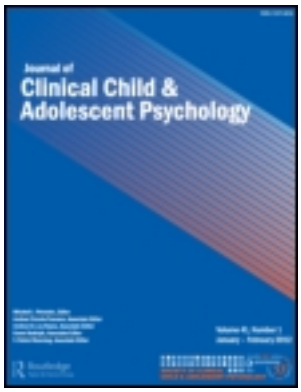

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Pathways to Adolescent Internalizing: Early Attachment Insecurity as a Lasting Source of Vulnerability

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Pathways to Adolescent Internalizing: Early Attachment Insecurity as a Lasting Source of Vulnerability

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Despite theoretical links between attachment quality in early childhood and subsequent internalizing symptoms, there is limited empirical evidence supporting direct effects. In this article, we test whether early attachment insecurity indirectly contributes to adolescent internalizing by increasing the likelihood of certain pathways leading to elevated symptoms (i.e., moderated mediation). Structural equation modeling and bootstrapping were used to test for moderated mediation using longitudinal data from 910 adolescents participating in the National Institute of Child Health and Human Development Study of Early Child Care (M age = 15.1; 50% female, 23% racial/ethnic minority). Among dyads with a history of an insecure attachment in early childhood, mothers' negative emotions during the transition to adolescence significantly predicted less availability during parent–adolescent interactions, which in turn increased adolescents' preoccupation with parental relationships. The same process was not evident in youth with a history of secure attachments. However, the extent to which preoccupation with parental relationships was associated with increases in internalizing symptoms depended on both attachment history and gender. Results highlight one pathway by which early attachment history may indirectly contribute to increased internalizing symptoms for girls during the transition to adolescence.

Attachment theory has provided the conceptual basis for hundreds of studies on child and adolescent maladjustment. Within the body of research, however, there is limited empirical evidence that children who are insecurely attached to primary caretakers in early childhood report more internalizing symptoms in later years (for discussion, see Fonagy, 2003; Kobak, Cassidy, Lyons-Ruth, & Ziv, 2006; Thompson & Raikes, 2003). Indeed, in a recent meta-analysis of prospective studies (Groh, Roisman, van IJzendoorn, Bakermans-Kranenburg, & Fearon, 2012), the overall difference in internalizing symptoms between children with a secure versus insecure attachment history was quite small ($d = .15$). Consequently, the authors called for research identifying the specific conditions in which early attachment security may contribute to the later development of internalizing symptoms.

Identifying specific conditions under which risk factors in early childhood impact adolescent adjustment is particularly important in light of equifinality in outcomes: Because individual development unfolds in the presence of multiple risk and protective factors, there are many pathways to the same outcome. Adolescent internalizing symptoms, for example, may result from diverse risk factors including genetic predispositions, family conflict, traumatic life events, discrimination, peer rejection, objectified body consciousness, and academic difficulties. Given equifinality, the presence of one specific risk factor, such as early attachment insecurity, may not be associated with higher internalizing symptoms overall. Early attachment security may define one pathway by which some youth arrive at this

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outcome, however. In other words, there may be ''attachment-related'' pathways to adolescent internalizing symptoms.

A longitudinal study by Kochanska, Barry, Stellern, and O'Bleness (2009) provides an example of an ''attachment–related'' pathway to maladjustment in the context of equifinality. In this study, toddlers with secure and insecure attachments were equally likely to display antisocial behaviors at age 5; however, the path by which this outcome occurred was moderated by attachment history. Specifically, children with an early insecure attachment tended to later respond to parental power assertion with feelings of resentment, which in turn predicted increased antisocial and disruptive behavior in kindergarten. This same process was not evident among children with secure attachment histories. In other words, a meditational path from parent behavior to child response to child maladjustment was evident only among dyads with an insecure attachment history.

These findings suggest that attachment quality may indirectly contribute to later maladjustment in ways that only become evident in longitudinal studies examining *moderated mediation.* Moderated mediation is thought to exist when the occurrence of a mediational pathway depends on some other characteristic, such as attachment security (Preacher, Rucker, & Hayes, 2007). Theoretically, attachment quality is presumed to influence how social information is processed and how emotions are understood and regulated (Bowlby, 1973; Sroufe, Carlson, Levy, & Egeland, 1999). Consequently, early attachment quality may act as a moderating factor, leading youth to respond differently when later exposed to the same interpersonal risk factors (Belsky & Fearon, 2002; National Institute of Child Health and Human Development [NICHD] Early Child Care Research Network, 2006; Murray, Halligan, Adams, Patterson, & Goodyer, 2006). Consistent with this possibility, attachment insecurity has been found to increase the likelihood that children will themselves develop depressive symptoms in response to increases in maternal depressive symptoms (Abela, Zinck, Kryger, Zilber, & Hankin, 2009; Milan, Snow, & Belay, 2009). However, empirical studies have not identified pathways underlying potential differential responsivity to caregiving risk factors among children with an insecure attachment.

In the current article, we use tests of moderated mediation to examine one pathway to adolescent internalizing symptoms hypothesized to occur in dyads with a history of attachment insecurity based on Kobak's developmental pathways model (Kobak et al., 2006). This model focuses on risk factors at the level of caregiving context (e.g., broad family risk factors like parental psychopathology, family poverty), caregiving quality (e.g., specific parenting behaviors), and attachment organization over time. Guided by this model, we tested for the presence of a pathway from maternal negative emotionality (i.e., caregiving contextual risk) to observed maternal availability (i.e., caregiving quality risk) to adolescent preoccupied attachment style (i.e., attachment organization risk) to adolescent internalizing symptoms

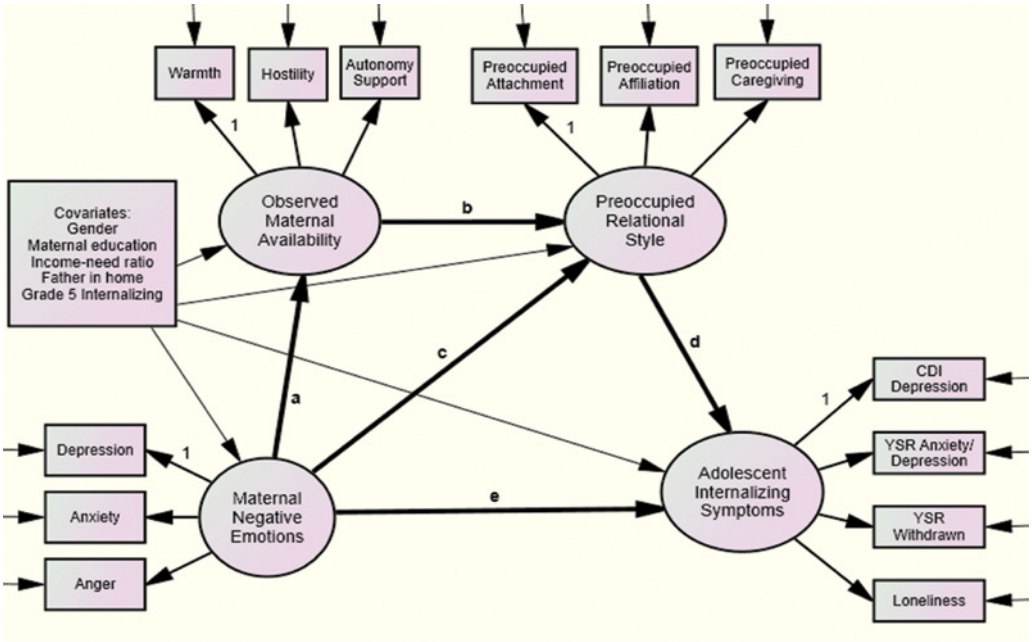

FIGURE 1 Hypothesized developmental pathway from maternal negative emotions to internalizing symptoms for adolescents with an insecure attachment history. *Note:* CDI = Children's Depression Inventory; YSR = Youth Self-Report. (Figure appears in color online.)

(i.e., maladjustment outcome). As detailed next and in Figure 1, we hypothesized that this pathway would be evident in children with an insecure attachment history but not those with a secure attachment history, because of attachment-based differences in dyadic behavior, information processing, and emotion regulation.

MATERNAL NEGATIVE EMOTIONS AS A PREDICTOR OF OBSERVED PARENTING BEHAVIORS

Maternal negative emotions, including depression, anxiety, and hostility, have an adverse effect on parenting. Most existing research has focused on maternal depression; however, there is a great deal of overlap in self-reported feelings of different negative emotions, and anxiety and anger are additive risk factors for child development beyond maternal depression (e.g., Barker, Jaffee, Uher, & Maughan, 2011; Burrous, Crockenberg, & Leerkes, 2009). One way maternal negative emotions affect children is by negatively impacting parental behaviors. Mothers who report elevated emotional distress show more disengagement, hostility, intrusiveness, and less sensitivity and support with their child during interaction tasks (Burrous et al., 2009; Goodman, 2007). Within the attachment field, these types of parental behaviors have been conceptualized as indicators of emotional availability, a construct that reflects the ability of the parent and child to have an emotional connection during interactions (Easterbrooks & Biringin, 2005). During adolescence, parenting availability also includes supporting a child's developmentally appropriate strivings for autonomy (Emde, 2012). More generally, emotional availability and support for autonomy both reflect parental attunement to the needs, moods, interests, and developmental capabilities of the child, especially during tasks that may be difficult for the child.

It is important to note that although maternal negative emotions are a robust predictor of parenting behaviors such as emotional availability and autonomy support, many distressed mothers do not exhibit behavioral differences in observed interactions with their children (e.g., Kelley & Jennings, 2003). In light of this heterogeneity, we hypothesized that maternal self-reported negative emotions would be a stronger predictor of observed parenting behaviors in dyads with an insecure attachment history (i.e., moderation of path a in the hypothesized mediational pathway presented in Figure 1). In this case, attachment insecurity may be a "marker" of mothers for whom their internal emotional state tends to impact their ability to be responsive and attuned to their child.

MATERNAL NEGATIVE EMOTIONS AND PARENTING BEHAVIORS AS PREDICTORS OF ADOLESCENT ATTACHMENT

A basic tenet of attachment theory is that caregiving behaviors influence children in part because they shape how relationships are mentally represented by the child (Sroufe et al., 1999). During adolescence, individual differences in attachment representations are often conceptualized as reflections of preoccupied (or anxious-ambivalent) and dismissing (or avoidant) dimensions. Individuals who score high on the preoccupied dimension display an excessive sense of involvement in attachment relationships, high need for approval, and frequent worry about rejection and abandonment. Those high on the dismissing dimension devalue the importance of attachment relationships and are uncomfortable with closeness in relationships. The nature of adolescents' attachment representations are associated with maternal and child reports of parent–adolescent relationship characteristics and observed interactions in theoretically consistent ways (e.g., Allen, Moore, Kuperminc, & Bell, 1998; Becker-Stoll, Fremmer-Bombik, Wartner, Zimmerman, & Grossmann, 2008; Branstetter, Furman & Cottrell, 2009).

Although there is relatively low stability between measures of attachment security from early childhood and adolescence (for a meta-analysis, see Fraley, 2002), early attachment insecurity may have a lasting influence on parent–adolescent relationships (e.g., Becker-Stoll et al., 2008). Theoretically, children who form insecure attachments in the first few years of life are thought to develop working models of relationships that may lead to biases in how social information is processed. This may occur, for example, because attachment insecurity contributes to selective attention or memory in interactions with caretakers (Chae, Ogle, & Goodman, 2009; Feeney & Cassidy, 2003). As a result of these biases, adolescents with a history of early attachment insecurity may be especially prone to forming negative representations of the current parent–adolescent relationship *when* they experience less optimal parenting. Conversely, children with secure attachment histories may interpret later parenting behaviors more favorably because they view these behaviors through the filter of a more positive working model of the relationship. In this way, the extent to which caregiving risk factors, such as maternal emotional distress and unavailability, predict adolescents' current mental representations of this relationship may vary depending on early attachment history (i.e., moderation of path b and c in Figure 1). Several studies suggest that specific parenting behaviors, such as hostility during interactions, are the mediating factors by which maternal emotional distress impacts children; however, results often indicate only partial mediation

(Goodman, 2007). Consequently, we hypothesized a direct path from maternal negative emotions to adolescent preoccupation and an indirect path via observed maternal availability.

ADOLESCENT ATTACHMENT ORGANIZATION AS A PREDICTOR OF INTERNALIZING SYMPTOMS

Although parent–child relationships involve increased autonomy and individuation during adolescence, the quality of this attachment relationship is still central to adolescent well-being. Within the literature on adolescent attachment, a preoccupied or anxious style appears more strongly associated with adolescent internalizing symptoms compared to avoidant or dismissing styles. These results have been found in clinical (Rosenstein & Horowitz, 1996) and community (Marsh, McFarland, Allen, Boykin McElhany, & Land, 2003) samples, and in studies using self-report measures of attachment (Cooper, Shaver, & Collins, 1998) and working model interviews (Allen et al., 1998). The magnitude of this association may depend on other factors, however (Marsh et al., 2003; Shirk, Gudmundsen, & Burwell, 2005). Theoretically, early attachment security may be one such factor because of the role of attachment relationships in the development of emotion regulation processes (Diamond & Fagundes, 2008). As a result of emotion regulation vulnerabilities, adolescents with a history of early attachment insecurity may experience greater emotional distress in response to perceived difficulties in current relationships compared to peers with a secure attachment history. If so, preoccupation about current relationships may be especially predictive of internalizing symptoms among adolescents with an insecure attachment history relative to adolescents with a secure attachment history (i.e., moderation of path d in Figure 1).

The goal of the current article is to delineate one potential pathway by which early attachment insecurity may contribute to adolescent internalizing symptoms. Drawing from Kobak's developmental pathways model, we defined this pathway as one in which (a) maternal negative emotions during early adolescence predict observed maternal availability during parent-adolescent interactions, (b) lower parental availability and higher maternal negative emotions lead adolescents to be more preoccupied with the parental attachment figure, (c) greater preoccupation predicts elevated internalizing symptoms beyond earlier internalizing symptoms. Using structural equation modeling (SEM) approaches to moderated mediation, we tested the hypothesis that this indirect pathway from maternal negative emotions to adolescent internalizing would be evident in adolescents with an insecure attachment history, but not among those with a secure attachment history. Given the well-established gender gap in internalizing symptoms that emerges during adolescence, we also examined gender as a potential moderator. In previous studies in which attachment security was found to moderate associations between maternal and child depression symptoms, gender differences did not emerge; however, these samples consisted primarily of preadolescent youth (Abela et al., 2009; Milan et al., 2009).

METHODS

Participants and Procedures

Results from this study are based on the NICHD Study of Early Child Care (SECC; for full description of study, see http://secc.rti.org or NICHD Early Child Care Research Network, 1999). Briefly, families from 10 geographic areas across the United States were recruited during hospital visits to mothers shortly after the birth of a child in 1991. The sample was representative of the catchment areas from which families were drawn. Of the 1,364 families interviewed at 1 month, 25% identified as belonging to a racial/ethnic minority group (13% African American, 6% Latino, 6% other groups), 11% of the mothers had not completed high school, and 23% were unmarried. Participating families have been followed since birth with periodic interviews occurring when children were 6, 15, 24, 36, and 54 months and 7, 9, 11, 12, and 15 years old. Detailed measures were collected from parents, children, and teachers and through observational measures. Procedures have been standardized across sites, and interviewers are trained and monitored for consistency.

Of the 1,364 families in the NICHD SECC, 978 adolescents (70%) participated in the age 15 assessment. Sixty-eight of these families did not have 36-month preschool attachment classification data. The 910 families with preschool attachment and at least one age 15 outcome of interest were included in analyses. These families were compared with those not included in this analysis ($n = 454$) on demographic characteristics at study entry. In families not included, mothers had fewer years of education (13.7 vs. 14.5 years), $t(1361) = -5.58$, $p < .001$; had a lower income-to-needs ratio (2.37 vs. 2.95), $t(1272) = -3.66$, $p < .02$; were more likely unmarried at baseline (30% vs. 20%), $\chi^2(1, N = 1{,}364) = 17.9$, $p < .001$; and reported more initial depressive symptoms (12.1 vs. 11.0), $t(1361) = -2.25$, $p < .05$. Families of color were also underrepresented in the final sample (22% vs. 28%), $\chi^2(1, N = 1{,}364) = 5.2$, $p < .05$. There were no differences in attrition by preschool attachment status, $\chi^2(1, N = 1{,}140) = .05$, $p = .82$.

Measures

Demographic characteristics. Analyses included the following demographic covariates: child gender, maternal education level (less than high school, high school graduate, some college, 4-year degree or higher), race/ethnicity, presence of biological father in the home, and an average income-to-needs ratio. The income-to-needs ratio was based on current poverty thresholds and household size at each interview and was averaged given high stability across time points.

Maternal negative emotions. Mother's self-reports of depression, anxiety, and anger at three times points (age 11, age 12, and age 15) were used to assess negative emotional distress during early adolescence. The Center for Epidemiologic Studies Depression Scale (Radloff, 1977) was used to measure maternal depressive symptoms. The Center for Epidemiologic Studies Depression Scale is a widely used, 20-item measure with well-documented psychometric properties (Roberts, Lewinsohn, & Seeley, 1991). Mothers report how often in the last week they have experienced cognitive, somatic, and affective components of depression on a 0 (*not at all*) to 4 (*5–7 days*) scale. Anger and anxiety were assessed with 10 state items from State-Trait Anger Scale (STAS; Spielberger, 1988) and 10 state items from the State-Trait Anxiety Inventory (Spielberger, 1983). At each assessment, mothers responded based on their feelings over the past week using the same 0-to-4 scale just described. Alpha reliability coefficients for the measures were high at all time points, ranging from .75 to .91. The Center for Epidemiologic Studies Depression Scale, State-Trait Anxiety Inventory, and State-Trait Anger Scale were highly correlated with each other at each time point ($rs > .5$) and cross time points ($rs > .45$). Thus, scores for each emotion were averaged across the three time points (i.e., average depression, average anxiety, average anger) and then these scores served as indicators of a latent factor reflecting overall maternal negative emotions during early adolescence.

Maternal availability. Maternal availability was assessed through observations of parental behaviors during videotaped, structured interaction tasks at age 11 and 15. In the tasks, mothers and children participated in a discussion of a conflict situation of their choice for 8 min. Tapes were sent to a central location for coding. A coding manual was developed based on earlier NICHD SECC coding schemes for parent–child interactions (Owen, Ware, & Barfoot, 2000), with input by Joseph Allen to include codes that reflect important aspects of parent–adolescent relationships. Three parent behavior domains that were coded at Grade 5 and age 15 and best reflected domains included in emotional availability research were selected for analysis: warmth/positive responsiveness, hostility, and support of adolescent autonomy. The first two domains are closely aligned with sensitivity and hostility domains from Biringen's established emotional availability scale; however, this scale also includes a structuring domain reflecting whether parents actively structure interactions to support the child's current developmental level (Biringen & Easterbrooks, 2012). During adolescence, the construct of structuring involves parental actions and communications that support their child's developmentally appropriate autonomy strivings (Emde, 2012). Domain scores ranged from 1 (*not at all characteristic*) to 7 (*highly characteristic*). Interobserver reliability for each of the domains based on 20% of the tapes assigned to two coders was high (intraclass correlation coefficients >.7; see NICHD ECCRN, 1999, for details on procedures). Scores were standardized at each assessment, then respective scores across the two times points were averaged to more reliably assess parent–child interaction patterns. Cross-time correlations ranged from .32 to .58. These three variables (warmth, hostility, autonomy support) were used as indicators of a latent factor reflecting maternal availability.

Preoccupied relationship style. Three domains from the Behavioral Systems Questionnaire (Furman & Wehner, 1999) were used as indicators of a preoccupied relationship style latent factor at age 15. The Behavioral Systems Questionnaire is a self-report measure assessing how respondents typically feel and act in relationships with parents, romantic partners, and friends in the areas of attachment, caregiving, and affiliation. Only the parent domain was used in this study. Levels of secure, preoccupied, and dismissing styles were assessed with 27 5-point Likert items. In previous studies, the secure, preoccupied, and dismissing scales for parental relationships were found to be moderately to highly correlated with parallel scales on Hazan and Shaver's (1987) measure of attachment styles (Furman & Simon, 2004) and relate to mother and child reports of relationship characteristics (Branstetter et al., 2009) but not state of mind interviews (Furman, Simon, Shaffer, & Bouchey, 2002). For the current purposes, preoccupied attachment (3 items, $\alpha = .67$), caregiving (3 items, $\alpha = .64$), and affiliation (3 items, $\alpha = .62$) subdomain scores were used as indicator variables of a preoccupied relational style latent factor. Because items ask about "parents" generically, respondents endorsed who they were thinking about after completing the measure. More than 95% of adolescents indicated their mother or maternal figure and 85% indicated their father or father figure.

Adolescent internalizing. An adolescent internalizing latent factor score was made with four indicator variables measured at age 15: Children's Depression Inventory (CDI-S; Kovacs, 1992), Loneliness and Dissatisfaction Scale (LSDS; Asher, Hymel, & Renshaw, 1984), and Youth Self-Report (YSR) Anxiety/Depression and Withdrawal subdomains (Achenbach, 2001). The CDI has been widely used in applied and research settings and has good internal consistency, test–retest reliability, and discriminant validity (Kovacs, 1992). The CDI-S contains 10 items scored on a 0-to-2 scale, with higher total scores indicating more depressive symptoms. At age 15, the CDI-S demonstrated adequate reliability ($\alpha = .73$). The LSDS (Asher et al., 1984) is a widely used 24-item self-report measure that includes 16 items assessing children's feelings of feelings of loneliness, social adequacy, and interpersonal dissatisfaction. Responses are on a 1-to-5 Likert scale, with higher scores reflecting more loneliness ($\alpha = .91$). The YSR is a well-established self-report measure of maladjustment (Achenbach, 1991). The Anxiety/Depression subscale consists of 16 items ($\alpha = .86$) and the Withdrawal subscale consists of 7 items ($\alpha = .77$). *T* scores were used in analysis. In addition, CDI Depression and LSDS Loneliness scores from Grade 5 were standardized and averaged to reflect *preadolescent internalizing symptoms* (the YSR was not given at this age). This measure was used as a covariate in analysis to control for preadolescent internalizing symptoms and better reflect symptom changes during the transition to adolescence.

Early attachment security. A modified Strange Situation procedure was used to assess attachment security at 36 months (Cassidy, Marvin, & the MacArthur Working Group, 1992). In the modified Strange Situation, mother and child are initially put in a room together and then go through a series of separations and reunions. The overall organization of children's behavior during the separations and reunions is classified as either Secure (B), Insecure-avoidant (A), Insecure-ambivalent (C), or Insecure-controlling/other (D). Consistent with attachment theory, classifications using the MacArthur system are predicted by maltreatment, maternal psychological adjustment, parenting attitudes, and observed sensitivity (Barnett, Kidwell, & Leung, 1998; Cicchetti & Barnett, 1991; Moss, Bureau, Cyr, Mongeau, & St. Laurent, 2004), and predict mother- and teacher-rated behavioral problems (e.g., NICHD Early Child Care Research Network, 2001; Speltz, DeKlyen, & Greenberg, 1999). At each site, administrators were trained to follow a standardized protocol. Videos were sent to a central location and coded by a team of three independent coders. These three coders passed the minimum 75% agreement at the level of A, B, C, and D classifications with Jude Cassidy. Intercoder reliability was calculated based on 867 randomly paired cases. A consensus code was assigned for disagreements. Intercoder agreement before consensus conferencing on the four-category classification was 76% ($\kappa = .58$).

Analytic Plan

Prior to analyses, data were analyzed for normality and the presence of outliers using univariate and graphical approaches. The CDI and YSR domain scores were log transformed to minimize positive skew. Tests of joint multivariate normality did not indicate marked deviations from normality. First, *t* tests were used to test for main effects of attachment history on all variables. Then, a multigroup nested SEM model was used to assess the overall measurement model fit and potential factorial invariance in the measurement model by attachment history (Byrne, 2001), as shown in Figure 1. Following Edwards and Lambert (2007), framework for moderated mediation, we then examined the equivalence of structural paths (regression weights) across the two groups using nested model comparisons and pairwise critical ratio tests to test for moderating effects of attachment history in the hypothesized mediational pathway. Then, the magnitude and significance of indirect effects was calculated using bootstrapping in SEM based on bias-corrected confidence intervals for both groups. Bootstrapping techniques provide a better test of mediation than Sobel tests because Sobel tests rely on the often untenable assumption that indirect effects are normally distributed (Preacher et al., 2007). Nested model comparisons were also used to test for moderation by gender.

The current sample was restricted to the 910 families who had attachment measures at 36 months and at least one age 15 measure. Of these, 849 had data for all variables included in models. The 61 adolescents with incomplete data did not differ in baseline characteristics. Models were estimated using full-information maximum likelihood, which allows individuals with missing data to be maintained in analysis. In this approach, missing data models and the substantive model are estimated simultaneously and then incorporated into the function used to generate final parameter estimates, with all information about the means and variances of variables utilized (Wothke, 2000). Full-information maximum likelihood provides the least biased estimates in simulation studies on the effects of missing data (Buhi, Goodson, & Neilands, 2008). Analyses were conducted in SPSS 18 and AMOS 18.

RESULTS

Table 1 presents mean scores and standard deviations for study variables for the sample and by attachment

TABLE 1
Demographic Characteristics of Participants

Characteristic	*Total Sample*	*Secure Attachment History*[a]	*Insecure Attachment History*[b]	*Test of Difference*
Racial/Ethnic Minority	23%	22%	24%	$\chi^2 = 0.86$ ($N = 910$)
Maternal Education Level	14.5 (2.43)	14.72 (2.34)	14.07 (2.52)	t (908) = 3.99***
Biological Father in Home	65%	69%	59%	$\chi^2 = 9.34$** ($N = 888$)
Average Income–Need Ratio	4.02 (3.04)	4.2 (3.09)	3.7 (2.95)	t (908) = 2.43*
Grade 5 Internalizing	0.0 (1.00)	–.03 (1.01)	.02 (.96)	t (862) = .65
Maternal Depression	9.32 (7.25)	9.10 (7.19)	9.70 (7.37)	t (908) = 1.25
Maternal Anxiety	17.58 (4.43)	17.43 (4.45)	17.67 (4.41)	t (908) = .46
Maternal Anger	13.86 (3.45)	13.78 (3.35)	14.00 (3.62)	t (908) = .89
Observed Warmth/Acceptance	.00 (.86)	.08 (.82)	–.15 (.90)	t (899) = 3.96**
Observed Hostility	–.01 (.80)	–.04 (.77)	.03 (.84)	t (899) = 1.25
Observed Autonomy Support	.00 (.84)	.06 (.80)	–.11 (.89)	t (899) = 2.90**
BSQ Preoccupied Affiliation	2.32 (.71)	2.27 (.77)	2.40 (.66)	t (891) = 2.45*
BSQ Preoccupied Caregiving	2.27 (.70)	2.24 (.68)	2.31 (.74)	t (893) = 1.55
BSQ Preoccupied Attachment	2.13 (.72)	2.17 (.72)	2.10 (.73)	t (899) = 1.55
CDI Depression, Age 15 Years	1.99 (2.64)	1.90 (2.6)	2.14 (2.7)	t (885) = 1.34
YSR Depression/Anxiety Age 15	52.51 (5.10)	52.31 (4.95)	52.83 (5.32)	t (884) = 1.47
YSR Withdrawal, Age 15	52.38 (5.28)	52.15 (4.77)	52.76 (6.02)	t (884) = 1.68
Loneliness, Age 15	26.24 (8.74)	26.12 (8.52)	26.42 (9.1)	t (885) = 0.5

Note: BSQ = Behavioral Systems Questionnaire; CDI = Children's Depression Inventory; YSR = Youth Self-Report.
[a] $n = 565$.
[b] $n = 345$.
*$p < .05$. **$p < .01$.

history status. Attachment categories were as follows: 565 (62%) Secure, 42 (5%) Avoidant, 151 (16%) Resistant, and 152 (17%) Disorganized. As shown, children with secure and insecure attachment histories differed on demographic characteristics including maternal education, income-to-needs ratio, and whether the child's biological father was in the home at age 15. These variables were included as covariates in subsequent analysis to rule out potential confounding effects. The two groups also differed on preoccupied parental affiliation and observed maternal warmth and autonomy support. There were no attachment group differences in maternal negative emotion variables, observed hostility, preoccupied attachment or caregiving, or the four measures of internalizing symptoms.

Next, the measurement model was tested to ensure good fit of the conceptualized latent constructs and factorial invariance between the two attachment groups. The overall measurement model with factor loadings constrained provided a good fit to the data, $\chi^2(125) = 215.1$, comparative fit index = .98, root mean square error of approximation = .028 (90% CI = .022–.034). A model with factor loadings/variances constrained to be equal for adolescents with a secure and insecure attachment history did not result in a significantly worse fit to the data, diff. $\chi^2(9) = 5.47$, $p = .58$. These results indicate factorial invariance for families with a secure and insecure attachment history for all four latent factors (i.e., maternal negative emotions, maternal availability during interactions, adolescent preoccupied relationship style, internalizing symptoms). In other words, the latent factors reflecting the measurement model had the same structure for both groups. Factor loadings are presented in Table 2. Bivariate correlations between demographic variables and latent constructs are shown in Table 3.

Next, a nested model comparison was used to test whether the structural paths of interest (path a, b, c, d in Figure 1) differed by attachment history. A chi-square differential test indicated that constraining these paths to be equal led to a significantly worse fit to the data then the unconstrained model, diff. $\chi^2(4) = 16.5$, $p < .01$. In other words, early attachment history moderated at least some of these paths. Follow-up pairwise contrasts using critical ratio tests indicated that early attachment quality moderated two of the four paths. First, the path from maternal negative emotions to observed emotional availability (path a) was significantly larger ($z = 2.75$, $p < .01$) for adolescents with an insecure attachment history compared to adolescents with a secure attachment history ($\beta = -.24$, $B = -.025$, $SE = .006$, $p < .01$ vs. $\beta = -.04$, $B = -.004$, $SE = .005$, $p = .39$). Similarly, the path from maternal negative emotions to preoccupied attachment style (path c) was significantly larger ($z = 2.41$, $p < .01$) for dyads with an insecure attachment history than secure attachment history ($\beta = .22$, $B = .013$, $SE = .004$, $p < .01$ vs. $\beta = .02$, $B = .001$, $SE = .003$, $p = .71$). The path from observed maternal availability to preoccupied attachment style (path b) was significant for youth with insecure attachment history, $\beta = -.20$, $B = -.11$, $SE = .04$, $p < .01$, but not those with a secure

TABLE 2
Factor Loadings for Measurement Model

Observed Variable	*Maternal Self-Reported Negative Emotions Factor*	*Observed Maternal Availability Factor*	*Adolescent Preoccupied Relationship Style Factor*	*Adolescent Internalizing Symptoms Factor*
Depressive Symptoms (Marker)	.93			
State Anger	.90			
State Anxiety	.75			
Warmth (Marker)		.81		
Hostility		−.68		
Supports Autonomy		.90		
Preoccupied Attachment (marker)			.55	
Preoccupied Parental Affiliation			.58	
Preoccupied Caregiving			.59	
Depression (Marker)				.81
Loneliness				.75
Anxiety/Depression				.79
Withdrawal				.67

Note: The overall measurement model with factor loadings fixed across attachment group provided a good fit to the data, $\chi^2(125) = 215.1$, comparative fit index = .98, root mean square error of approximation = .028, confidence interval (.022–034).

attachment history, $\beta = -.12$, $B = -.063$, $SE = .04$, $p = .07$; however, the magnitude of this difference was not statistically significant ($z = 1.5$, $p > .1$). The final path in the model, from preoccupied relational style to internalizing (path d), was statistically significant for adolescents with an insecure and secure attachment history, $\beta = .23$, $B = .37$, $SE = .14$, $p < .01$ and $\beta = .27$, $B = .51$, $SE = .14$, $p < .01$, respectively, but did not differ in magnitude depending on attachment history ($z = .69$, $p > .1$). Figure 2 presents standardized coefficients, total R^2, and ΔR^2 values.

Total, direct, and indirect effects were estimated and tested for statistical significance based on bias-adjusted 95% confidence intervals calculated through bootstrapping (see Table 4). Consistent with moderational analyses presented earlier, maternal negative emotions had significant direct and indirect (via observed maternal availability) effects on preoccupied relationship style only for adolescents with an insecure attachment history. In contrast, this group difference was not evident when internalizing symptoms was the final outcome. The total effect of maternal negative emotions on internalizing symptoms was significant for adolescents with a secure or insecure attachment history; however, for those with a secure history, the total effect was due entirely to the direct effect of maternal negative emotions on adolescent internalizing, whereas for dyads with an insecure attachment history, only the indirect effect was statistically significant, via the path described earlier.

To further examine moderational effects of early attachment quality on how adolescents respond to current maternal negative emotionality, we ran a post hoc multivariate analysis of variance with attachment history and maternal negative emotions (dichotomized at the factor score mean) as independent variables and maternal availability, preoccupied relational style, and internalizing symptom factor scores as dependent

TABLE 3
Correlations Between Variables for Children With Secure ($n = 565$) and Insecure ($n = 345$) Preschool Attachment History

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1. Child Gender	—	.09	.10	−.06	−.03	−.03	−.22**	.22**	.10*
2. Maternal Education	.01	—	.58**	.01	−.16*	−.21**	.38**	−.33**	.05
3. Income-to-Needs Ratio	.01	.52**	—	.10*	−.19*	−.29**	.32**	−.34**	−.03
4. Biological Father in Home	.01	.08	.07	—	−.06	.05	.01	−.02	−.02
5. Grade 5 Internalizing	−.02	−.11*	−.14*	.06	—	.21*	−.02	.34**	.37**
6. Maternal Negative Emotions Factor	.01	−.23**	−.28**	−.05	.16*	—	−.30**	.40**	.15*
7. Observed maternal emotional Availability factor	.06	.33**	.30**	.12*	−.14*	−.15**	—	−.40**	−.06
8. Adolescent preoccupied relationship style factor	−.13	−.33**	−.33**	−.17**	.33**	.17**	−.30**	—	.25**
9. Age 15 Internalizing Factor	.10*	−.05	−.05	.00	.33**	.21**	−.10	.32**	

Note: Values in the upper quadrant reflect correlations for children with an insecure attachment history; values in the lower quadrant reflect correlations for children with a secure attachment history.

*$p < .05$. **$p < .01$.

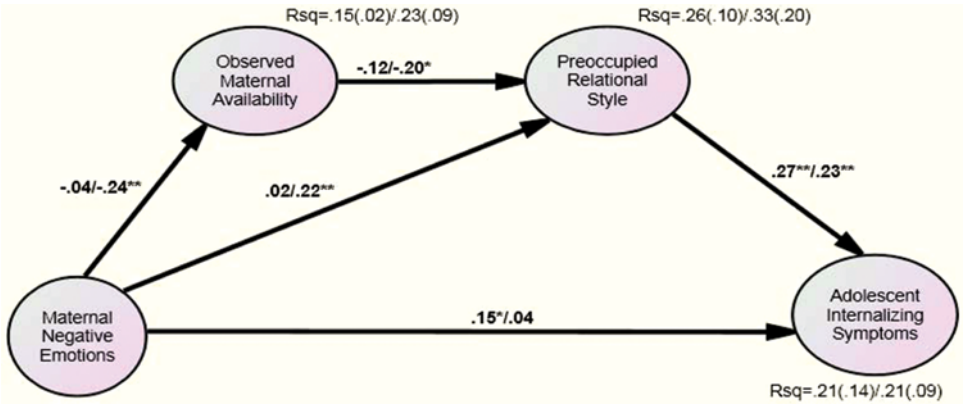

FIGURE 2 Standardized beta weights for adolescents with a secure ($n = 565$) and insecure ($n = 345$) preschool attachment history. *Note:* Values before the slash are parameter estimates for adolescents with a secure attachment history. Values after the slash are parameter estimates for adolescents with an insecure attachment history. The model included gender, maternal education, income-to-needs ratio, biological father in household, and child reported fifth-grade internalizing symptoms as covariates. Rsq = Total R^2 with values in parenthesis representing (ΔR^2) controlling for demographic factors and Grade 5 internalizing symptoms. (Figure appears in color online.)

variables. The attachment history by maternal negative emotions interaction was significant, $F(3, 827) = 6.86$, $p < .01$, $\eta p^2 = .024$. Mean standard scores are graphed in Figure 3. As shown, interactions were evident for maternal availability, $F(1, 829) = 6.97$, $p < .01$, $\eta p^2 = .01$, and preoccupied relational style, $F(1, 829) = 13.07$, $p < .001$, $\eta p^2 = .02$, but not internalizing symptoms, $F(1, 829) = .68$, $p = .41$.

Nested model comparisons were used to test for gender differences in the hypothesized model by examining differences in the structural coefficients of interest in the four attachment by gender groups. Only one significant gender difference was found. The final path in the model, from preoccupied relationship style to adolescent internalizing, was significantly larger for girls compared to boys ($z = 2.23$, $p < .001$). In adolescents with a secure preschool attachment history, the standardized regression path from preoccupied relational style to internalizing problems was $\beta = .30$, $p < .001$ for girls and $\beta = .21$, $p < .05$ for boys. For adolescents with an insecure preschool attachment history, the estimate for girls was $\beta = .31$, $p < .01$, but for boys was nonsignificant, $\beta = .13$, $p = .22$. Given this gender difference in the final path, direct and indirect effects of maternal negative emotions on internalizing were also calculated separately for

TABLE 4
Bootstrapped Estimates of Standardized Total, Direct, and Indirect Effects From Maternal Negative Emotions to Preoccupied Relationship Style and Internalizing Symptoms

	Outcome and Effect Size		
Group	*(total)*	*<direct>*	*{indirect}*
Outcome: Preoccupied Relationship Style Factor			
Insecure Attachment History[a]	(.27*)	<.22*>	{.05*}
Secure Attachment History[b]	(.03)	<.02>	{.01}
Outcome: Internalizing Symptoms Factor			
Insecure Attachment History[a]	(.10*)	<.04>	{.06*}
Secure Attachment History[b]	(.16*)	<.15*>	{.01}
Insecure Boys[c] ($n = 155$)	(.03)	<−.02>	{.05}
Insecure Girls[d] ($n = 190$)	(.17*)	<.11*>	{.06*}
Secure Boys[e] ($n = 296$)	(.18*)	<.17*>	{.01}
Secure Girls[f] ($n = 269$)	(.12*)	<.12*>	{.00}

[a] $N = 345$.
[b] $N = 565$.
[c] $n = 155$.
[d] $n = 190$.
[e] $n = 296$.
[f] $n = 269$.

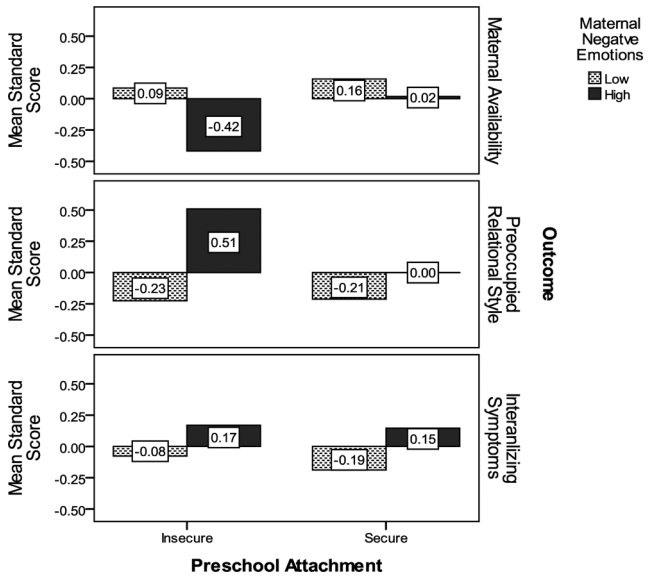

FIGURE 3 Mean standard scores in observed maternal availability, preoccupied relationship style, and internalizing symptoms by preschool attachment history and maternal negative emotions.

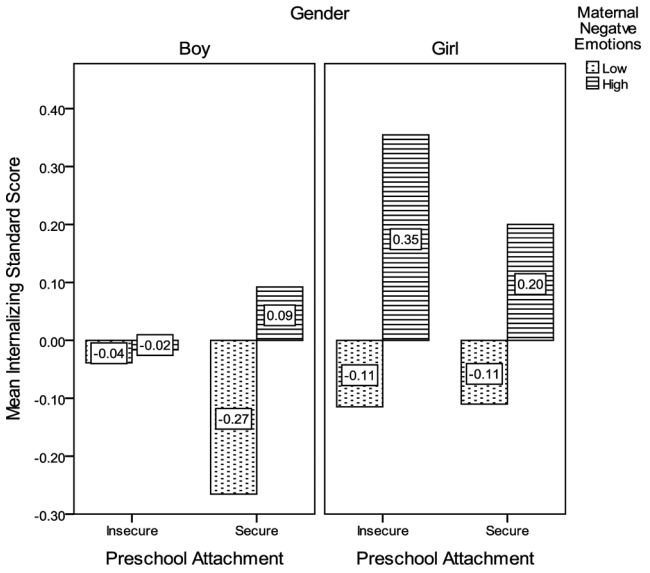

FIGURE 4 Internalizing symptoms by gender, attachment history, and maternal negative emotions.

the four Gender × Attachment History groups (see Table 4). As shown, maternal negative emotions had no effect on internalizing for boys with an insecure attachment history, unlike in the three other groups. Beyond the influence of sociodemographic covariates and Grade 5 internalizing symptoms, the hypothesized model accounted for only an additional 2% of the variance in the internalizing factor for boys with an insecure attachment history, in contrast to 24% for girls with an insecure attachment history, and 17% of the variance for both boys and girls with a secure attachment history. Figure 4 shows mean internalizing scores by gender, attachment history and maternal negative emotion groups.

DISCUSSION

There are multiple pathways to internalizing problems among adolescents. In this article, we examined one possible pathway presumed to be likely among mother–child dyads with a history of early attachment insecurity. We hypothesized that in these families, maternal negative emotions would be associated with observable differences in maternal emotional availability during dyadic interactions, which in turn would contribute to adolescent preoccupation with the parent–adolescent relationship, leading to heightened internalizing symptoms. We found partial support for this hypothesis, as described next. As expected, preschool attachment history was not associated with elevated internalizing scores during adolescence (i.e., a main effects model); however, early attachment moderated two links in the hypothesized developmental pathway from maternal negative emotions to adolescent internalizing.

First, the extent to which maternal self-reported negative emotions during early adolescence predicted observable differences in behavior during parent–adolescent interactions varied by attachment history. Among dyads with an insecure attachment history, mothers who reported more negative emotions were also less emotionally available to their adolescents during observed interactions. In contrast, in dyads with a secure attachment history, maternal negative emotions did not predict observed parent behavior. An earlier study with the same sample found that the link between maternal depression and observed maternal sensitivity differed by attachment status during the preschool years (Mills-Koonce, Gariepy, Sutton, & Cox, 2008). Our results extend these findings by demonstrating early attachment security continues to moderate associations between mother's self-reported emotional state and their actual parenting behaviors in early adolescence. Within the maternal depression literature, many parents who report symptoms do not exhibit observable parenting differences (see Goodman, 2007). This is likely due in part to the limited scope and duration of observational measures but may also reflect efforts by many parents to maintain positive parenting even when they feel bad. In addition, there are likely some mothers for whom negative emotions are more directly related to their children, as opposed to other stressors like work, spouse, finances, or extended family. For these women, the link between internal emotional states and actual parenting behaviors may be stronger. Given that heightened emotional distress in mothers does not invariably lead to poor parenting, it is important to understand when it does. Early attachment insecurity may be a marker of dyads in which parenting behavior tends to become disrupted as a result of maternal emotional well-being. For these women, interventions that specifically target parenting behaviors and reflective functioning—and not just affective symptoms—may be especially useful (e.g., Toth, Rogosch, & Cicchetti, 2008).

We also found that preschool attachment quality moderated the direct path between maternal negative emotions and adolescents' self-reported preoccupation with parental relationships, with significant effects found only among adolescents with an insecure attachment history. Thus, maternal negative emotions had a significant direct and indirect (via maternal availability during interactions) effect on adolescents' preoccupation with parental relationships, but *only* among those adolescents with an insecure attachment history. These findings are consistent with the assumption of attachment theorists that early attachment quality shapes how children later experience relationships (e.g., Sroufe et al., 1999). This may occur because of biased attention to or memory for behaviors of an attachment figure,

resulting in hypersensitivity or rumination about negative exchanges. For example, Feeney and Cassidy (2003) found that attachment quality influenced how adolescents interpreted and remembered a lab-based conflict with a parent. Relatedly, Chae and colleagues (Chae et al., 2009) found attachment-related biases in children's memory for parental behavior during naturalistic stressors such as medical procedures. As a result of these biases, the same parental behaviors (e.g., ignoring a child's social bid) could have different implications for how children evaluate the current parent–child relationship. In this way, early attachment insecurity may have a lasting influence on interpersonal experiences during adolescence. It is important to note that our results provide support for this theoretical assumption using data from different sources (i.e., maternal report of negative emotions, observations of parenting behaviors, adolescent report of relationship quality).

We also hypothesized that early attachment would moderate the path from preoccupied relationship style to internalizing symptoms because of attachment-based differences in emotion regulation. This hypothesis was not supported. Instead, current preoccupation with parental relationships predicted more internalizing symptoms for both groups of adolescents, regardless of early attachment history. In follow-up tests of gender differences, however, the path from preoccupied relationship style to internalizing symptoms was the only one in which gender differences emerged, with larger effects for girls. Kobak and colleagues similarly found that gender moderated the relation between preoccupation with attachment relationships and trajectories of negative emotions during adolescence, with stronger effects also observed in girls (Kobak, Zajac, & Smith, 2009). Together, these findings indicate that girls with an insecure attachment history may be especially vulnerable to depression, anxiety, or withdrawal when their mothers experience elevated negative emotions, in part because they become preoccupied with the maternal relationship. In contrast, adolescent boys with similar relational risk factors (early attachment insecurity, preoccupation with current relationships) did not report elevated internalizing symptoms. These results suggest that boys with an insecure attachment history experience relationship preoccupation in response to maternal risk factors but that this elevated preoccupation does not predict internalizing symptoms. Possibly, boys with an insecure attachment history are less sensitive to emotions (Murray et al., 2006), or may experience or report restricted affect as a type of attachment-based coping strategy (e.g., Crittenden, 2006). Such tendencies would result in less apparent impairment on self-report measures but may not be adaptive in all circumstances. More broadly, however, these results suggest the attachment-related developmental pathway to internalizing symptoms tested in this article may only occur in girls.

Study Limitations and Clinical Implications

Results from this study must be interpreted in the context of several limitations. First, internalizing was measured using several self-reported checklists rather than diagnostic criteria for specific disorders, and the level of symptoms reported by most adolescents was not in the clinical range. Although there is considerable evidence that even subthreshold levels of symptoms from continuous scales predict less adaptive functioning, the measures and sample in this study limit generalizability to clinical populations. Further, individuals with different attachment histories may differ in their ability or willingness to report negative affect, and the reliability of self-report symptom measures for different attachment groups is not established. As another measurement issue, preschool attachment in the NICHD SECC was assessed with the MacArthur system (Cassidy et al., 1992). There are other methods of assessing attachment in preschool, namely, Crittenden's (2006) Preschool Assessment of Attachment based on the Dynamic Maturational Model. Although they have similarities, the two systems are based on somewhat different conceptualizations of attachment behaviors and lead to different classifications (e.g., Teti, 1999).

The potential impact of sampling and attrition should also be noted. Although the final sample represented a range of socioeconomic conditions, excluded participants had higher levels of baseline sociodemographic risk. Because sociodemographic factors often interact with other risk factors in predicting child outcomes, the exclusion of these participants may bias findings. More broadly, the NICHD SECC includes relatively few families of color, particularly from Latino or Asian American groups. Parent–child relationships are shaped by both culture and acculturation; consequently, the applicability of findings to diverse groups cannot be assumed without further study. Finally, the goal of this article was to identify processes by which early attachment may have a lasting effect on dyadic processes associated with adolescent internalizing. In terms of effect sizes, the influence of these factors was generally modest.

Despite these limitations, the current findings add to the growing body of research highlighting the need for interventions that address the intergenerational context of maternal and adolescent mental health. For example, when mothers are successfully treated for affective disorders, their children show behavioral improvements (Weissman et al., 2006). Similarly, depressed adolescents' ability to benefit from therapy depends on maternal mental health (Garber et al., 2009). Results from the current study, as well as others (e.g., Abela et al., 2009),

suggest attachment quality may be one factor that influences if and how maternal emotional distress contributes to adolescent internalizing. Consequently, although early attachment quality does not directly lead to later internalizing symptoms, it may have a lasting influence on the well-being of adolescents by shaping how they experience parental relationships; for girls, this may contribute to increases in internalizing symptoms during the early teen years. Attachment-focused interventions therefore may help disrupt transmission among high-risk mother–daughter dyads. Although such interventions exist for young children and their parents (e.g., Toth et al., 2008), relatively few evidence-based interventions for adolescent internalizing disorders specifically focus on attachment relationships or target parent–adolescent dyads. Delineating the multiple processes underlying intergenerational continuities in mental health is an important step in efforts to disrupt such patterns and to promote more positive outcomes across two generations.

REFERENCES

Abela, J., Zinck, S., Kryger, S., Zilber, I., & Hankin, B. (2009). Contagious depression: Negative attachment cognitions as a moderator of the temporal association between parental and child depression. *Journal of Clinical Child and Adolescent Psychology*, *38*, 16–26.

Achenbach, T. (1991). *Manual for the Child Behavior Checklist/4–18 and 1991 profile*. Burlington: University of Vermont, Department of Psychiatry.

Allen, J., Moore, C., Kuperminc, G., & Bell, K. (1998). Attachment and adolescent psychosocial functioning. *Child Development*, *69*, 1406–1419.

Asher, S., Hymel, S., & Renshaw, P. (1984). Loneliness in children. *Child Development*, *55*, 1456–1464.

Barker, E., Jaffee, S., Uher, R., & Maughan, B. (2011). The contribution of prenatal and postnatal maternal anxiety and depression to child maladjustment. *Depression & Anxiety*, *28*, 696–702.

Barnett, D., Kidwell, S., & Leung, K. (1998). Parenting and preschooler attachment among low-income African-American families. *Child Development*, *69*, 1657–1671.

Becker-Stoll, F., Fremmer-Bombik, E., Wartner, U., Zimmermann, P., & Grossmann, K. E. (2008). Is attachment at ages 1, 6 and 16 related to autonomy and relatedness behavior of adolescents in interaction towards their mothers? *International Journal of Behavioral Development*, *32*, 372–380.

Belsky, J., & Fearon, R. (2002). Infant–mother attachment security, contextual risk and early development: A moderation analysis. *Development and Psychopathology*, *14*, 293–310.

Biringen, Z., & Easterbrooks, M. (2012). Emotional availability: Concept, research, and window on developmental psychopathology. *Development and Psychopathology*, *24*, 1–8.

Bowlby, J. (1973). *Attachment and loss, Volume 2*. New York: Basic Books.

Branstetter, S., Furman, W., & Cottrell, L. (2009). The influence of representations of attachment, maternal–adolescent relationship quality, and maternal monitoring on adolescent substance use: A 2-year longitudinal examination. *Child Development*, *80*, 1448–1462.

Buhi, E., Goodson, P., & Neilands, T. (2008). Out of sight, not out of mind: Strategies for handling missing data. *American Journal of Health Behavior*, *32*, 83–92.

Burrous, C., Crockenberg, S., & Leerkes, E. (2009). Developmental history of care and control, depression and anger: Correlates of maternal sensitivity in toddlerhood. *Infant Mental Health Journal*, *30*, 103–123.

Byrne, B. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Erlbaum.

Cassidy, J., Marvin, R., & The MacArthur Working Group. (1992). *Attachment organization in preschool children: Procedures and coding manual* (4th ed.). Unpublished manuscript, Charlottesville, VA: University of Virginia.

Chae, Y., Ogle, C., & Goodman, G. (2009). Remembering negative childhood experiences: An attachment theory perspective. *Emotion and memory in development: Biological, cognitive, and social considerations* (pp. 3–27). New York: Oxford University Press.

Cicchetti, D., & Barnett, D. (1991). Attachment organization in maltreated preschoolers. *Development and Psychopathology*, *3*, 397–411.

Cooper, M., Shaver, P., & Collins, N. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology*, *74*, 1380–1397.

Crittenden, P. M. (2006) A dynamic-maturational model of attachment. *Australia New Zealand Journal of Family Therapy*, *27*, 105–115.

Diamond, L., & Fagundes, C. (2008). Developmental perspectives on links between attachment and affect regulation over the lifespan. In R. V. Kail (Ed.), *Advances in child development and behavior*, Vol. 36 (pp. 83–134). San Diego, CA: Elsevier Academic.

Easterbrooks, A., & Biringen, Z. (2005). The Emotional Availability Scales: Methodological refinements of the construct and clinical implications related to gender and at-risk interactions. *Infant Mental Health Journal*, *26*, 291–294.

Edwards, J., & Lambert, S. (2007). Methods for integrating moderation and mediation: A general analytic framework using moderated path analysis. *Psychological Methods*, *12*, 1–22.

Emde, R. N. (2012). Emotional availability: Critical questions and research horizons. *Development & Psychopathology*, *24*, 125–129.

Feeney, B., & Cassidy, J. (2003). Reconstructive memory related to adolescent–parent conflict interactions: The influence of attachment-related representations on immediate perceptions and changes in perceptions over time. *Journal of Personality and Social Psychology*, *85*, 945–955.

Fonagy, P. (2003). The developmental roots of psychopathology from infancy to adulthood: The mysterious unfolding of disturbance in time. *Infant Mental Health*, *24*, 212–239.

Fraley, R. C. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and Social Psychology Review*, *6*, 123–151.

Furman, W. & Wehner, E. A. (1999). *The Behavioral Systems Questionnaire–Revised*. Unpublished measure, Denver, CO: University of Denver.

Furman, W., & Simon, V. A. (2004). Concordance in attachment states of mind and styles with respect to fathers and mothers. *Developmental Psychology*, *40*, 1239–1247.

Furman, W., Simon, V., Shaffer, S., & Bouchey, H. (2002). Adolescents' working models and styles for relationships with parents, friends, and romantic partners. *Child Development*, *73*, 241–255.

Garber, J., Clarke, G., Weersing, V., Beardslee, W., Brent, D., Gladstone, T., et al. (2009). Prevention of depression in at-risk adolescents: A randomized trial. *Journal of the American Medical Association*, *301*, 2215–2224.

Goodman, S. (2007). Depression in mothers. *Annual Review of Clinical Psychology*, *3*, 107–113.

Groh, A., Roisman, G., van IJzendoorn, M., Bakermans-Kranenburg, M., & Fearon, R. (2012). The significance of insecure and disorganized attachment for children's internalizing symptoms: A meta-analytic study. *Child Development*, *83*, 591–610.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*, 511–524.

Kelley, S., & Jennings, K. D. (2003). Putting the pieces together: Maternal depression, maternal behavior and toddler helplessness. *Infant Mental Health Journal*, *24*, 74–90.

Kobak, R., Cassidy, J., Lyons-Ruth, K., & Ziv, Y. (2006). Attachment, stress, and psychopathology: A developmental pathways model. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology, Vol. 1: Theory and method* (pp. 333–369). Hoboken, NJ: Wiley.

Kobak, R., Zajac, K., & Smith, C. (2009). Adolescent attachment and trajectories of hostile-impulsive behavior: Implications for the development of personality disorders. *Development and Psychopathology*, *21*, 839–851.

Kochanska, G., Barry, R., Stellern, S., & O'Bleness, J. (2009). Early attachment organization moderates the parent–child mutually coercive pathway to children's antisocial conduct. *Child Development*, *80*, 1288–1300.

Kovaks, M. (1992). *Children's depression inventory*. New York: MHS.

Marsh, P., McFarland, F., Allen, J., Boykin McElhaney, K., & Land, D. (2003). Attachment, autonomy, and multifinality in adolescent internalizing and risky behavioral symptoms. *Development and Psychopathology*, *15*, 451–467.

Milan, S., Snow, S., & Belay, S. (2009). Maternal and child depressive symptoms: Preschool attachment as a moderator of risk. *Developmental Psychology*, *12*, 63–81.

Mills-Koonce, W., Gariepy, J., Sutton, K., & Cox, M. (2008). Changes in maternal sensitivity across the first three years: Are mothers from different attachment dyads differentially influenced by depressive symptomatology? *Attachment and Human Development*, *10*, 299–317.

Moss, E., Bureau, J., Cyr, C., Mongeau, C., & St-Laurent, D. (2004). Correlates of attachment at age 3: Construct validity of the Preschool Attachment Classification System. *Developmental Psychology*, *40*, 323–334.

Murray, L., Halligan, S. L., Adams, G., Patterson, P., & Goodyer, I. M. (2006). Socioemotional development in adolescents at risk for depression: The role of maternal depression and attachment style. *Development and Psychopathology*, *18*, 489–516.

NICHD Early Child Care Research Network. (1999). Chronicity of maternal depressive symptoms, maternal sensitivity, and child functioning at 36 months. *Developmental Psychology*, *35*, 1297–1310.

NICHD Early Child Care Research Network. (2001). Child care and family predictors of preschool attachment and stability from infancy. *Developmental Psychology*, *37*, 847–862.

NICHD Early Child Care Research Network. (2006). Infant–mother attachment classification: Risk and protection in relation to changing maternal caregiving quality. *Developmental Psychology*, *42*, 38–58.

Owen, M., Ware, A., & Barfoot, B. (2000). Caregiver–mother partnership behavior and the quality of caregiver–child and mother–child interactions. *Early Childhood Research Quarterly*, *15*, 413–428.

Preacher, K., Rucker, D., & Hayes, A. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*, 185–227.

Radloff, L. S. (1977). The CES–D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385–401.

Roberts, R., Lewinsohn, P., & Seely, J. (1991). Screening for adolescent depression: A comparision of depression scales. *Journal of the American Academy of Child and Adolescent Psychiatry*, *30*, 58–66.

Rosenstein, D., & Horowitz, H. (1996). Adolescent attachment and psychopathology. *Journal of Consulting and Clinical Psychology*, *64*, 244–253.

Shirk, S., Gudmundsen, G., & Burwell, R. (2005). Links among attachment-related cognitions and adolescent depressive symptoms. *Journal of Clinical Child and Adolescent Psychology*, *34*, 172–181.

Speltz, M. L., DeKlyen, M., & Greenberg, M. T. (1999). Attachment in boys with early onset conduct problems. *Development and Psychopathology*, *11*, 269–285.

Spielberger, C. D. (1983). *Manual for the State-Trait Anxiety Inventory: STAI (Form Y)*. Palo Alto, CA: Consulting Psychologists Press.

Spielberger, C. D. (1988). *Manual for the State-Trait Anger Expression Inventory (STAXI)*. Odessa, FL: Psychological Assessment Resources.

Sroufe, L., Carlson, E., Levy, A., & Egeland, B. (1999). Implications of attachment theory for developmental psychopathology. *Development and Psychopathology*, *11*, 1–13.

Teti, D. (1999). Conceptualizations of disorganization in the preschool years. In J. Solomon & C. George (Eds.), *Attachment disorganization* (pp. 213–242). New York: Guilford.

Thompson, R., & Raikes, H. (2003). Toward the next quarter-century: Conceptual and methodological challenges for attachment theory. *Development & Psychopathology*, *15*, 691–718.

Toth, S., Rogosch, F., & Cicchetti, D. (2008). Attachment-theory-informed intervention and reflective functioning in depressed mothers. In *Clinical Applications of the Adult Attachment Interview* (pp. 154–172). New York: Guilford.

Weissman, M., Pilowsky, D. J., Wickramaratna, P. J., Talati, A., Wisniewski, S. R., Fava, M., et al. (2006). Remissions in maternal depression and child psychopathology: A STAR*D–child report. *Journal of the American Medical Association*, *295*, 1389–1398.

Wothke, W. (2000). Longitudinal and multigroup modeling with missing data. In T. Little, K. Schnabel, & J. Baumert (Eds.), *Modeling longitudinal and multiple-group data: Practical issues, applied approaches, and specific examples* (pp. 219–240). Hillsdale, NJ: Erlbaum.