M=13.77$, $SD=2.43$; $n=373$ age 8 to 13 years, $n=386$ age 14 to 18 years, 3 cases did not report age), 54.02% ($n=410$) of whom were girls. Henceforth, *parent* refers to all caregiver types. Demographic characteristics are presented in Table 1.

Procedure

Prior to the start of the intervention, parents completed the battery of questionnaires via an online survey platform or on hardcopy. 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. All parents provided informed consent to participate. Study procedures were reviewed and approved by the research ethics board of Simon Fraser University.

Measures

Youth Internalizing and Externalizing Symptoms

The Brief Child and Family Phone Interview (BCFPI) [60, 61] is an established measure for youth psychopathology, which has good agreement with diagnoses determined

Table 1 Participant Demographic Characteristics

Variable	<i>M</i>	<i>SD</i>	Minimum	Maximum
Child age ^a	13.77	2.43	8.03	18.95
Caregiver age ^b	44.06	8.01	24.00	73.00
	Child		Caregiver	
Ethnicity	<i>n</i>	%	<i>n</i>	%
Indigenous	111	14.62	72	9.49
White	499	65.74	589	77.60
Asian	43	5.67	49	6.46
Other (e.g., multiple ethnicities)	65	8.56	32	4.22
Not reported	41	5.40	17	2.24
Child Gender	<i>n</i>	%		
Girls	410	45.85		
Boys	348	54.02		
Not reported	1	0.13		
Caregiver Type	<i>n</i>	%		
Birth mother	566	74.57		
Birth father	97	12.78		
Adoptive mother	35	4.61		
Adoptive father	9	1.19		
Foster mother	12	1.58		
Foster father	1	0.13		
Stepmother	7	0.92		
Stepfather	4	0.53		
Other ^c	28	3.69		
Caregiver Education	<i>n</i>	%		
Some or no high school	69	9.09		
Completed high school	138	18.18		
Some college or university	123	16.21		
Completed college or university	363	47.83		
Graduate degree	30	3.95		
Not reported	36	4.74		
Family Income	<i>n</i>	%		
Less than \$25,000	186	24.51		
\$25,000-\$50,000	173	22.79		
\$50,000-\$75,000	144	18.97		
More than \$75,000	223	29.38		
Not reported	33	4.35		

Note. ^a 3 (0.40%) cases did not report child age. ^b 10 (1.32%) cases did not report caregiver age. ^c Other caregiver types included grandparent, aunt, and other relative

through diagnostic interviews [62]. It includes six subscales, approximating diagnostic criteria for separation anxiety disorder, generalized anxiety disorder, major depressive disorder, ADHD, oppositional defiant disorder, and conduct disorder. Items were rated on a three-point scale ranging from 1 (*never true*) to 3 (*often true*). Internalizing symptom scores were derived by summing parent responses to items from the first three subscales and externalizing symptom scores were derived from items on the latter three subscales. Both internalizing and externalizing subscales demonstrated excellent internal consistency in this study ($\alpha=0.89$

and $\alpha=0.88$, respectively). We used t-scores based on age and gender norms. A score of 50 ($SD=10$) represents the mean in the general population.

Youth-Parent Attachment

The Adolescent Attachment Anxiety and Avoidance Inventory- Parent Report (AAAAI) [63] has two factors, which measure attachment anxiety (e.g., “My child worries about being abandoned by me”) and attachment avoidance (e.g., “My child tries to avoid getting too close to me”). Sixteen items were rated on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) and item scores were averaged to yield subscale scores. Previous research using the AAAAI has established its robust factor structure and reliability [38, 39, 63, 64]. The attachment anxiety and avoidance subscales demonstrated excellent internal consistency in this study ($\alpha=0.83$ and $\alpha=0.91$, respectively).

Parent Emotion Regulation

The Affect Regulation Checklist (ARC) [65] has 12 items and three factors measuring adaptive reflection and emotion dysregulation and suppression. The factor structure, convergent validity, and reliability of this scale have been documented previously [39, 63, 66]. We used an adapted version of the scale to assess parent emotion regulation in the specific context of the parent-child relationship. Items include “I have a hard time controlling my feelings about my child and our relationship” (dysregulation) and “I try to do other things to keep my mind off how I feel about my child and our relationship” (suppression). Response options range from 1 (*not like me*) to 5 (*a lot like me*), yielding subscale scores ranging from 4 to 20. In the current study, we focused on the dysregulation and suppression subscales which both showed high reliability ($\alpha=0.88$ and $\alpha=0.79$, respectively).

Mindful Parenting

The Interpersonal Mindfulness in Parenting Scale (IMPS) [25] has eight items rated on a five-point scale ranging from 1 (*never true*) to 5 (*always true*). The scale has demonstrated good test-retest reliability [5] and convergent [67] and divergent validity [4]. The four subscales are listening with full attention (e.g., “I find myself listening to my child with one ear because I am busy doing or thinking about something else at the same time;” reverse coded), nonjudgmental acceptance (e.g., “I listen carefully to my child’s ideas, even when I disagree with them”), self-regulation (e.g., “When I’m upset with my child, I notice how I am feeling before I take action”), and emotional awareness (e.g., “I notice how changes in my child’s mood affect my mood”). Subscale

Table 2 Means, Standard Deviations, and Correlations

	1	2	3	4	5	6	7	8	9	10
1										
2	0.27**									
3	0.36**	0.23**								
4	-0.02	0.27**	0.19**							
5	0.14**	0.27**	0.31**	0.29**						
6	0.03	0.17**	0.22**	0.30**	0.35**					
7	-0.07	-0.11**	-0.29**	-0.13**	-0.26**	-0.19**				
8	0.02	-0.16**	-0.19**	-0.29**	-0.32**	-0.24**	0.42**			
9	0.13**	-0.07	-0.13**	-0.20**	-0.34**	-0.19**	0.29**	0.46**		
10	0.18**	0.14**	0.11**	0.01	0.17**	0.01	-0.14**	0.08*	0.06	
Mean	67.86	72.17	3.31	3.29	9.95	7.64	6.66	7.62	6.16	7.53
SD	14.30	13.05	1.27	1.32	4.07	3.29	1.50	1.42	1.47	1.23
Min	36.42	35.39	1.00	1.00	4.00	4.00	2.00	3.00	2.00	2.00
Max	108.44	109.12	7.00	6.89	20.00	20.00	10.00	10.00	10.00	10.00

Note. 1 = internalizing symptoms, 2 = externalizing symptoms, 3 = attachment anxiety, 4 = attachment avoidance, 5 = dysregulation, 6 = suppression, 7 = listening with full attention, 8 = nonjudgmental acceptance, 9 = self-regulation, 10 = emotional awareness. * $p < .05$, ** $p < .01$. Correlation ns range from 724 to 748

scores were computed by summing item scores and ranged from 2 to 10. The internal consistency reliability of the subscales was as follows: .66 for listening with full attention, .69 for nonjudgmental acceptance, .63 for self-regulation, and .37 for emotional awareness.

Analytic Procedure

Data were screened for collinearity by examining the variance inflation factor of each variable. Little's missing completely at random test (MCAR) [68] was used to examine whether data were missing at random, and full-information maximum likelihood (FIML) [69] estimation was used to estimate missing data. We used observed scores for measures of all scale scores (parent emotion dysregulation and suppression; youth attachment anxiety and attachment avoidance; internalizing and externalizing symptoms) and a latent variable for mindful parenting composed of the four subscales of the IMPS [25]. Using MPlus, Version 8.3 [70], we conducted a confirmatory factor analysis of the IMPS to validate the factor structure in our sample. Then we examined direct and indirect effects to test study predictions. We anticipated that attachment anxiety and avoidance, and internalizing and externalizing symptoms would covary, so this covariance was specified in the model. Model fit was assessed with chi-square (χ^2), comparative fit index (CFI), Tucker-Lewis Index (TLI), root-mean-square error of approximation (RMSEA), and standardized root-mean-square residual (RMSR) [71]. We tested for invariance across age groups and girls and boys using chi-square difference tests comparing models in which relationships between the variables of interest were constrained to be

equal or allowed to vary across groups. We used Wald's tests to identify which of the estimates differed across groups.

Results

Means, standard deviations, and bivariate correlations are reported in Table 2. The variance inflation factor of each variable in the model was less than 10, suggesting none of the variables in the model were redundant [71]. Data were missing for less than 5% of all cases for each primary variable. The probability of missing item responses was uncorrelated with the variables in the model ($\chi^2(127) = 149.884$, $p = .081$), and the other assumptions underlying maximum likelihood estimation were met, so FIML was used to estimate missing data.

Confirmatory factor analysis for the IMPS showed acceptable model fit ($\chi^2(14) = 39.94$, $p < .001$; RMSEA = 0.050; SRMR = 0.032; CFI = 0.976, TLI = 0.952), with items loaded onto the expected subscales. However, when we examined mindful parenting as a latent variable with the four subscales as indicators, three of the four subscales – listening with full attention, nonjudgmental acceptance, and self-regulation – but not the emotional awareness subscale had significant factor loadings. Further examination indicated that the emotional awareness subscale was not consistently associated with the other mindful parenting subscales in this sample as it was negatively correlated with listening with full attention, but positively correlated with nonjudgmental acceptance, and uncorrelated with self-regulation. Because of the poor internal consistency between the two emotional awareness items, inconsistent relationships with other indicators, and nonsignificant factor loading, the construct

Table 3 Model Estimates, Full Sample

Path	β	SE	<i>p</i>
Mindful parenting → LFA	0.535	0.035	<0.001
Mindful parenting → NJ	0.735	0.032	<0.001
Mindful parenting → SR	0.621	0.033	<0.001
Mindful parenting → attachment anxiety	-0.170	0.051	0.001
Dysregulation → attachment anxiety	0.192	0.042	<0.001
Suppression → attachment anxiety	0.095	0.039	0.014
Mindful parenting → attachment avoidance	-0.230	0.049	<0.001
Dysregulation → attachment avoidance	0.119	0.041	0.004
Suppression → attachment avoidance	0.185	0.037	<0.001
Mindful parenting → internalizing symptoms	0.206	0.054	<0.001
Dysregulation → internalizing symptoms	0.134	0.043	0.002
Suppression → internalizing symptoms	-0.016	0.038	0.681
Attachment anxiety → internalizing symptoms	0.395	0.034	<0.001
Attachment avoidance → internalizing symptoms	-0.065	0.038	0.092
Mindful parenting → externalizing symptoms	-0.002	0.054	0.965
Dysregulation → externalizing symptoms	0.171	0.042	<0.001
Suppression → externalizing symptoms	0.027	0.039	0.482
Attachment anxiety → externalizing symptoms	0.127	0.037	0.001
Attachment avoidance → externalizing symptoms	0.186	0.038	<0.001
Covariances			
Dysregulation with mindful parenting	-0.476	0.037	<0.001
Suppression with mindful parenting	-0.322	0.041	<0.001
Suppression with dysregulation	0.346	0.032	<0.001
Attachment anxiety with attachment avoidance	0.052	0.037	0.167
Internalizing symptoms with externalizing symptoms	0.244	0.035	<0.001

Note. Estimates are standardized. LFA = listening with full attention; NJ = nonjudgmental acceptance; SR = self-regulation.

validity of this factor in this sample is questionable, so we omitted this subscale from the IMPS latent variable in subsequent analyses.

Descriptive Analyses

Consistent with prior research, parent emotion dysregulation was positively correlated with youth internalizing and externalizing symptoms. Extending prior work, we also found that suppression was positively correlated with externalizing symptoms. Examining the indicators of mindful parenting, listening with full attention and nonjudgmental acceptance were negatively correlated with externalizing symptoms, but in contrast with the hypotheses, parent self-regulation was positively correlated with internalizing symptoms. Parent emotion dysregulation and suppression

were positively correlated with youth attachment anxiety and avoidance and each indicator of mindful parenting was negatively correlated with attachment anxiety and avoidance. Finally, attachment anxiety was positively correlated with internalizing and externalizing symptoms, but attachment avoidance was only positively correlated with externalizing symptoms.

Path Analyses

Direct Paths

Model results are depicted in Table 3; Fig. 1. Model fit indices were $\chi^2(12)=65.578$, $p<.001$; RMSEA=0.077; RMSR=0.032; CFI=0.946; and TLI=0.844. As predicted and consistent with prior research, parent emotion dysregulation was significantly associated with youth internalizing and externalizing symptoms. Despite the significant correlations between parent emotion suppression and youth externalizing symptoms noted above, the direct paths between suppression and internalizing and externalizing symptoms were not significant in the full model. Surprisingly, the association between mindful parenting and internalizing symptoms was in the opposite direction of our hypothesis. Although two indicators of mindful parenting – listening with full attention and nonjudgmental acceptance – were negatively correlated with externalizing symptoms, the direct effect of mindful parenting on externalizing symptoms was not significant. As expected, emotion dysregulation and suppression were associated with greater attachment anxiety and avoidance, and mindful parenting was associated with lower attachment anxiety and avoidance.

Indirect Paths

As predicted, parent emotion dysregulation was indirectly related to internalizing symptoms through attachment anxiety ($\beta=0.076$, $SE=0.018$, $p<.001$), and it was indirectly related to externalizing symptoms through both attachment anxiety ($\beta=0.024$, $SE=0.009$, $p=.006$) and attachment avoidance ($\beta=0.022$, $SE=0.009$, $p=.006$). Similarly, emotion suppression was indirectly associated with internalizing symptoms through attachment anxiety ($\beta=0.038$, $SE=0.016$, $p=.016$) and it was indirectly associated with externalizing symptoms through both attachment anxiety ($\beta=0.012$, $SE=0.006$, $p=.047$) and attachment avoidance ($\beta=0.034$, $SE=0.010$, $p<.001$). Mindful parenting was associated with lower internalizing symptoms through attachment anxiety ($\beta=-0.067$, $SE=0.022$, $p=.002$) and with lower externalizing symptoms through both attachment anxiety ($\beta=-0.022$,

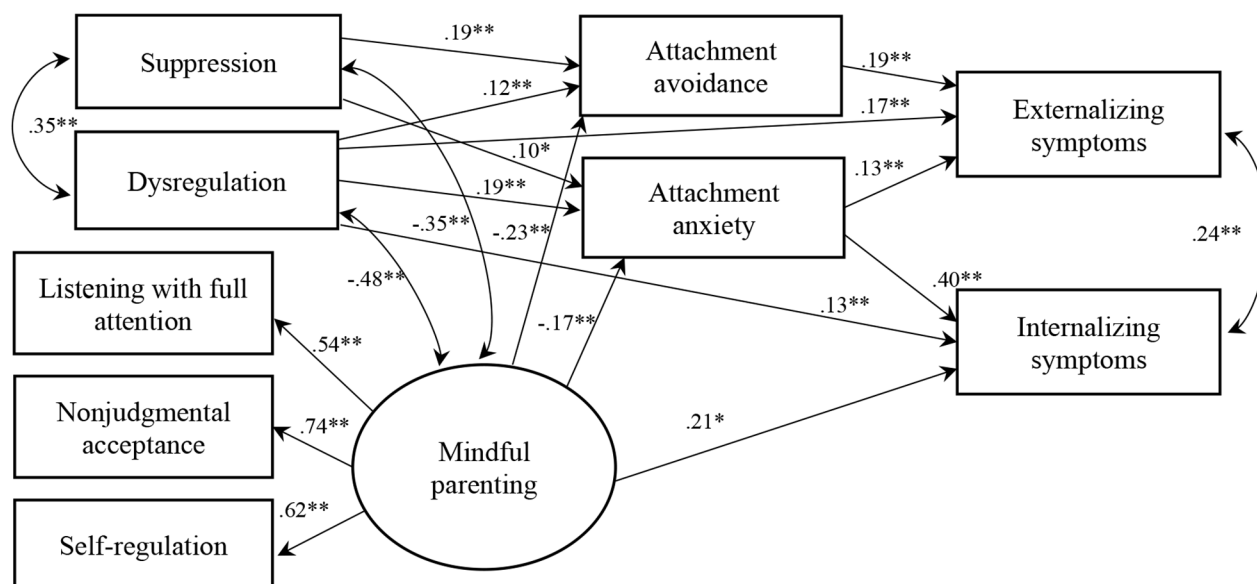


Fig. 1 Direct Effects in Full Sample. (Note. Only significant paths are shown. Curved double-headed arrows indicate covariances. Covariance between attachment avoidance and attachment anxiety was not significant. Estimates are standardized. $N = 759$. * $p < .05$, ** $p < .01$.)

$SE = 0.009$, $p = .018$) and attachment avoidance ($\beta = -0.043$, $SE = 0.013$, $p = .001$).

Sex Differences

Descriptive Analyses

Boys had lower internalizing (mean difference = 4.41; 95% CI [2.38, 6.44]) and externalizing symptom t-scores (mean difference = 3.59; 95% CI [1.74, 5.45]), and lower attachment anxiety (mean difference = 0.19; 95% CI [0.01, 0.38]) relative to girls. Mean scores did not differ on other measures. Bivariate correlations by sex are presented in Table S1 in Supplemental Materials.

Path Analyses

The model results are displayed by sex in Table S2. The chi-square difference test on the models with and without the relationships between variables constrained to be equal across groups was nonsignificant ($\chi^2(21) = 23.037$, $p = .246$), indicating that model fit was not significantly different when parameters were constrained to be equal for girls and boys.

Age Differences

Descriptive Analyses

Youth aged 14 to 18 years had higher externalizing (mean difference = 3.16; 95% CI [1.29, 5.03]) symptom t-scores, and higher attachment avoidance (mean difference = 0.53, 95% CI [0.34, 0.72]) relative to children aged 8 to 13 years. Parents of youth aged 14 to 18 reported more emotion dysregulation (mean difference = 0.92, 95% CI [0.34, 1.50]), more emotional suppression (mean difference = 0.80, 95% CI [0.32, 1.27]), more listening with full attention (mean difference = 0.23, 95% CI [0.01, 0.44]), and less nonjudgmental acceptance (mean difference = 0.26, 95% CI [0.05, 0.46]) compared to parents of youth aged 8 to 13 years. Means did not significantly differ on other variables. Bivariate correlations are presented by age group in Table S3.

Path Analyses

Model results are displayed by age in Table S4. The chi-square difference test on the models with and without the relationships between variables constrained to be equal across age groups indicated that model estimates significantly differed for those aged 8 to 13 years compared to those aged 14 to 18 years ($\chi^2(21) = 39.983$, $p = .007$). When we compared each of the parameters using Wald's test to identify which of the estimates differed across groups, we found few differences emerged in the associations across variables of key interest to this study. Specifically,

the covariance between attachment anxiety and attachment avoidance differed (Wald's $\chi^2(1) = 8.529, p = .004$), such that there was significant covariance between attachment anxiety and attachment avoidance in the those under 14 years ($\beta = 0.182, SE = 0.051, p < .001$), but not amongst those aged 14 and older ($\beta = -0.040, SE = 0.053, p = .452$). There was also a significant difference in the strength of the covariance between internalizing and externalizing symptoms across groups (Wald's $\chi^2(1) = 11.870, p = .001$; under 14 $\beta = 0.366, SE = 0.046, p < .001$; 14 and older $\beta = 0.103, SE = 0.053, p = .051$). Finally, the association between suppression and internalizing symptoms also differed across groups (Wald's $\chi^2(1) = 4.052, p = .044$), although this relationship was not statistically significant in either age group (under 14: $\beta = -0.089, SE = 0.052, p = .086$; 14 and older: $\beta = 0.056, SE = 0.055, p = .300$). Wald tests revealed no other significant differences.

Discussion

This study examined the relationships between parent emotion dysregulation and suppression, mindful parenting, youth attachment, and youth mental health. Our measure of parent emotion regulation was adapted from the original ARC to provide a proximal indicator of emotion regulation specific to the parent-child relationship as compared to assessments of general emotion regulation strategies used in much of the previous literature [11, 14, 22, 72–75]. Consistent with prior research, problems in parent emotion regulation were associated with mental health problems in their children. More specifically, dysregulation was associated with greater internalizing symptoms directly and through attachment anxiety, and it was associated with greater externalizing symptoms directly and through attachment anxiety and avoidance. Suppression was associated with internalizing symptoms through attachment anxiety, and it was associated with externalizing symptoms through attachment anxiety and avoidance. In other words, children of parents who showed more emotional volatility in their interactions, or suppressed their emotions, worried more about their parent's availability to provide emotional support and avoided expressing their needs for parental support. Youth who worried more about their parent's availability to provide emotional support experienced more depressed mood and anxiety and demonstrated more problematic and disruptive behaviour. Youth who were reluctant to express their needs for parental support were more likely to demonstrate problematic and disruptive behaviours. These effects were consistent across sex and developmental phase. These results suggest that parent emotion dysregulation and suppression during interactions with their children have widespread

and cascading implications throughout preadolescence and adolescence.

The current findings add to the literature by demonstrating distinct relationships between specific types of parental emotion regulation problems with youth attachment anxiety versus avoidance and internalizing versus externalizing symptoms. These results build on past research linking parent emotion dysregulation and child mental health [3, 11, 44], but more importantly, add to the growing research on the impact of parent emotion suppression. Emotion suppression in parents of infants [74] and young children [20, 72] has been associated with poor parental reflective functioning and unsupportive responses to children's expressions of negative emotions (i.e., minimizing, punitive, or distressed responses), but these studies did not examine child attachment. Zimmer-Gembeck and colleagues found no relationship between changes in parent emotion suppression and child externalizing symptoms [20]. Our findings may differ because we specifically assessed parent emotion regulation within the specific context of the parent-child relationship. Rodriguez and Shaffer's recent findings provide support for this view: although general and parenting-specific emotion regulation were related, emotion regulation in parenting was more strongly related to parenting behaviours than general emotion regulation [24]. It is also possible that our findings differ because our study examined suppression and externalizing symptoms amongst older children and adolescents.

Consistent with prior research on mindful parenting [55], parent emotion dysregulation and suppression in parent-youth interactions were both associated with less mindful parenting. Also consistent with theoretical models put forward by Duncan et al. [26] and others [51, 52], and findings in typically developing youth [29], mindful parenting was associated with less attachment anxiety and avoidance, even when we controlled for parent emotion regulation. While mindful parenting was associated with lower levels of externalizing symptoms as hypothesized, and as previously documented [5, 27, 28, 32], this direct effect was not significant when we controlled for parent emotion regulation and youth attachment. However, results confirmed the prediction that mindful parenting is indirectly associated with lower internalizing and externalizing symptoms through attachment anxiety and avoidance. Together these findings confirm that parent emotion regulation and mindful parenting contribute directly or indirectly, through attachment, to youth mental health.

In contrast with past research [4, 5, 28], we found that one dimension of mindful parenting – self-regulation – was associated with higher rather than lower youth internalizing symptoms. It is possible that in youth experiencing depression or anxiety, parent self-control might be experienced as dismissiveness or rejection, exacerbating their feelings of

distress [34]. Alternatively, parents of youth higher in anxiety or depression may attempt to contain or conceal their reactions to their child for fear of exacerbating an already difficult situation [76, 77]. Another unexpected finding in contrast to previous studies using the IMPS [25, 67] was that emotional awareness did not align with other subscales as an indicator of mindful parenting. These items may tap different underlying constructs in typically developing versus clinical populations. Additional research comparing typically developing youth to those with clinically significant mental health problems would provide more insight into these possibilities.

Strengths and Limitations

The current study has several strengths. First, we adapted an established measure to specifically assess parent emotion regulation within their relationships with their child, providing a more relationally contextualized evaluation than prior studies that have typically employed measures which are not tailored to specific relationships. We also examined how specific types of parent emotion regulation problems (dysregulation and suppression) relate to specific dimensions of youth attachment (anxiety and avoidance) and specific types of youth mental health problems (internalizing and externalizing symptoms). Further, we examined the unique and shared relationships between parent emotion regulation and mindful parenting and their direct and indirect effects on youth outcomes. Together these aspects of the current study add a more precise and fine-grained analysis of how parent emotion regulation and mindful parenting are associated with youth attachment and mental health.

Importantly, while much of prior research has focused on parent emotion regulation in younger children [12, 18, 20], we focused on the association of parent emotion regulation and mindful parenting in relation to attachment and mental health in youth aged 8 to 18 years. Research focusing on parenting and youth mental health is much needed given the increasing recognition of the prevalence of serious mental health disorders in this developmental period and their negative health impacts in adulthood, coupled with an increasing understanding of adolescence as a developmental period that is particularly sensitive to the caregiving environment [56, 57]. Finally, past research on these parenting factors has primarily focused on typically developing youth [3, 11] often drawn from community samples [27, 28]. Those which have included clinical samples have focused on select populations, for example, youth diagnosed with ADHD or ASD [32]. In the current study, we recruited a large sample of parents of youth with serious emotional and behavioural problems, allowing us to examine the relationships between

parent emotion regulation, mindful parenting, attachment, and the two major dimensions of youth mental health problems (i.e., internalizing and externalizing problems). The advantage of our large sample size is that it allowed us to explore the relationships amongst these variables simultaneously in a single path model.

These strengths notwithstanding, this study was not longitudinal, which precludes causal conclusions about the direction of effects. Parent-child relationships are dynamic and mutually influential, and thus child mental health problems may also tax parents' emotional resources or elicit changes in how parents relate to their children [78, 79]. Future work involving longitudinal designs and treatment trials could shed light on the causal and transactional relationships amongst the variables measured in this study. Our exclusive reliance on parent report data is another notable limitation. Much of the literature on parent emotion regulation [12, 13, 15, 16, 18, 20] and mindful parenting [5, 27, 28, 32] relies on parent reports of youth symptoms, although the links between youth symptoms and parent emotion regulation [11, 14, 17, 19] and mindful parenting [4, 29] have been documented in studies using youth self-report. Further research is needed on how the present findings correspond with findings based on youth reports. Although our use of a clinical sample increases the generalizability to clinical populations, our results may not generalize to typically developing adolescents or across cultural contexts.

Summary

This study highlights parent emotion regulation and mindful parenting as promising clinical targets related to youth internalizing and externalizing problems. In addition, our findings suggest that these parenting factors are related to the quality of parent-youth attachment. Interventions that strengthen parents' abilities to regulate their emotions in their relationship with their children, and encourage mindful parenting, may promote youth attachment security, increasing resilience and reducing the risk for mental health problems. Future research exploring the degree to which emotionally focused interventions are successful in reducing parental emotion regulation difficulties and increasing mindful parenting, and how these reductions are associated with improvements in child attachment security and psychopathology, would provide additional support for this inference.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10578-022-01446-0>.

Funding This study was funded by the Canadian Institutes of Health

Research (CIHR; Team Grant 251560). Dr. Marlene Moretti is Canada Research Chair (Tier 1) in Youth Clinical Psychological Science. Julia Vernon is funded by a CIHR Doctoral Research Award.

Disclosure

Conflict of Interest The authors have no conflicts of interest to declare.

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