

Adult Attachment, Parent Emotion, and Observed Parenting Behavior: Mediator and Moderator Models

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In a middle-class sample of mothers of 2-year-olds, adult attachment classifications measured in the Adult Attachment Interview (AAI) were related to maternal self-reported emotional well-being and observed parenting behavior, and the potential mediating and moderating roles of maternal emotion were tested. Mothers classified as dismissing on the AAI reported significantly lower levels of positive affectivity. Mothers classified as preoccupied reported significantly higher levels of negative affectivity and anxiety. Preoccupied mothers were observed to be significantly higher on angry/intrusive parenting, but this association was not mediated by attachment-related differences in maternal emotion. Maternal emotional well-being did, however, moderate the associations between adult attachment and parenting behavior: Dismissing attachment was significantly associated with lower warmth/responsiveness only among mothers with higher levels of depressive symptoms.

Emotion plays a central role in attachment theory and research. In infants, separation from or loss of a caregiver are typically associated with feelings of anxiety, sadness, and anger, and the presence of the caregiver is associated with feelings of security and joy (Bowlby, 1979). Throughout childhood, adolescence, and even into adulthood, attachment relationships remain important in the elicitation and regulation of emotional states (Adam & Gunnar, 2001; Kobak, 1999). Emotion also plays an important role in theory and research on parenting. Within-person changes in parent emotional state motivate changes in parenting behavior (Dix, 1991), and individual differences in parent emotional well-being relate to differences in parenting (Field, 1995; Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Teti, Gelfand, Messinger, & Isabella, 1995).

Prior research has shown associations between adult attachment and parenting behavior (Cohn, Cowan, Cowan, & Pearson, 1992; Crowell & Feldman, 1988; Das Eiden, Teti, & Corns, 1995; Ward &

Carlson, 1995), between adult attachment and parent emotional well-being (Pianta, Egeland, & Adam, 1996), and between parent emotion and parenting behavior (Dix, 1991; Lovejoy et al., 2000), yet little attention has been paid to the interrelations among these three sets of variables. In this study, we examined whether associations between adult attachment and parenting are accounted for or mediated by attachment-related differences in parent emotional well-being. We also examined whether the strength or direction of associations between adult attachment and parenting behavior are altered or moderated by differences in parent emotional well-being.

Internal Working Models

An internal working model of attachment is an internalized set of expectations about self and others thought to derive from one's history of relationships, and to influence one's perceptions of, and behavior in, later relationships (Bretherton, 1985; Main, Kaplan, & Cassidy, 1985). Attachment representations in adults are assessed by examining the coherency of speech and thought processes about early relationship issues in the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985). Adults are classified either secure/autonomous (F), insecure/dismissing (Ds), or insecure/preoccupied (E). They may also be classified unresolved/disorganized (U) with respect to trauma or loss (Main & Goldwyn, 1994). Secure (F) individuals are recognized by their characteristic openness in thought and

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speech about early relationships. They clearly value relationships and have a balanced viewpoint about them, including a recognition of their own contributions to relationships. Dismissing (Ds) individuals are recognized by a lack of memory for childhood and restricted thinking surrounding issues of attachment. They tend to paint idealistic pictures of their parents and childhoods or may dismiss the importance of attachment entirely, claiming strength, normality, and independence. Preoccupied (E) individuals seem confused, unobjective, or preoccupied with past relationships. They may appear passive and vague, fearful and overwhelmed, or angry and overly analytical, and they often seem unable to see things from another point of view. Unresolved (U) individuals show one of the three primary attachment models, as well as disorganization in speech and thought when discussing traumatic issues such as loss or abuse (Main & Goldwyn, 1994; Hesse, 1999).

Adult attachment classifications, even when assessed before the birth of the infant, predict the quality of the infant's attachment toward the parent at 1 year of age (see van IJzendoorn, 1995, for a review). This is important because infant attachment predicts later developmental outcomes, with secure infants showing more optimal functioning in a variety of domains (Thompson, 1999). Secure (F) adults tend to have secure (B) infants, dismissing (Ds) adults tend to have avoidant (A) infants, preoccupied adults tend to have resistant (C) infants, and unresolved (U) adults tend to have disorganized (D) infants (van IJzendoorn, 1995). Parental behavior, especially sensitive responsiveness, is thought to be a primary mechanism by which adult and infant attachments are related (van den Boom, 1994; van IJzendoorn, 1995).

Adult Attachment and Parenting

Given its theoretical importance for attachment theory, it is surprising that there are few studies of the associations between adult attachment and parenting behavior. It is important not only to demonstrate that adults with insecure adult attachment models display less optimal parenting but also that parents with different types of insecure attachment representations (dismissing vs. preoccupied vs. unresolved) show different types of maladaptive parenting. Because of sample size constraints resulting from the intensive nature of adult attachment coding and observational coding of parenting, very few studies have had the opportunity to examine the latter distinctions.

Crowell and Feldman (1988) found that secure mothers showed more warmth and supportiveness, and gave more helpful assistance to their children in a problem-solving task. Dismissing mothers were less helpful and supportive and had a cool, controlling, task-focused style. Preoccupied mothers were not consistently helpful or supportive, presented confusing instructions, and displayed inconsistent affect, at times warm, at times puzzled or angry. Das Eiden et al. (1995) found that preoccupied mothers displayed less sensitivity than secure mothers but found no differences between secure and dismissing mothers.

Cohn et al. (1992) found secure mothers and fathers to be more warm and engaged and to provide more structure than insecure parents. They also found (Pearson, Cohn, Cowan, & Cowan, 1994) that secure parents showed more warmth than insecure parents regardless of whether they were earned secure (reported difficult early relationships and were judged secure) or continuous secure (reported positive early relationships and were judged secure). Ward and Carlson (1995) found secure parents to be more sensitive in their parenting than the three insecure groups combined.

Adult Attachment and Parent Emotion

Several studies have related adult attachment classifications to parent emotional experience. Most of these have been conducted in clinical or high-risk samples, focusing on psychopathology, but several suggest that more subtle associations between adult attachment and affective functioning may also be present in higher functioning samples.

In clinical samples, preoccupation has been associated with higher levels of self-reported symptoms in adult patients with serious psychiatric disorders (Dozier, Stevenson, Lee, & Velligan, 1991), and with greater depressive symptoms in psychiatrically distressed adolescents (Cole-Detke & Kobak, 1996; Rosenstein & Horowitz, 1996). Both preoccupied and unresolved adults were highly overrepresented among patients with anxiety disorders (Manassis, Bradley, Goldberg, Hood, & Swinson, 1994), and unresolved adolescents were overrepresented in a group of suicidal adolescents (Adam, Sheldon-Keller, & West, 1996).

In a low-income community sample, Pianta et al. (1996) found that preoccupied mothers reported the highest levels of psychiatric distress, secure mothers reported moderate levels of distress, and dismissing individuals reported the least distress on the Minnesota Multiphasic Personality Inventory-2 (MMPI-2). In nonclinical samples of adolescents,

preoccupied teens have shown higher levels of depressive symptoms (Kobak, Sudler, & Gamble, 1992) and were rated higher on anxiety by themselves and their peers, whereas secure teens were rated less anxious and hostile (Kobak & Sceery, 1988). In a normative sample of mothers and fathers, Riggs and Jacobvitz (2002) found that preoccupied parents showed more suicidal ideation than parents in the other two primary attachment groups, and unresolved parents reported greater suicidal distress, emotional distress, and substance abuse.

Whereas preoccupied and unresolved classifications tend to relate to internalizing problems, dismissing classifications tend to relate to externalizing problems, such as adolescent hostility, conduct disorders, and substance abuse (Kobak & Sceery, 1988; Rosenstein & Horowitz, 1996) and criminal behavior and hard drug use in adults (Allen, Hauser, & Borman-Spurrell, 1996).

Parent Emotion and Parenting Behavior

Evidence of the importance of parent emotional well-being for parenting comes from a variety of sources (Dix, 1991). Studies of the parenting of depressed parents have revealed various negative behavioral consequences such as fewer positive and more negative facial expressions; less vocalization and lower overall rates of behavior; lower levels of warmth, sensitivity, and affection; and greater displays of hostility and disengagement (Downey & Coyne, 1990; Field, 1995; Lovejoy et al., 2000; Teti et al., 1995). Even among parents who are not clinically depressed, negative moods and distress due to parenting stress have been related to aversive and irritable interactions with children (Crnic & Acevedo, 1995; Crnic & Greenberg, 1990). By contrast, higher parental positive affectivity has been related to greater parenting warmth and support (Mangelsdorf, Gunnar, Kestenbaum, Lang, & Andreas, 1990). Associations between experimentally manipulated mood and parenting behavior have also been demonstrated (Jouriles, Murphy, & O'Leary, 1989; Jouriles & O'Leary, 1990; Zekoski, O'Hara, & Wills, 1987).

Adult Attachment, Parent Emotion, and Parenting Behavior

In summary, there is evidence that adult attachment relates to parenting and to adult emotional well-being, and adult emotional well-being relates to parenting. It therefore seems important to test whether associations between adult attachment and

parenting are mediated by parent emotional experience or whether adult attachment and emotion exert relatively independent effects on parenting. Alternatively, because attachment behaviors are activated, and individual differences in attachment models are amplified, by the presence of stress (Ainsworth, Blehar, Waters, & Wall, 1978), adult attachment and parenting associations might be moderated by levels of parental emotional distress. Just as stress makes individual differences in infant attachment behaviors more apparent, we suggest that associations between adult attachment and parenting may be amplified by higher levels of negative affect, anxiety, or depressive symptoms.

The current study replicated prior studies of associations among adult attachment, parent emotion, and parenting behavior. It also extended them by examining associations among all three sets of variables and by examining distinctions, where possible, between the different insecure attachment groups. We also tested whether associations between adult attachment and parenting behavior are mediated or moderated by individual differences in parent emotion.

We expected that parents with secure attachment models would show higher levels of parental warmth and lower levels of parent intrusiveness, along with higher levels of positive affect and lower levels of negative affect, depressive symptoms, and anxiety. We expected that parents with dismissing attachment models would show lower parenting warmth but would report themselves to be high on positive affect and low on negative affect, anxiety, and depressive symptoms. Parents with preoccupied attachment models were expected to be moderate on parent warmth but high on intrusiveness and to report themselves to be high on negative affect, anxiety, and depressive symptoms. Unresolved adults were expected to be high on anxiety and depressive symptoms and to show lower parenting warmth. We expected that higher levels of negative affectivity, anxiety, and depressive symptoms would predict lower levels of parenting warmth and higher intrusiveness, and that higher levels of positive affectivity would predict higher parent warmth. We hypothesized that the effects of adult attachment would be at least partially independent of the effects of parental emotion. With respect to moderation, we expected that attachment-related differences in parenting would be greatest among mothers with higher levels of emotional distress. That is, we expected that mothers who are both insecure in their attachment classification and high on negative affectivity, depressive symptoms, or anxiety would

show the least optimal parenting, characterized by very low levels of warmth and responsiveness (in the case of the dismissing or unresolved parents) or very high levels of intrusiveness (in the case of the preoccupied parents).

Method

Participants

Participants were 102 mothers and their 2-year old children. Mothers were primarily Caucasian (98%), married (95%), middle-class (income: $M = \$53,000$), and college educated (education: $M = 16.6$ years). They averaged 34 years of age, with 1.8 children ($range = 1-4$). Most were employed either part-time (47%) or full-time (25%); the remainder (28%) were full-time homemakers. Children were on average 24 months of age at time of recruitment ($range = 21-36$ months); 48% were boys and 52% were girls. Participants were recruited from a subject pool of families compiled from birth announcements in a large Midwestern city.

Procedures

Participants provided data during two separate laboratory visits. First, mothers came to our laboratory alone and completed the AAI (George et al., 1985) and a set of questionnaires including measures of maternal affective functioning. Six months later, mothers were asked to return with their toddler to participate in a parent-child interaction session. Eighty mothers (78%) chose to participate in this parent-child interaction.

Mothers who participated in the parent-child interaction were significantly higher in education, $F(1, 99) = 4.79$, $p < .05$; more likely to be secure, $\chi^2 = 3.89$, $p < .05$; and less likely to be dismissing, $\chi^2 = 5.182$, $p < .05$ in their adult attachment classifications. This pattern of participation is consistent with prior findings of lower engagement among dismissing and higher engagement among secure mothers with a therapeutic intervention (Korfma-cher, Adam, Ogawa, & Egeland, 1997). There were no significant differences between parent-child interaction participants and nonparticipants on any other demographic variables or the parent emotion measures. Both sessions also involved the collection of physiological data (salivary cortisol from mother and child; heart rate and vagal tone from the child); these data were not used in the current study.

Measures

AAI. Adult attachment was assessed using the AAI (George et al., 1985). The AAI is a 1-hr semistructured interview that asks a series of questions about participants' early relationship experiences. Interviews were tape-recorded and transcribed verbatim. Two tapes were not usable because of technical errors, reducing the total number of AAIs to 100. All interviews were scored according to the Main and Goldwyn (1994) classification system by a qualified AAI coder. Individuals were assigned to one of the four attachment classifications described in the introduction: dismissing (Ds), secure (F), preoccupied (E), or unresolved (U). Each person classified unresolved (U) was also assigned an underlying Ds, F, or E classification.

All transcripts were scored by the first author, who is a reliable adult attachment coder, having been trained by Main and achieved greater than 80% agreement with Main on the official reliability test for both three-group (Ds, F, E) and four-group (Ds, F, E, U) coding ($\kappa_s = .81$ and $.78$, respectively). As an additional reliability check, 28 transcripts were scored by a second coder who had completed Main's 2-week training course. Both coders were blind to the questionnaire and parenting data and to each other's AAI scores. Interrater agreement between these two coders was 79% ($\kappa = .65$) for the three-group coding but only 68% ($\kappa = .48$) for the four-group coding. Although it could be argued that the high four-group reliability of the first coder with Main provides sufficient demonstration of reliable U coding, the three-group comparisons with Us assigned to their underlying Ds, F, or E classification are emphasized in the following discussion.

Maternal emotional well-being. Mothers completed several measures assessing their affective functioning. The Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982) is a 300-item questionnaire yielding scores on 11 scales and three higher order dimensions. For this study, the two higher order dimensions thought to reflect stable aspects of emotional functioning were used: positive affectivity and negative affectivity. High scores on positive affectivity reflect personality traits conducive to the experience of joy, excitement, vigor, and states of positive engagement, whereas low scores are related to the experience of joylessness, fatigue, loss of interest, and disengagement (Tellegen, 1982). High scores on the negative affectivity scale tend to be associated with the experience of states of negative engagement such as anxiety and anger,

whereas the low end of negative affectivity is related to a lack of negative engagement, or the experience of states of calm and relaxation (Tellegen, 1982).

The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) involves participants rating 21 different depressive symptoms on 4-point scales ranging from 0 to 3. Ratings are summed to yield a single score for overall level of self-reported depressive symptomatology, ranging from 0 to 63. Scores of 0 to 9 are considered to reflect no or minimal depressive symptoms, from 10 to 18 mild to moderate levels of depressive symptoms, from 19 to 29 moderate to severe levels of depressive symptoms, and 30 and above severe depression (Beck, Steer, & Garbin, 1988).

The Institute for Personality and Ability Testing (IPAT) Anxiety Scale (Cattell & Scheier, 1976), is a 40-item questionnaire on which participants endorse 3-point scales describing the degree to which they experience various anxiety-related symptoms. Scores on all 40 items are typically summed to obtain a total anxiety score. For this study, however, 2 items that asked participants to evaluate their feelings about their parents were eliminated because of possible confounding with the AAI assessment.

Clearly, the latter two maternal emotion measures are more reflective of symptoms of emotional pathology, whereas the MPQ affect scales reflective normative variations in trait affect; all are considered potentially relevant for understanding adult attachment and parenting.

Parent-child interaction session. The parent-child interaction session involved mother and child engaging in a series of tasks designed to be moderately challenging and frustrating for the toddler. Sessions were videotaped and maternal behavior was coded according to the observational coding scheme described next. The following tasks were used:

1. A prohibition task, in which an attractive toy is placed in front of the child and the mother is asked to prevent the child from touching it.
2. A free-play task, in which mother and child are provided a box of toys and are asked to play together as they normally would.
3. A clean-up task, in which the child is asked by the parent to clean up the toys they used during the free play.
4. Problem-solving tasks (based on Matas, Arend, & Sroufe, 1978), in which the toddler is asked to solve problems slightly above his or her skill level, and mothers are asked to assist "only as much as is needed." The tasks included putting two sticks together to push a toy from

a Plexiglas tube and using a block to hold down a lever to gain access to a reward.

Coding of maternal behavior. Maternal behavior during each task was coded by coders who were blind to mothers' AAI classifications and questionnaire data. Coding of the maternal behavior variables used 3-point scales ranging from 0 to 2, with 0 representing none or low amounts of each type of behavior, 1 indicating small amounts, and 2 representing a strong or consistent presence of that behavior. Brief descriptions of the maternal behavior variables are as follows (several other behaviors were coded but were too infrequent to be useful):

1. Warmth—the general emotional climate that the mother provides for the child, including supportive attentiveness, affection, and expression of positive regard for the child.
2. Sensitive responsiveness—the quality of the mother's response to the child's needs or requests, with high scores indicated by responding that is well timed and appropriate to the child's needs.
3. Intrusiveness—the extent to which the mother shows a lack of respect for the child's autonomy; this involves unnecessary interventions aimed at directing the child's behavior or excessive physical or affectionate contact with the child if it interferes with the child's efforts.
4. Quality of directions—the extent to which the mother provides effective guidance for the child without solving the problem for him or her, allowing the child a sense of mastery of the problem.
5. Anger or frustration—the extent to which the mother expresses anger or frustration, either verbally or nonverbally.
6. Overall parenting quality—the coder's global impression of the quality of parenting.

Mothers' scores on each parenting variable were averaged across the five episodes (prohibition, free play, clean up, and the two problem-solving tasks) and a principal components analysis (with varimax rotation) was conducted. Two significant components emerged. The first, which we call warm/responsive parenting, had high rotated component loadings for warmth (.84) sensitive/responsivity (.86), quality of directions (.70), and overall parenting quality (.90). The second, which we call angry/intrusive parenting, had high rotated component loadings for anger/frustration (.88) and intrusiveness (.79). The internal consistency of the unit-weighted sensitive/responsiveness scale was .87; for the

anger/frustration scale it was .77. For ease of interpretation, both the sensitive/responsiveness scale and the anger/frustration were standardized to have the same mean (0) and standard deviation (1).

Each tape was coded by two independent coders. Intraclass correlation coefficients were calculated to compare their independent scoring of the parenting scales. This statistic is more demanding and appropriate than Pearson's R as a reliability statistic for rating scales because it takes into account absolute scale level in addition to covariation among the two coders' scores (Shrout & Fleiss, 1979). Intraclass correlation coefficients for the individual parenting scales ranged from .48 to .84; the intraclass correlations for the warm/responsive parenting factor and the angry/intrusive parenting factor were both .70. Because reliabilities for the individual scales were lower than desired, the more reliable parenting factors (with intraclass correlations of .70) were used in the analyses. In addition, 100% of the tapes were conferenced by the two coders, and conferenced scores were used in analyses. A formula estimating the reliability of scales using data from multiple judges yields a reliability of .82 for the warm/responsive parenting scale and .83 for the angry/intrusive parenting scale (Tinsley & Weiss, 1975, Equation 6, p. 365).

Results

Adult Attachment Classifications

Of the 100 available transcripts, using the three-group coding, 24% were classified as dismissing, 57% were classified as secure, and 19% were classified as preoccupied in their adult attachment representations. Using the four-group coding, the distribution was 21% dismissing, 50% secure, 14% preoccupied, and 15% unresolved. In a meta-analysis of available nonclinical adult attachment cases ($N = 487$; van IJzendoorn & Bakermans-Kranenburg, 1996) the three-group distribution was 24% dismissing, 58% secure, and 18% preoccupied, and the four-group distribution was 16% dismissing, 55% secure, 9% preoccupied, and 19% unresolved. Thus, our distribution of cases is in close accord with the expected distribution for this population type.

For the most part, results are presented using the three-group coding scheme because we had higher interrater reliability using this scheme and we did not have adequate power and cell sizes when using the four-group scheme, particularly for testing interaction effects. Clearly, our inability to examine four-group results in detail is an important limita-

tion of the current study, as researchers have increasingly been recognizing the importance of the unresolved classification and its associations with parenting and with infant disorganized/disoriented attachment behavior (Lyons-Ruth & Jacobvitz, 1999) and parent psychopathology (Dozier, Stovall, & Albus, 1999).

For comparisons between attachment groups, significance levels as well as effect size statistics (Cohen's d) are provided. Cohen (1988) suggests that a d of .2 can be considered small, .5 medium, and .8 or above a large effect size for social science research. Others suggest that effect sizes should be interpreted in context of each study and the practical or policy implications of each result (McCartney & Rosenthal, 2000).

Adult Attachment and Parenting

A multivariate analysis of variance (MANOVA) comparing the three attachment groups on the two parenting dimensions revealed a significant multivariate association between adult attachment and parenting, Wilks $F(4, 150) = 3.24, p = .02$ (see Table 1). Examination of the univariate tests for each of the two parenting dimensions revealed a significant association between adult attachment classification and angry/intrusive parenting, $F(2, 76) = 4.2, p = .02$. Tukey honestly significant difference (HSD) post hoc tests showed that preoccupied mothers were significantly higher than dismissing mothers on angry/intrusive parenting ($p < .05, d = 1.10$). The association between adult attachment and warm/responsive parenting was not significant at conventional levels, $F(2, 76) = 2.4, p = .10$; therefore, follow-up tests were not conducted for this effect. More complex associations between adult attachment and parent warmth/responsivity did, however, emerge in the moderation analyses.

Adult Attachment and Parent Emotional Well-Being

A MANOVA examining associations between adult attachment and the four maternal affect variables revealed a significant multivariate effect of attachment on maternal emotion, Wilks $F(8, 188) = 2.42, p = .02$ (see Table 2). Examination of the univariate effects revealed significant associations between adult attachment and positive affectivity, $F(2, 97) = 3.6, p = .03$; adult attachment and negative affectivity, $F(2, 97) = 3.5, p = .04$; and adult attachment and anxiety, $F(2, 97) = 4.1, p = .02$. The association between adult attachment and depressive symptoms did not reach statistical significance, $F(2,$

Table 1
Results of MANOVA relating Adult Attachment Classifications to Observed Parenting Behavior

Parenting Behavior	Adult Attachment Classification			F^a	Post-Hoc ^b
	Dismissing (Ds, N = 15)	Secure (F, N = 49)	Preoccupied (E, N = 15)		
Warm/Responsive	-.46 (1.21)	.17 (.96)	-.10 (.84)	2.39	
Angry/Intrusive	-.41 (.43)	-.05 (.85)	.59 (1.54)	4.18*	E > Ds*

Note. For multivariate effect of adult attachment, Wilks' Lambda $F(4, 150) = 3.24, p = .02$.

Note. Values outside parentheses are means, inside are standard deviations, values on the parenting behavior scales are z-scores.

^aFor univariate F-tests, degrees of freedom are (2, 76).

^bTukey HSD post-hoc comparisons are utilized.

* $p < .05$.

97) = 2.7, $p = .07$. Tukey HSD post hoc tests revealed that dismissing mothers were significantly lower on positive affectivity than preoccupied mothers ($d = .84$). Preoccupied mothers, however, were significantly higher than secure mothers on negative affectivity and anxiety ($ds = .71$ and $.81$, respectively). It is interesting that as is apparent from the means in Table 2, preoccupied mothers showed the highest scores on all forms of emotionality, including negative affectivity, depressive symptoms, and anxiety and positive affectivity.

Parent Emotion and Parenting Behavior

Correlations between maternal trait affect and parenting quality are presented in Table 3. As was expected, higher levels of maternal positive affectivity predicted significantly more warm/responsive parenting. Contrary to expectations, higher scores on negative affectivity and anxiety did not significantly predict lower levels of warmth/responsivity or higher levels of angry/intrusive parenting. Although

the simple association between depressive symptoms and warmth/responsivity was also not significant, a more complex relationship between depressive symptoms and parental warmth was revealed in the moderation analyses discussed later. Maternal angry/intrusive parenting was not predicted by any of the maternal emotion measures.

Adult Attachment, Emotion, and Parenting: Emotion as a Mediator?

Do attachment-related differences in maternal emotional well-being mediate the associations between adult attachment and parenting? Given that the associations between adult attachment and parenting warmth were not significant, follow-up tests of the mediating effects of emotion for this parenting dimension were not warranted. Although there was a significant association between preoccupied attachment status and parent intrusiveness, and between preoccupation and several of the maternal emotion measures, the lack of significant association

Table 2
Results of MANOVA relating Adult Attachment Classifications to Maternal Trait Emotion

Emotion Variable	Adult Attachment Classification				F^a	Post-Hoc ^b
	All (N = 100)	Dismissing (Ds, N = 24)	Secure (F, N = 57)	Preoccupied (E, N = 19)		
Positive Affectivity	47.31 (7.6)	44.59 (6.1)	47.33 (7.65)	50.68 (8.26)	3.56*	Ds < E
Negative Affectivity	46.91 (10.40)	45.61 (10.03)	45.61 (10.73)	52.42 (8.31)	3.46*	E > F
Depressive Symptoms	7.88 (5.31)	6.46 (4.22)	7.70 (5.47)	10.21 (5.52)	2.83	
Anxiety Symptoms	26.50 (11.05)	25.17 (12.70)	24.95 (10.30)	32.84 (9.14)	4.11*	E > F

Note. For multivariate effect of adult attachment, Wilks's Lambda $F(8, 188) = 2.42, p = .02$.

Note. Values outside parentheses are means, inside are standard deviations.

^aFor univariate F-tests, degrees of freedom are (2, 97).

^bTukey HSD post-hoc comparisons were utilized.

* $p < .05$.

Table 3
Correlations between Maternal Trait Emotion and Observed Parenting Behavior ($N = 80$)

Emotion Variable	Parenting Behavior	
	Warm/Responsive	Angry/Intrusive
Positive Affectivity	.26*	.12
Negative Affectivity	.03	.03
Depressive Symptoms	-.19	-.01
Anxiety Symptoms	-.13	-.14

* $p < .05$.

between parent emotion and parenting anger/intrusiveness suggests that maternal emotion cannot mediate between preoccupation and intrusiveness, and formal tests of mediation are not warranted (Baron & Kenny, 1986).

An analysis of covariance (ANCOVA) for the association between adult attachment and angry/intrusive parenting, controlling for the four maternal emotion variables, confirmed the expectation that the association between adult attachment and angry/intrusive parenting was independent of maternal emotion. The association between adult attachment and angry/intrusive parenting was in fact stronger with maternal emotion controlled, $F(2, 72) = 5.48, p < .01$, with post hoc comparisons showing that preoccupied mothers had significantly more angry/intrusive parenting (adjusted $M = .78$) than both dismissing mothers (adjusted $M = -.44, p < .01, d = 1.20$) and secure mothers (adjusted $M = -.09, p < .05, d = .85$) after levels of maternal positive affectivity, negative affectivity, anxiety, and depressive symptoms were taken into account.

Unexpectedly, a significant association between the anxiety covariate and angry/intrusive parenting also emerged, with higher levels of anxiety significantly associated with lower levels of angry/intrusive parenting, $F(1, 72) = 6.02, p < .05$. Thus, although preoccupied individuals showed profiles of emotional experience distinct from the other two primary attachment groups, maternal emotional well-being did not play a significant mediational role in explaining the association between preoccupied adult attachment and angry/intrusive parenting.

Adult Attachment, Emotion, and Parenting: Emotion as Moderator?

Although there is no evidence that individual differences in parent emotion are the mediating

pathway by which adult attachment influences parenting, it is possible that differences in parent emotion might moderate the associations between adult attachment and parenting. To test this possibility, variables representing high and low levels of each parent emotion measure were created through median splits, and two-way Adult Attachment \times Maternal Emotion MANOVAs predicting the two parenting variables were conducted. The results for anxiety, negative affectivity, and positive affectivity did not reveal significant moderator effects. For the sake of parsimony, these analyses are not presented.

There was, however, evidence of a significant multivariate interaction between adult attachment group and parent depressive symptoms in predicting parenting, Wilks $F(4, 144) = 2.68, p = .03$, and a significant main effect of adult attachment on parenting, Wilks $F(4, 144) = 3.04, p = .02$, and of the dichotomized depressive symptoms variable on parenting, Wilks $F(4, 144) = 2.68, p = .03$.

The significant multivariate interaction effect was primarily due to an interaction between adult attachment and depressive symptoms predicting parent warmth/responsiveness, Wilks $F(2, 73) = 3.07, p = .04$. As is evident in Figure 1, among parents lower in depressive symptoms there were no significant differences in parenting according to adult attachment group, $F(2, 40) = .143, p > .10$. Among parents higher in depressive symptoms, however, the differences in warm/responsive parenting according to attachment group were significant, $F(2, 33) = 3.93, p = .03$. Post hoc analyses revealed that dismissing parents in the higher depressive symptoms group were significantly less warm/responsive than secure parents in the higher depressive symptoms group ($d = 1.03$). Dismissing mothers higher in depressive symptoms were also significantly less warm/responsive than dismissing mothers lower in depressive symptoms ($d = 1.39$). For secure and preoccupied mothers, however, there were no significant differences between the higher and lower depressive symptom groups on levels of parent warmth. Although there was a significant main effect of depressive symptoms on parenting warmth/responsivity when parent depressive symptoms was treated as a dichotomous variable, Wilks $F(2, 73) = 3.07, p = .04$, the interaction effect showed that significantly lower parent warmth/responsivity occurred with higher depressive symptoms only when mothers have a dismissing internal working model.

In predicting parent anger/intrusiveness, the univariate effect of adult attachment was significant, Wilks $F(2, 73) = 3.62, p = .02$, whereas the effect of

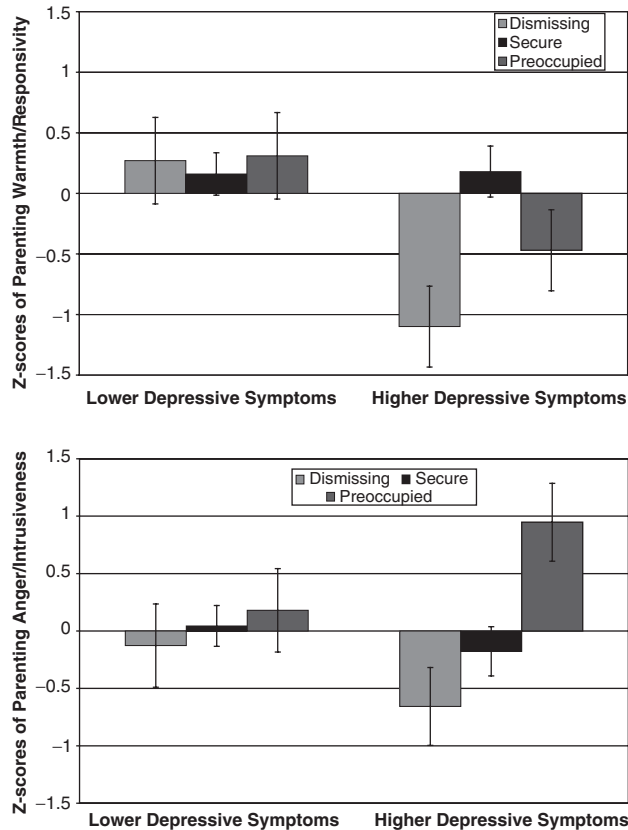


Figure 1. Associations between adult attachment classifications and observed parenting behavior among mothers with lower versus higher levels of depressive symptoms.

depressive symptoms, Wilks $F(1, 73) = 0.00, p = .98$, and the interaction between AAI and depressive symptoms, Wilks $F(2, 73) = 2.00, p = .14$, were not. The pattern of means (see Figure 1) does, however, suggest that it might be worth reexamining the possibility of such an interaction in future studies.

A Comment on the Four-Group Results

When a four-group (Ds, F, E, U) analysis rather than a three-group approach (Ds, F, E) was used, the results were very limited, probably because of small cell sizes and statistical power issues. There was a significant multivariate effect of four-group adult attachment, Wilks $F(12, 246), p = .04$, on parent emotional well-being. Although inspection of the means suggests that unresolved mothers were higher than both dismissing and secure mothers (and comparable to preoccupied mothers) on depression, anxiety, and negative affectivity, Tukey HSD post hoc tests did not show significant differences for unresolved mothers. Similarly, when the four-group scheme was used to relate AAI status to parent

behavior, unresolved mothers had lower means on warm/responsive parenting than did both secure and preoccupied mothers, but neither the MANOVA nor the univariate tests for the effects of four-group AAI on parenting were significant. Cell sizes were not sufficient to test interactions between the parent emotion variables and adult attachment using the four-group scheme. Clearly, four-group analyses examining the relations among adult attachment, parent emotion, and parenting should be repeated using a larger sample size.

Discussion

This study makes contributions to several lines of investigation. First, it adds to prior work on adult attachment and parenting by demonstrating associations between preoccupied adult attachment and greater anger/intrusiveness in a structured parent-child interaction session. Second, it contributes to the literature on adult attachment and adult emotion by demonstrating associations between adult attachment and multiple measures of parent emotional well-being in a normal, middle-class sample of adults. Third, it contributes to the literature on emotion and parenting by replicating prior findings of associations between MPQ positive affectivity and warm/responsive parenting (Mangelsdorf et al., 1990). Fourth, and most importantly, this study brings these areas of research together to test how adult attachment and parent emotion jointly influence parenting behavior, demonstrating that: (a) associations between adult attachment and parenting behavior are not mediated by attachment-related differences in parental emotion and (b) levels of parent depressive symptoms moderate the effect of adult attachment status on parental warmth, with warmth/responsivity being significantly lower among mothers who have both dismissing adult attachment models and moderate levels of depressive symptoms.

The study has several limitations, including its lack of detailed examination of the role of unresolved attachment; a 6-month delay between the adult attachment and parenting assessments; and the use of a middle-class, nonclinical sample of limited diversity and variability. Further studies will be necessary to test whether these results extend to populations with greater racial and ethnic diversity and those with higher levels of emotional distress and pathology, and to test how internal working models and emotional well-being interrelate to predict parenting behavior among unresolved mothers.

Adult Attachment and Parenting Behavior

In this study the parenting behavior variables factor into two coherent parenting components, which are predicted by different aspects of adult attachment and parent emotion. The finding of higher anger/intrusiveness among preoccupied mothers is consistent with the history of inconsistent support and inappropriately demanding or role-reversing parenting typically reported in preoccupied mothers' AAI interviews. It is also consistent with the high levels of uncontained anger and speech shown by some preoccupied mothers in their AAIs (Main & Goldwyn, 1994). To our knowledge, no prior studies have demonstrated associations between preoccupied adult attachment and greater parenting anger or intrusiveness, although one study found a continuous rating of degree of preoccupation to predict greater intrusiveness (Bosquet & Egeland, 2001; see also Adam, 1998, for a similar continuous rating approach).

Although dismissing parents had the lowest mean level of parent warmth, this was not a statistically significant main effect. Prior studies did find dismissing parents to be significantly lower in warmth (Crowell & Feldman, 1988). As discussed later, however, the interpretation of these associations is modified by our finding of a significant interaction between dismissing attachment and depressive symptoms in predicting parental warmth/responsiveness.

Adult Attachment and Parent Emotional Well-Being

As predicted, significant associations were also found between adult attachment and maternal emotion, including both positive and negative affectivity as well as maternal anxiety. Consistent with past results, preoccupation was associated with significantly higher levels of emotional distress, in this case, negative affectivity and anxiety. A novel finding in the current study is that preoccupied mothers also scored higher on positive affectivity, suggesting that preoccupation is associated with greater emotionality in general, not just negative emotionality. Another new finding is the low levels of positive affectivity associated with dismissing adult attachment. Dismissing individuals are reported to deny defensively the presence of negative emotion (Pianta et al., 1996), but it appears that they are willing to report the absence of positive emotional experience. Low levels of positive emotionality on the MPQ, which are associated with the experience of "tendencies to experience joylessness, fatigue, loss of

interest reflecting nonpleasurable and possibly depressive disengagement" (Tellegen, 1982, p. 2) are consistent with dismissing individuals' restricted expression of emotion and restricted exploration of and interest in relationships (Main & Goldwyn, 1994).

Parent Emotion and Parenting Behavior

Although some associations between parent emotion and parenting were found, stronger associations were expected. We expected greater negative affectivity and anxiety to predict less desirable parental behavior; however, this was not the case. It is possible that the levels of these variables experienced by our relatively low-risk, middle-class, volunteer sample were not high enough to influence parental behavior, at least during a laboratory session when parents knew they were being observed. The main effect of depressive symptoms on warm/responsive parenting was also nonsignificant—this interpretation is, however, modified by the finding of a significant interaction between depressive symptoms and adult attachment described later.

The finding that higher observed warmth/responsivity is associated with higher self-reported positive affectivity is consistent with prior research (Mangelsdorf et al., 1990) and with the idea that positive affectivity reflects personality traits "conducive to joy, excitement, vigor, and generally to states of positive engagement" (Tellegen, 1982, p. 2). Indeed, those self-reported states of joy and positive engagement are visible to the observer and are clearly relevant for warm/responsive parenting. It is interesting that none of the maternal affect variables had simple associations with angry/intrusive parenting; however, with adult attachment controlled, lower levels of anxiety were related to higher anger/intrusiveness. This finding is unexpected and requires replication, but it raises the possibility that higher anxiety may inhibit the expression of negative parenting, at least when mothers know they are being observed.

Adult Attachment, Emotion, and Parenting: Emotion as Mediator?

Given the limited associations found between emotion and parenting in the current study, it is not surprising that maternal emotional well-being did not mediate the relations between adult attachment and parenting. The associations between preoccupation and anger/intrusiveness were independent of maternal emotion. This could be because we did not measure the types of emotions that might be more relevant to this dimension of parenting (such as

anger expression and emotion-regulation abilities). It may also be, however, that the processes underlying angry/intrusive parenting have more to do with parents' cognitive interpretations of the parenting situation than their emotional traits. Because there were no significant main effects of adult attachment status on parenting warmth, our understanding of parent warmth in this study does not come from a story of mediation, but rather of moderation.

Adult Attachment, Emotion, and Parenting: Emotion as Moderator?

The significant interaction between adult attachment status and depressive symptoms in predicting parent warmth/responsivity helps explain why the simple effects of each of these variables were not significant—neither variable is related to warm/responsive parenting without taking into account the level of the other. Associations between adult attachment and parent warmth were only seen when at least moderate levels of depressive symptoms were also present. The presence of moderate levels of depressive symptoms appears to serve as a risk factor for the behavioral expression of insecure working models in parent–child relationships, particularly in the dismissing adult attachment. One prior study has demonstrated a similar interaction effect: Phelps, Belsky, and Crnic (1998) found that poor parenting emerged in insecure parents only when high levels of life stress were present. Clearly, future studies of adult attachment and parenting need to keep in mind the possibility that attachment-related differences in parenting are more likely to occur under conditions of personal or contextual adversity.

The fact that secure mothers with depressive symptoms do not show the behavioral changes typically associated with depressive symptoms is worthy of note. It is not that secure mothers were simply the least depressed of the higher depressive symptoms group. Within that group, the three attachment groups had roughly equal symptom levels. It is also important to note that the levels of depressive symptoms involved in the observed interaction effect are not extreme. The mean level in the higher depressive symptoms group was only 12.3 points (*range* = 8–30), which is in the mild to moderate range on the BDI (Beck et al., 1988). Thus, even mild to moderate levels of depressive symptoms may have meaningful effects on parent warmth/responsiveness in the presence of insecure/dismissing attachment.

In a meta-analysis including 10 studies of 389 parent–child dyads, van Ijzendoorn (1995) noted

that variation in parent attachment accounted for only 12% of the variation in parental responsiveness. Clearly, factors other than adult attachment must also play an important role in parenting. The current study suggests that parent depressive symptoms are one such factor and that they must be considered not only in addition to but also in interaction with adult attachment to understand parental warmth/responsiveness.

Conclusions

Although adult attachment is related to parental emotional well-being, differences in parent emotion do not appear to be the primary pathway by which adult attachment affects parenting. Rather, internal working models and parent emotional characteristics have independent effects on parent behavior, and internal working models and parent emotional characteristics also interact with one another in predicting parenting. Internal working models are clearly more than just reflections of parent emotional well-being, but knowledge of parent depressive symptoms is relevant for understanding the effects of internal working models on parent–child relationships, and knowledge of adult attachment is relevant for understanding the effects of depressive symptoms on parenting. More generally, these findings suggest that future studies should involve the careful modeling of the role of adult attachment in relation to other factors important for parenting to derive a better understanding of the complex determinants of parenting.

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