

# Maternal emotion coaching, adolescent anger regulation, and siblings' externalizing symptoms

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**Background:** Increases in externalizing behaviors during the transition to adolescence may put children at risk for developing mental disorders and related problems. Although children's ability to regulate their emotions appears to be a key factor influencing risk for maladjustment, emotion processes during adolescence remain understudied. In this longitudinal study, we examined a multi-level mediational model in which emotion coaching by parents was posited to influence the ability of adolescents to regulate their emotions, which in turn influences their expression of problem behaviors. **Methods:** We recruited a representative community sample of 244 families with biological sibling pairs comprising a child in late elementary school and a child in middle school. Maternal meta-emotion interviews were coded for mother emotion coaching and adolescent difficulty with anger. Mothers also completed questionnaires on adolescent irritability. Ratings of adolescent problem behaviors were obtained from mother and teacher questionnaires completed at two time points. Using structural equation modeling, constructs were partitioned into components across older and younger siblings to examine shared and nonshared variance and contextual effects. **Results:** Cross-sectional data indicated that mothers' emotion coaching of anger was related to better anger regulation in adolescent siblings, which was, in turn related to less externalizing behavior. Although support for mediational effects was limited in the longitudinal data, both older and younger siblings' difficulties in regulating anger predicted adolescent externalizing behavior three years later. Additional longitudinal predictors of externalizing behavior were observed for younger siblings. In particular, emotion coaching of anger by mothers was associated with decreased externalizing behavior, while conversely, older siblings' externalizing behavior was associated with increased externalizing behavior in the younger siblings over time. **Conclusions:** The findings highlight the importance of considering family emotion processes in understanding adolescent problem behavior. Both maternal emotion coaching of adolescent anger and adolescent difficulty in regulating anger influenced adolescent externalizing behavior. Emotion coaching interventions seem worthy of consideration for enhancing the impact of prevention and intervention programs targeting youth externalizing behaviors. **Keywords:** Parenting, anger, emotion regulation, adolescence, externalizing problem behavior, siblings.

Adolescence is a time of increased risk for externalizing behaviors and related disorders (Steinberg, 2004). Externalizing behaviors include academic failure, school dropout, substance use, and delinquent peer affiliation (e.g., Dishion, Nelson, & Bullock, 2004; Eccles et al., 1993; Petersen, Leffert, Graham, Alwin, & Ding, 1997). For a subset of youth, these behaviors lead to the genesis of serious clinical disorders, such as conduct disorder (Offord, Adler, & Boyle, 1986). Moreover, for many adolescents, negative behavioral patterns evident during adolescence continue into adulthood (Shortt, Capaldi, Dishion, Bank, & Owen, 2003), with serious ramifications for later adjustment (Lipsey & Derzon, 1998). It is likely that the numerous biological, social, and cognitive changes experienced during adolescence (Steinberg, 2008), along with the associated increases in negative affect which occur

during this developmental period (Larson & Sheeber, 2008), contribute to these difficulties.

A significant body of research has examined factors that render some children particularly likely to demonstrate externalizing behaviors (e.g., Reid, Patterson, & Snyder, 2002). In particular, studies with both community and clinical samples have repeatedly documented the association between adverse family contexts, problematic social interactional processes, and externalizing behaviors and disorders during childhood and adolescence (e.g., Burke, Pardini, & Loeber, 2008; Reid et al., 2002). Moreover, attention has been directed increasingly on the role that children's and adolescent's ability to regulate their own emotions plays in the development of these difficulties (e.g., Chaplin & Cole, 2005; Cicchetti, Ackerman, & Izard, 1995). Indeed it appears that family processes, particularly those that relate to emotion socialization, may operate to promote or hamper the development of the emotion regulatory abilities necessary for long-term healthy

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adjustment (e.g., Morris, Silk, Steinberg, Myers, & Robinson, 2007).

In this study, we examined the associations between positive maternal socialization behavior, adolescents' ability to regulate anger, and adolescents' externalizing behavior. We focused, in particular, on maternal emotion coaching, a socialization process wherein parents provide guidance in understanding and coping with emotions. Coaching behaviors that are respectful of the adolescents' emotional experience include responses such as offering comfort, providing guidance about the nature of emotions and appropriate ways to express them, setting behavioral limits, and discussing goals and strategies for coping with emotionally arousing situations (Gottman, Katz, & Hooven, 1997).

Though prior work has primarily focused on younger children (e.g., Eisenberg, Cumberland, & Spinrad, 1998), more recent studies suggest that parents' emotion-socialization behavior continues to be important during adolescence. For example, punishing and neglectful responses by parents in response to adolescent affect have been shown to be associated with adolescent behavioral problems (Klimes-Dougan et al., 2007), and further, parental negative expressiveness is associated with higher levels of adolescent externalizing symptoms (Stocker, Richmond, Rhoades, & Kiang, 2007). Conversely, maternal emotion coaching is associated with less aversive parent-adolescent interactions (Katz & Hunter, 2007).

Emerging evidence suggests that the association between parental socialization behavior and externalizing problems may be mediated by difficulties in child and adolescent emotion regulation. Valiente and colleagues (2007) reported that school-aged children whose parents responded more supportively to their negative emotions demonstrated both better effortful control and less externalizing behavior. In one of the few longitudinal studies available, maternal positive expressivity, assessed when the child was 9 years old, was associated with better child effortful control at age 11, which in turn predicted fewer externalizing problems at age 13, controlling for stability effects (Eisenberg et al., 2003).

Finally, evidence suggests that externalizing behaviors are associated with deficits in the regulation of anger. For example, the tendency to display angry affect has been found to predict externalizing behavior in young children over time (Rydell, Berlin, & Bohlin, 2003). Notably, this propensity toward anger has also been associated with externalizing behavior in adolescent boys (Keltner, Moffitt, & Stouthamer-Loeber, 1995). These findings are consistent with theorizing that specific emotions co-occur with types of child psychopathology (e.g., Muris & Ollendick, 2005; Rothbart & Bates, 1998) and may involve different neurological motivational systems (Fowles, 1987; Gray, 1994).

Unfortunately, there are relatively few studies of emotional processes, as they relate to either problem behavior or family functioning, during the adolescent period (Morris et al., 2007). This is notable because the confluence of biological and social changes makes adolescence a period of increased vulnerability. In particular, increased emotionality and independence that characterize adolescence, combined with the still developing neural regulatory structures, account in part for the increases in externalizing behavior that emerge at this juncture (Steinberg, 2008). However, a better understanding of the role parents play in adolescent emotional development could render this developmental period one of increased opportunity for adolescents to learn effective emotion regulation strategies as well. Though adolescents have increased competencies to regulate their own emotions (Cole & Kaslow, 1988), they are not yet independent in this regard. Hence, the nature of parental responses to adolescent affect, and in particular, parental ability to scaffold the developing regulatory skills of their adolescent children, may be an important predictor of adolescent externalizing behavior.

### Present study

The purpose of the study was to examine the hypothesis that maternal emotion coaching would be associated with better anger regulation on the part of the adolescent, which in turn would be associated with lower levels of adolescent externalizing behaviors, both concurrently and over time. We focused on variability in levels of externalizing behavior, rather than on diagnostic categories because a substantial body of research suggests that externalizing behaviors exist, and are best considered, on a continuum (e.g., McMahon & Forehand, 1988; Murrie et al., 2007; Reid et al., 2002). Moreover, associations between family processes and externalizing behavior appear to be similar in clinical and community samples (e.g., Hinshaw, 2002). As such, we recruited a community sample of adolescents, rather than a clinical sample, in order to provide a wide distribution in each of the constructs of interest. As shown in Figure 1, the proximal predictor of externalizing behavior was difficulty regulating anger, an aspect of emotional functioning which maps onto the externalizing dimension of psychopathology. The distal predictor was maternal emotion coaching of adolescents' anger. We hypothesized that the association



**Figure 1** Conceptual model

between maternal emotion coaching and adolescent externalizing behavior would be mediated by adolescent anger regulation.

This study has a number of methodological strengths. First, data on externalizing behavior were collected at two time points, enabling us to examine the association of predictor variables both concurrently and prospectively, and provided by teachers as well as mothers, yielding a valuable source of independent information. Second, the use of a sibling design facilitated the differentiation of shared from nonshared family influences (e.g., Reiss, 1993). The family environment comprises a number of social interactional micro-systems (e.g., Dunn & McGuire, 1994) such that the nature of parenting that children experience may differ considerably within the same family. Nonetheless, the vast majority of studies involve only one child per family (Plomin, Asbury, & Dunn, 2001), and as such, underestimate the complexity of family processes. To the extent that nonshared influences predominate in child and adolescent development, it would suggest that within-family processes and differential experiences specific to each child will have implications for future work on emotion socialization (e.g., Reiss, Neiderhiser, Hetherington, & Plomin, 2000).

## Methods

### Sample

Participants were 244 mothers and sibling pairs from families with same-sex biological siblings (122 brothers). Three collaborating school districts from a moderately sized metropolitan area used their enrollment databases to identify families with: (a) a child in middle school, (b) a same-sex sibling in elementary school, and (c) a mother residing in the home. After an initial letter from the school, families were removed from the sampling pool if they informed the school that they did not want to be contacted by study staff. Remaining families received a letter and phone call from study staff, which was followed by a home recruitment visit for interested families. Of the 448 families whose names were provided by the school districts, 1% could not be contacted and 18% were not eligible (e.g., siblings did not share two biological parents). Of the 364 eligible families, 67% chose to participate and completed the assessment at Time 1 (T1). Informed consent was obtained at the time of the home recruitment visit. At Time 2 (T2), approximately 3 years after the initial assessment, 215 families (111 brothers) participated, yielding a retention rate of 88% (4% could not be contacted and 8% declined to participate). None of the variables measured in the study significantly predicted attrition at T2.

### Demographics

At T1, older siblings were 13.33 years old ( $SD = .45$ ) and younger siblings were 10.87 years old ( $SD = .59$ ). Mothers reported that 7% of the adolescents were of Hispanic ethnicity, 83% were Euro-American, 16% were

of mixed race, and less than 1% each were Native American or Asian American/Pacific Islander. These percentages reflect that of the community from which the sample was recruited, the majority of siblings (74%) lived with both parents. Regarding education, 21% of the mothers had attained a high school education or less, 58% had attended at least some college, and 21% had received graduate-level training. Approximately 19% of families were receiving some form of public assistance (e.g., food stamps; unemployment insurance).

### Procedures

Families participated in lab visits at both T1 and T2. T1 data collection relevant to this report included videotaped interviews with mothers and mother-report measures of adolescent irritability (Early Adolescent Temperament Questionnaire (EATQ); Capaldi & Rothbart, 1992) and adolescent externalizing behavior (Child Behavior Checklist (CBCL); Achenbach & Rescorla, 2001). The CBCL was repeated at T2. Each measure was completed for older and younger siblings. Each adolescent's teacher also provided reports on the Teacher Report Form of the CBCL at both time points.

### Meta-Emotion Interview

The Parent Meta-Emotion Interview (MEI; Katz & Gottman, 1986) was administered at T1. It is a semi-structured interview comprising a series of open-ended questions about parents' thoughts and feelings regarding their own and their adolescents' emotional experiences (e.g., what is it like for you when your adolescent is angry?). Interviews with the parents were video-recorded for coding by trained research assistants using an adaptation (Smith, Thomas, & Nderland, 2002) of the Meta-Emotion Coding System (Hooven, Katz, & Mittman, 1996). In addition to the micro-analytic coding, both interviewers and coders provided macro global ratings of parent socialization behavior and adolescent emotion regulation. Coded data as well as the interviewer and coder global ratings were used to derive latent measures of both mothers' coaching of adolescent anger, and adolescent difficulty regulating anger as described below. Inter-rater reliability, computed on 15% of the data, ranged from  $r = .71$  to  $r = .75$  for the coded interviews and  $r = .50$  to  $r = .66$  for the global ratings.

### Constructs

*Mother coaching of adolescent's anger.* Two indicators – a coder indicator tapping coded items and coder ratings, and an interviewer indicator tapping interviewer ratings, composed a latent Emotion Coaching construct. The coder indicator was the average of two measured variables: 1) the mean ratings on micro-coded MEI items forming an Emotion Coaching Scale (e.g., when adolescent is upset, mother talks about situation and emotion), and 2) the mean of four global ratings of emotion coaching (e.g., mother's remediation technique for adolescent's anger is to approach). The Emotion Coaching Scale was formed by applying a principal components analysis to coded

items tapping both acceptance and coaching of adolescent's anger. This analysis resulted in a single 11-item factor that accounted for 41% of the variance for older siblings and 46% for younger siblings which had alphas of .85 and .87 for older and younger siblings respectively. The scale based on the global coder ratings had alphas of .80 for older siblings and .77 for younger siblings. The interviewer indicator was the mean of two interviewer global ratings (i.e., mother talked about responding to adolescent's anger in appropriate and positive ways; mother talked about adolescent going to mother about anger to talk, to get comfort, etc.).

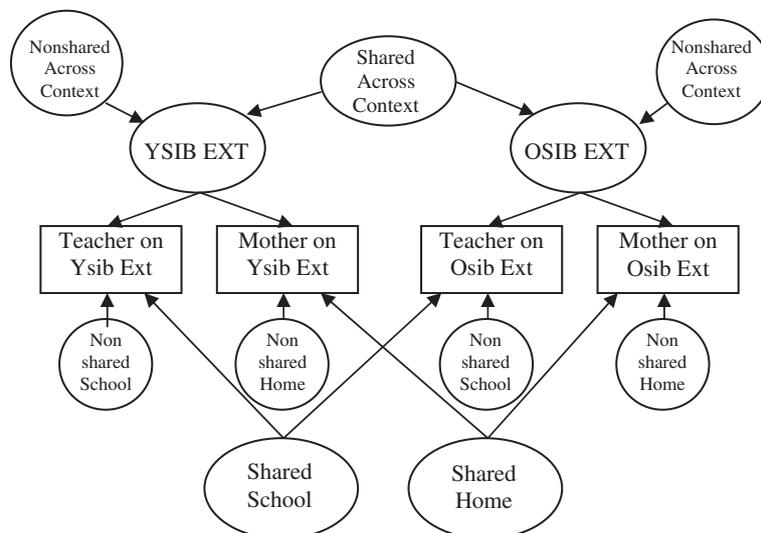
**Adolescent's difficulty regulating anger.** Two indicators were used to compose a latent construct reflecting adolescent Anger Regulation. The first indicator, 'anger difficulty', was computed as the mean of three measured variables: 1) the mean of coded MEI items forming an Anger Regulation Scale (e.g., mother is concerned about adolescent's experience and expression of anger), 2) a single MEI coder global rating (i.e., adolescent has difficulty regulating anger), and 3) the mean of two interviewer global ratings (i.e., mother talked about adolescent having difficulty managing anger; mother talked about adolescent having difficulty getting over feeling anger). The Anger Regulation Scale was formed by applying a principal components analysis to coded items tapping anger regulation. This analysis resulted in a single 7-item factor that accounted for approximately 55% of the variance for older siblings and 54% for younger siblings, with internal consistencies of approximately  $\alpha = .86$  in both groups. The second indicator called 'irritability' was assessed by the EATQ irritability scale (e.g., adolescent gets very frustrated when making a mistake in school-work). The internal consistency of the 8-item irritability scale was .73 and .76 for older and younger siblings respectively.

**Adolescent's externalizing problem behavior at T1 and T2.** Mother and teacher reports on the broadband externalizing scale of the CBCL (comprised of rule-breaking and aggressive behavior scales) were

included as indicators of a latent construct labeled Externalizing. Internal consistency for the scales across time, siblings, and reporters ranged from .64 to .94. Scores were square root transformed for the modeling analyses.

**Statistical methods**

Modeling analyses were conducted to determine the effects of the distal predictor (Emotion Coaching) on the mediator (Anger Regulation), and in turn, the effects of the mediator (Anger Regulation) on the outcome (Externalizing; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; MacKinnon, 2008). Gender was included as a control variable. All structural equation models were estimated using full information maximum likelihood and included participants with partial data. Missing data were assumed to be missing at random conditional on covariates included in the model, the so-called MAR assumption. MAR implies that variables included in the model can predict attrition, but that there are no other omitted predictors of both missingness and outcome variables. Model-based likelihood methods that assume MAR are the recommended standard (Schafer & Graham, 2002) because the older alternative methods (complete case analysis or listwise deletion), based on an even more unrealistic assumption of missing completely at random, tend to perform worse in terms of bias and power. Estimation was carried out using Mplus (Muthén & Muthén, 2006). Missingness by variable ranged from 0% to 18% and was highest for the teacher-report measure at T2. On a pairwise basis (i.e., covariance coverage) the highest amount of missingness was 20%. Each construct was partitioned across older and younger siblings and by source in order to examine shared versus nonshared and contextual effects. The decomposition for Externalizing is shown in Figure 2. The inclusion of both mother- and teacher-report indices on older and younger siblings allows partitioning of variance into that which is: 1) shared across siblings and common across context (home versus school), 2) nonshared for siblings and common across context, 3) shared across



**Figure 2** Decomposition of adolescent externalizing behavior

**Table 1** Means and standard deviations of constructs by sibling status

	Older sibling	Younger sibling
Emotion Coaching construct scores	3.51 (.66)	3.53 (.66)
Anger Regulation construct scores	2.87 (.70)	2.96 (.75)
T1 Externalizing construct scores	4.63 (5.10)	4.28 (5.18)
T-scores, mother report	49.24 (9.90)	49.11 (9.93)
T-scores, teacher report	49.38 (8.03)	49.38 (8.60)
T2 Externalizing construct scores	4.71 (5.47)	5.24 (5.81)
T-scores, mother report	50.35 (9.93)	49.67 (9.99)
T-scores, teacher report	48.16 (6.86)	49.37 (8.13)

siblings but unique to context, and 4) nonshared for siblings and unique to context. Means and standard deviations for each construct are provided in Table 1 and correlations between constructs are provided in Table 2.

**Results**

*Overall model fit*

The overall structural model included both cross-sectional and longitudinal components in order to examine the relations between maternal emotion coaching, adolescent anger regulation, and adolescent externalizing behavior both within and across time. In addition to hypothesized associations, five additional parameters were added to improve model fit, resulting in a model that fit the data well ( $\chi^2 = 152.27$ ,  $df = 151$ ,  $p = .456$ ,  $CFI$  (Bentler, 1990) = .999,  $TLI$  (Bentler & Bonnet, 1980) = .999,  $RMSEA$  (Steiger, 1990) = .006,  $RMSEA$  90%,  $CI = 0, .031$ ). Three of these parameters were for strong but unanticipated effects of T1 predictors on T2 teacher-rated externalizing behavior in younger siblings, as described in the longitudinal model below. Additionally, the model was modified to allow a larger nonshared teacher-report variance for younger relative to older siblings for T2 externalizing. Finally, negative error variances for T2 shared teacher-reported externalizing and T1 and T2 shared (mother- and teacher-reported) externalizing were fixed to zero, which resulted in standardized effects that were 1.0 and necessitated removing T1 shared anger regulation on T2 shared externalizing.

**Table 2** Construct correlations

	Emotion Coaching	Anger Regulation	T1 Externalizing	T2 Externalizing
Emotion Coaching	–	–.36***	–.31***	–.19**
Anger Regulation	–.23***	–	.49***	.39***
T1 Externalizing	–.23***	.44***	–	.62***
T2 Externalizing	–.19***	.37***	.74***	–

Note: Older sibling data are above the diagonal and younger sibling data are below the diagonal in italics. \*\* $p < .01$ ; \*\*\* $p < .001$ .

*Cross-sectional structural model*

Overall, the cross-sectional results were consistent with the hypothesis that maternal emotion coaching would be inversely associated with adolescent difficulty regulating anger, which would in turn be positively associated with adolescent externalizing behavior. As depicted in Figure 3, shared aspects of emotion coaching negatively predicted shared aspects of anger regulation and shared aspects of anger regulation positively predicted shared aspects of externalizing. Shared aspects of irritability also positively predicted shared aspects of mother-reported externalizing. Similarly, nonshared aspects of emotion coaching negatively predicted nonshared aspects of anger regulation and nonshared aspects of anger regulation positively predicted nonshared aspects of mother-reported externalizing. Nonshared aspects of irritability also positively predicted nonshared aspects of (mother- and teacher-reported) externalizing. There were no direct effects of emotion coaching on externalizing. Gender, which was included as a control variable, was modestly related to anger regulation, indicating that boys had more difficulty regulating anger than girls, and to irritability, signifying that mothers reported higher levels of irritability for girls compared to boys.

*Longitudinal structural model*

The longitudinal model is shown in Figure 4. For ease of viewing, only significant paths are drawn. As expected, both shared and nonshared T1 externalizing behavior was a strong predictor of both shared and nonshared T2 externalizing behavior. Hypotheses regarding the associations between adolescent anger regulation and externalizing behavior were supported, with regard to nonshared but not to shared effects. Nonshared aspects of T1 anger regulation positively predicted nonshared aspects of T2 mother-reported externalizing behavior over and above the corresponding stability effect. The only mediated pathway found was for nonshared effects from maternal emotion coaching to adolescent anger regulation at T1 and from anger regulation at T1 to mother-reported externalizing at T2. A Sobel test (Sobel, 1982) indicated that the indirect effect was significant ( $z = -2.11$ ,  $p = .035$ ).

For younger siblings, shared aspects of T1 emotion coaching negatively predicted T2 teacher-reported



model in which maternal coaching of anger was associated with adolescents' anger regulation, which in turn was associated with adolescent externalizing behavior. Results of the longitudinal model were less clear. As hypothesized, adolescent anger regulation predicted mother-reported adolescent externalizing behavior three years later, replicating the effect observed in the cross-sectional data. However, support for the mediational model was limited to nonshared effects and specific to mother-reported externalizing. It is likely that the strong stability of externalizing behavior limited our ability to detect cross-lag effects. Finally, though we anticipated that the association between emotion socialization and externalizing behavior would be mediated by adolescent anger regulation, the longitudinal data revealed that mothers' emotion coaching had a direct effect on teacher-reported younger sibling externalizing behavior that was not mediated. This finding may reflect differences in mothers' emotion coaching toward younger siblings specific to their age group. However, as this effect was limited to one measure within the longitudinal model, replication is necessary before drawing firm conclusions.

As much of the research on the role of emotion regulation as a mediator between parent emotion socialization behaviors and child functioning has been conducted with young children, the findings of this study are important in demonstrating the ongoing significance of family processes for emotional development into adolescence. Maternal coaching of adolescent anger was associated concurrently with adolescent emotion regulation. Difficulties regulating anger, moreover, predicted externalizing behavior problems concurrently and longitudinally in both older and younger siblings, underscoring the role of adolescents' emotion regulation abilities in adolescent adjustment. Though as noted, prior work has suggested parallels in the association between parenting behavior and child functioning in community and clinical samples, it will, nevertheless, be important to replicate these findings in a clinical sample in order to test the hypothesis that emotion socialization would be operative in similar ways in adolescents demonstrating externalizing disorders.

One strength of the study was the focus on mother emotion coaching of two adolescents in the same family. Shared effects across siblings and nonshared child-specific effects emerged in the cross-sectional and longitudinal effects. Identification of effects as shared or nonshared has implications for understanding the mechanisms accounting for observed findings. For example, the association of anger regulation with externalizing behavior was a nonshared effect, highlighting the involvement of child-specific processes and sibling differences within families. The shared effects predicting younger sibling externalizing behavior over time, on the other hand, indicated family influences across siblings. Next

steps would be to determine whether the shared and nonshared effects involved genetic or environmental factors.

Another strength was the use of multiple reporters. This strategy, in regards to externalizing behavior, not only increases the reliability and validity of constructs but also provides important information about contextual effects that may have implications for intervention (Lochman, 2004). Differences in findings as a function of whether mothers or teachers provided information may reflect the context in which adolescents' externalizing behaviors were observed as well as the perspectives of family and non-family reporters (e.g., Youngstrom, Loeber, & Stouthamer-Loeber, 2000). The involvement of familial emotional processes in adolescent functioning that takes place at home and in the community is suggested by the findings linking maternal emotion coaching to adolescent emotion regulation and adolescent emotion regulation to mother-reported externalizing behavior. It is possible that source variance contributed to the observed associations between emotion processes derived from mother report and adolescent externalizing behavior as reported by mothers. On the other hand, older siblings' externalizing behavior was found to be a risk factor for younger siblings' externalizing behavior as reported by teachers. With school-based externalizing behavior largely fueled by peer interaction, older siblings can be a negative influence by exposing and including younger siblings in antisocial activities and delinquent peer groups (Snyder, Bank, & Burraston, 2005).

One measurement weakness which should be noted was the relatively modest inter-rater reliability obtained for the global interview ratings, which may have limited the predictive accuracy of the latent construct. As well, a potential limitation of the broader measurement strategy was that indices of anger regulation and emotion coaching were both derived from maternal report, and hence, may be inflated by shared source variance. It should be noted, however, that interviewer and coder ratings, though based on the interview with mother, reflected their judgment about the mothers' functioning rather than the mothers' self-evaluation. Moreover, recent work suggests that mothers' emotion coaching as assessed with the MEI is correlated with observed maternal behavior during parent-adolescent interaction (Shortt, Smith-Shine, & McDade, 2008). In particular, mothers rated high in emotion coaching demonstrated more validating and affectionate behavior and less contemptuous and belligerent behavior during the interactions. Nonetheless, the relation of emotion coaching meta-emotion philosophy to parenting behavior is not well established and the study would have benefited from observational measures.

Though the frame we have given to our questions reflects a parent-driven mediational model,

alternative adolescent-driven effects or reciprocal processes cannot be ruled out. That children with externalizing symptomatology are more likely to evoke negative emotions from others (Ge et al., 1996) suggests the involvement of nonshared effects and the possibility that child characteristics contribute to eliciting the parenting behavior by which they are then influenced (Caspi et al., 2004). In fact, prior findings suggest that adolescent characteristics do evoke changes in parenting over time (Brody & Ge, 2001). Unfortunately, as we do not have data on emotion coaching or adolescent anger regulation at T2, we are unable to examine these potential influences. Further studies are needed to better elucidate the effects of adolescent characteristics on parent emotion socialization behavior.

Another direction to pursue in future research relates to the specificity of effects. Though studies on children suggest some specificity in relations between emotions and symptoms (e.g., Kim, Walden, Harris, Karrass, & Catron, 2007), there is limited examination of such during adolescence. Some evidence suggests that the association between emotional functioning and psychopathology may be more diffuse (e.g., Steinberg & Avenevoli, 2000). For example, depressive disorder in adolescents is associated with disruptions in both anger and sadness (Sheeber et al., 2009). To the best of our knowledge, the specificity of maternal socialization behaviors has not been established. Some evidence suggests specificity with links between maternal dismissiveness to adolescents' positive affect and adolescent depressive symptoms (Yap, Allen, & Ladouceur, 2008). The role of specific emotions in adolescent psychopathology will be an important direction for ongoing work.

In conclusion, the findings of this study support the growing evidence that emotion coaching, a form of positive emotion socialization behavior, in which children and adolescents' affect are accepted and their regulation skills are scaffolded, is associated

with healthy emotional development. Adolescents whose mothers coached them through episodes of anger demonstrated better regulation of anger and less externalizing behavior. Moreover, adolescents with poor anger regulation skills were at increased risk for developing externalizing problems. These findings, taken together with those of previous studies, suggest that interventions designed to promote positive parent emotion socialization behavior may promote youths' ability to regulate emotions, and hence, may prove to be effective components of preventative interventions for child and adolescent externalizing behavior.

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### Key points

- Increases in externalizing behavior during the transition to adolescence may put children at risk for developing mental disorders and related problems.
- Although children's ability to regulate their emotions appears to be a key factor in whether they experience maladjustment, emotion processes during adolescence remain understudied.
- Maternal emotion coaching of adolescent anger influenced adolescents' anger regulation concurrently, and adolescents' difficulty regulating anger influenced adolescents' externalizing behavior concurrently and longitudinally.
- Interventions promoting adaptive parent socialization of emotion behavior have the potential to strengthen adolescent emotion regulatory abilities, which in turn may reduce adolescent psychopathology.

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