

Attachment and the Experience and Expression of Emotions in Romantic Relationships: A Developmental Perspective

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In this longitudinal study, the authors tested a developmental hypothesis derived from attachment theory and recent empirical findings. Target participants were 78 individuals who have been studied intensively from infancy into their mid-20s. When targets were 20–23 years old, the authors tested the way in which interpersonal experiences at 3 pivotal points in each target's earlier social development—infancy/early childhood, early elementary school, and adolescence—predicted the pattern of positive versus negative emotions experienced with his or her romantic partner. A double-mediation model revealed that targets classified as securely attached at 12 months old were rated as more socially competent during early elementary school by their teachers. Targets' social competence, in turn, forecasted their having more secure relationships with close friends at age 16, which in turn predicted more positive daily emotional experiences in their adult romantic relationships (both self- and partner-reported) and less negative affect in conflict resolution and collaborative tasks with their romantic partners (rated by observers). These results are discussed in terms of attachment theory and how antecedent life experiences may indirectly shape events in current relationships.

Keywords: attachment, emotions, romantic relationships, peer relationships

Many of the most intense emotions arise during the formation, the maintenance, the disruption, and the renewal of attachment relationships. The formation of a bond is described as falling in love, maintaining a bond as loving someone, and losing a partner as grieving over someone. Similarly, threat of loss arouses anxiety, and actual loss gives rise to sorrow, while each of these situations is likely to arouse anger. The unchallenged maintenance of a bond is experienced as a source of security, and the renewal of a bond as a source of joy. Because such emotions are usually a reflection of the state of a person's affectional bonds, the psychology and psychopathology of emotion is found to be in large part the psychology and psychopathology of affectional bonds.

—John Bowlby, *Attachment and Loss: Vol. 3. Loss: Depression, and Sadness*

Close relationships are the setting in which some of life's most tumultuous emotions are experienced. Echoing this viewpoint, Berscheid and Reis (1998) have argued that identifying both the origins and the profile of emotions that are experienced in a relationship is essential if one wants to understand the core defining features of a relationship. Against this backdrop, one might expect that a great deal would be known about emotions in relationships, especially how significant relationship experiences at critical stages of social development forecast the type and intensity of emotions experienced in adult attachment relationships. Surprisingly little is known about these issues, however (see Berscheid & Regan, 2004; Shaver, Morgan, & Wu, 1996). Using attachment theory (Bowlby, 1969, 1973, 1980) as an organizing framework, we designed the current longitudinal study to fill these crucial conceptual and empirical gaps in our knowledge.

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Attachment Theory and Emotions

Bowlby's attachment theory provides a unique and comprehensive account of the normative (i.e., species-typical) and individual difference (i.e., individual-specific) processes that generate emotions in close relationships. According to Bowlby, the attachment system serves two principal functions—to protect vulnerable individuals from potential threats and to regulate subsequent negative affect. The normative component of the theory specifies the stimuli and contexts that typically elicit and extinguish specific kinds of emotions as well as the sequence of emotions commonly experienced in response to certain relational events (e.g., the sequence of protest, despair, and detachment that normally unfolds during prolonged separations from attachment figures). The individual difference component articulates how one's personal history of receiving care and support from attachment figures across the life

span shapes the goals, working models, and coping strategies that one uses when emotion-eliciting stimuli or events occur in relationship contexts. Following Bowlby's formulation, most research on the significance of early attachment for later relationships relies on the distinction between secure and insecure attachment histories (e.g., G. I. Roisman, personal communication, April 13, 2006; Roisman, Collins, Sroufe, & Egeland, 2005; also see Thompson, 1999; Waters & Cummings, 2000).

Kobak and Sceery (1988) have suggested that the way in which individuals perceive and manage emotions in relationships should depend on the nature of the working models formed in response to their specific attachment histories. Drawing on the attachment classifications that are widely used in cross-sectional studies of adult attachment (see Ainsworth, 1989; Main & Goldwyn, 1998), Kobak and Sceery reasoned as follows:

Secure attachment [should] be organized by rules that allow acknowledgement of distress and turning to others for support, avoidant attachment by rules that restrict acknowledgement of distress and the associated attachment attempts to seek comfort and support, and ambivalent attachment by rules that direct attention toward distress and attachment figures in a hypervigilant manner that inhibits the development of autonomy and self-confidence. (p. 142)

Extending these ideas, Mikulincer and Shaver (2003) have proposed a process model that outlines the conditions under which the attachment system should be activated and terminated in individuals who are securely attached. When potential threats are perceived, secure individuals should remain confident that current attachment figures will be attentive, responsive, and available to meet their needs and mitigate their distress. These beliefs should increase their feelings of security, deactivating their attachment systems and allowing secure individuals to use constructive, problem-focused coping strategies.

Insecurely attached individuals, on the other hand, should be more likely to experience attachment system activation, motivating them to adopt interpersonal self-focused strategies to compensate for uncertainty about their partners' responses. Mikulincer and Shaver (2003) proposed differing strategies for individuals who manifest the subcategories of insecurity described by Ainsworth, Blehar, Waters, and Wall (1978). For example, when individuals who are anxiously attached perceive threats, they are likely to be uncertain that their attachment figures will be sufficiently attentive, available, and responsive to their needs. These worries should sustain their anxiety and keep their attachment systems online, leading anxious persons to adopt emotion-focused coping strategies (e.g., remaining hypervigilant to signs of possible loss, ruminating about worst-case scenarios). When individuals who are avoidantly attached feel threatened, they are likely to experience—but perhaps not consciously acknowledge—distress and anxiety at a physiological level. To keep their attachment systems deactivated, these individuals would be expected to strive to inhibit and control their emotions by deploying avoidant coping strategies.

Each mode of coping should also be associated with unique interpersonal goals (Mikulincer & Shaver, 2005). Securely attached individuals, for example, should focus on building greater intimacy with their attachment figures. Individuals who are insecurely attached should cope differently, consistent with the particular form of insecurity they manifest. Those who are anxiously

attached should yearn to achieve greater “felt security.” Those who are avoidantly attached should strive to obtain and maintain interpersonal autonomy and control. These countervailing goals, working models, and coping strategies should shunt individuals who have different attachment histories toward distinct patterns of emotional experience in later relationships.

Experience of Emotion in Relationships

Research has confirmed that the frequency and intensity of daily emotions experienced in relationships act as a good barometer of how close individuals feel to their partners (Barrett, Robin, Pietromonaco, & Eysell, 1998). Experiencing strong and frequent emotions in a relationship can communicate that one truly cares about a partner and a relationship (Clark, Fitness, & Brissette, 2001). Indeed, individuals who view their relationships in communal-oriented rather than exchange-oriented terms report expressing both more positive and more negative emotions when interacting with their romantic partners (Clark & Brissette, 2000).

Much of what is known about the experience of emotions in relationships can be understood from an attachment perspective (see Mikulincer & Shaver, 2005, for a review). In situations in which relationship partners behave negatively, for example, individuals who are more securely attached should experience functional anger, which ought to facilitate their more constructive, relationship-enhancing goals. More insecurely attached individuals, on the other hand, should experience dysfunctional anger, which ought to promote either security-oriented goals (in the case of people who have anxious attachment histories) or control/autonomy-focused goals (in the case of those who have avoidant histories).

Negative Partner Behaviors

Studies investigating the emotional impact of negative partner behaviors have found that individuals classified as secure on the Adult Attachment Interview (AAI; Main & Goldwyn, 1998) behave more constructively when confronted with negative partner behavior than do those classified as insecure (Zimmermann, Maier, Winter, & Grossmann, 2001). Furthermore, adults classified as dismissive on the AAI are rated by their friends as being more emotionally hostile (Kobak & Sceery, 1988), and dismissive teens display more dysfunctional and inappropriate anger (rated by observers) when trying to resolve chronic problems with their mothers (Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993).

Studies that have assessed the two dimensions underlying self-reported adult romantic attachment measures (anxiety and avoidance; see Brennan, Clark, & Shaver, 1998) have also found that women who report being more avoidantly attached to romantic partners display greater dysfunctional anger toward their partners when they (avoidant women) are more distressed in a fear-inducing situation and receive less support from their partners as rated by observers (Rholes, Simpson, & Orina, 1999). Highly anxious women also display more dysfunctional anger but only after their distress has subsided (during a poststress recovery period) and only if their partners behaved less supportively when the women were distressed (Rholes et al., 1999). Additional research has revealed that anxiously attached persons typically re-

port a flood of negative feelings when their partners behave badly toward them, experience intrusive tangential memories and perceptions, ruminate about and amplify their negative feelings, and subsequently feel worse about their partners and relationships (Mikulincer, 1998). Highly anxious individuals also report and display greater dysfunctional anger, hostility, and distress when they are trying to resolve major—but not minor—relationship-based problems with their romantic partners (Simpson, Rholes, & Phillips, 1996).

Positive Partner Behaviors

When relationship partners behave positively, individuals who are securely attached should experience an assortment of positive emotions, given that positive behaviors often signal availability, responsiveness, support, or validation. Insecurely attached individuals, by comparison, should experience less intense positive emotions—or perhaps even negative ones—in response to positive partner behaviors. Positive actions by partners might lead insecurely attached individuals to feel as if they do not deserve, cannot reciprocate, or might fail to meet their partner's positive expectations (in the case of anxiously attached persons) or to worry about the loss of interpersonal control and autonomy (in the case of avoidantly attached persons).

Studies examining the emotional correlates of positive partner behaviors have shown that persons classified as dismissive on the AAI exhibit fewer signs of genuine positive emotions when exposed to positive stimuli (Spangler & Zimmermann, 1999). In parallel fashion, individuals who report being more anxiously or more avoidantly attached to romantic partners also display fewer positive emotions during both important events (e.g., college entrance interviews; Horppu & Ikonen-Varila, 2001) and mundane events (e.g., watching a pleasant film; Magai, Hunziker, Mesias, & Culver, 2000). These individuals also report feeling fewer positive emotions in group interactions (Rom & Mikulincer, 2003) and report experiencing fewer positive emotions when interacting with different types of partners in daily diary studies (e.g., Pietromonaco & Feldman Barrett, 1997; Tidwell, Reis, & Shaver, 1996). Finally, individuals who report being more avoidantly attached also indicate that they are less likely to feel gratitude when their partners behave positively toward them, whereas those who report being more anxiously attached feel mixed or conflicting emotions when their partners act positively toward them (Mikulincer, Shaver, & Slav, 2006).

Longitudinal–Developmental Perspectives on Emotion in Relationships

Bowlby (1980) proposed that emotional reactions to relationship events are partially rooted in earlier relationship experiences, first with caregivers and then with other significant partners across adolescence and adulthood (also see Ainsworth, 1989; Waters & Cummings, 2000). This core tenet of attachment theory has inspired longitudinal studies in which the same individuals have been studied repeatedly across time from infancy onward (see, for example, Grossmann, Grossmann, & Waters, 2005; Sroufe, Egeland, Carlson, & Collins, 2005). Though differing in which specific features of attachment were examined, all these studies in-

vestigated the ways in which early attachment experiences are prospectively related to the quality and functioning of close relationships in early adulthood.

Bowlby's fundamental hypothesis that internal working models (representations) of earlier relationship experiences should affect later relationship experiences has been very influential. Recent findings, however, suggest that representations of early relationship experiences do not necessarily predict subsequent relationship outcomes in a simple or straightforward manner. Instead, representations tend to be modified continuously as individuals enter and leave different types of attachment relationships across successive periods of development (see Carlson, Sroufe, & Egeland, 2004). Recent studies, for example, indicate that relationship experiences with early peers following infancy contribute significantly to the quality of close friendships in adolescence. Furthermore, the quality of experiences with caregivers in infancy and early childhood also predict the quality of adolescent friendships over and above the contributions of more proximal (i.e., concurrent) experiences with same-age peers (see Sroufe, Egeland, & Carlson, 1999).

With respect to adult relationships, individuals' attachment histories in infancy, assessed using the Strange Situation procedure (Ainsworth et al., 1978), also predict some aspects of their later behavior with romantic partners when individuals are in their early 20s (Collins & Van Dulmen, in press; Roisman et al., 2005). Couple functioning has been assessed by both observer ratings of videotaped couple interactions and self-reports from both romantic partners (i.e., the longitudinal target person and his or her current romantic partner). Studies have revealed that if the longitudinal target person was classified as having had a disorganized pattern of attachment during early infancy (Main & Solomon, 1990), his or her interaction during conflict resolution with the current romantic partner in early adulthood was rated by observers as containing fewer secure base behaviors, less balance between couple functioning and each partner's personal interests or needs, less caring, less trust, less emotional closeness, less sensitivity to one another's needs and wishes, and poorer overall outcomes than interactions involving people who were secure during infancy. In addition, if the target person was disorganized during infancy, the couple was rated as displaying comparatively greater hostility during their conflict resolution interactions than a couple whose attachments during infancy were secure.

Attachment insecurity assessed during infancy and early childhood also forecasts other relationship outcomes across development, including the target's social competence with peers between the ages of 6 and 8 as rated by classroom teachers (e.g., Sroufe et al., 1999) and the target's interactions with his or her parents at age 13 as rated by trained observers (Sroufe et al., 2005). Further evidence documents the relation between these chronologically later measures of family interaction and subsequent romantic relationship behaviors and perceptions in early adulthood, but neither the role of parent–child relationships prior to age 13 nor the implications of these relations across time for self-reported emotional experience in romantic relationships have been considered (Roisman, Madsen, Hennighausen, Sroufe, & Collins, 2001).

Studies of associations between early attachment security and behavior in later romantic relationships also suggest that chronologically later measures of nonfamilial relationships (e.g., teacher

ratings of peer competence in early elementary school, degree of security expressed about relationships with close friends in adolescence) often mediate connections between early infant-caregiver relationships and behavior in later romantic relationships. Many mediation effects, however, are partial, with the impact of early attachment measures remaining independent and significant predictors of later developmental outcomes (Sroufe et al., 2005). Whether these patterns apply to the prediction of self-reported emotions in adult relationships is not known, however, because previous longitudinal studies have not examined reports of emotions in romantic relationships.

Although past research has emphasized the attributes of individuals, concurrent relationship conditions, or interaction dynamics as determinants of the experience and expression of emotions in romantic relationships (see Mikulincer & Shaver, 2005), the longitudinal findings reviewed above suggest that the experience and expression of emotions in romantic relationships in adulthood might reflect vestiges of important relationships experienced during earlier periods of development. This fundamental developmental hypothesis of attachment theory was tested in the current study.

The Current Study

The current study was based on longitudinal data from 78 target participants who have been studied continuously from infancy into their mid-20s as part of the Minnesota Study of Risk and Adaptation from Birth to Adulthood (see Sroufe et al., 2005). Between the ages of 20 and 23, each target participant and his or her current romantic partner completed a battery of self-reported relationship measures. Each couple was also videotaped while trying to resolve a conflict in their relationship and while completing a collaborative task. Our primary goal was to test whether and how attachment experiences and relationships encountered during critical stages of development (i.e., in infancy, early childhood, and adolescence) are systematically related to the self-reported experience and the observer-rated expression of emotions with romantic partners in early adulthood. In this initial attempt to examine mediation processes between early attachment history and emotions in adult romantic relationships, we adopted the prevailing practice of testing the predicted differences between secure versus insecure attachment histories. Thus, when assessing the infant attachment security of target participants, subclassifications of insecurity in the Strange Situation were collapsed into a single insecure category.

On the basis of theory and prior empirical findings, we hypothesized a double-mediation developmental model. According to this model, the emotional qualities of romantic relationships in early adulthood should be predicted by a set of sequential links from the attachment security status in infancy and early childhood, to the quality of peer relationships in childhood, to the quality of relationships with close friends in adolescence. We predicted that the quality of childhood peer relationships and the quality of close friendships in adolescence should mediate the link between early attachment status (assessed using the Strange Situation procedure when the targets were 12 months old) and the emotional tenor of adult romantic relationships (assessed at age 20–23). More specifically, individuals who were classified as secure in infancy and

early childhood should be rated as more socially competent by their grade school teachers than those who were classified as insecure. Early social competence, in turn, should predict stronger rated secure-base friendships during adolescence, and friendship security then should predict the experience and expression of less negative versus positive emotion in adult romantic relationships. We also tested several competing alternative models.

This developmental model is based on the premise that relationships at any stage of development are influenced by both familial and extrafamilial relationships experienced at earlier stages (see Sroufe et al., 2005). As a result, attachment relationships with caregivers early in life should have an impact not only on later relationships with caregivers but also on other important relationships with peers, close friends, and romantic partners. Carlson et al. (2004), predicting observer ratings of individual global competence at age 19, showed that this type of developmental process involves dynamic interactions between experiences in one's successive relationships and the mental representations of those experiences, which are constructed and revised across relationships from each successive earlier period. The age-19 competence measure, however, is not a measure of emotional experience in romantic relationships. In the few existing studies of emotions associated with romantic relationships, predictors have been parent-child variables either from assessments made at age 13 but not earlier (Roisman et al., 2001) or from the quality of caregiving in infancy and early childhood but not measures of parent or peer relationships between infancy and early adulthood (Roisman et al., 2005). Determining whether both early relationships with parents and later relationships with nonromantic peers contribute to understanding the experience and expression of emotions in adult romantic relationships requires that these specific variables be tested and modeled.

The measurement approach used in the current study is consistent with this conceptualization and with the principle of heterotypic continuity (see Caspi & Roberts, 2001; Rutter & Sroufe, 2000). In particular, the infancy/early childhood measures obtained from target participants assessed their attachment and exploratory behaviors with their caregivers in the Strange Situation at the age of 12 months. The middle childhood measures assessed target participants' competence between the ages of 6 and 8 at engaging peers in social interactions and their attunement to interpersonal dynamics in organized peer groups in Grades 1–3. The adolescence measure assessed the nature and quality of target participants' behaviors at age 16 that were indicative of having secure attachment representations (e.g., greater disclosure, trust, and authenticity) with close friends. The early adulthood measures indexed the experience and expression of emotions evident in target participants' romantic relationships when they were between the ages 20 and 23. Although target participants' behaviors, relationships, and relationship representations were assessed using different measures in different relationships at different points during social development, the underlying meaning and function of those behaviors and representations should have been consistent across time because the measures were designed to tap the general coherence of attachment representations and behaviors at each developmental stage.

Method

Participants

The present data were collected as part of the Minnesota Study of Risk and Adaptation from Birth to Adulthood (see Sroufe et al., 2005). This prospective longitudinal study of at-risk children and their families began in 1976, when 267 women were recruited from Minneapolis public health clinics where they were receiving prenatal care. Although most (58%) of the child participants are European American, 14% are African American, and 3% are Native American or Latino. A portion of the sample (16%) is of mixed racial background, and 9% are unclassifiable because of missing data on their fathers' race. The original sample was 55% male and 45% female. Approximately 180 of the original participants are still participating in data collection 28 years after the study began.

Procedure and Early Developmental Measures

The present analyses focused on a subset of the original sample: those individuals who participated in the romantic relationship assessments in early adulthood ($N = 78$). Target participants who were involved in a romantic relationship that had existed for at least 4 months participated with their partners in this assessment phase when most target participants were between the ages of 20 and 23. The mean age of participants was 21.60 years ($SD = 3.75$). The mean length of relationships was 25.06 months ($SD = 17.04$). All 78 couples were heterosexual.

The subsample that participated in the couples assessments did not differ from the original sample on socioeconomic status measured prenatally, in middle childhood, or at age 16. The proportion of subsample participants of African American and mixed racial backgrounds did not differ from that of the original sample; however, a slightly higher proportion of subsample participants was European American. Target participants and their partners were first interviewed separately and then completed a battery of self-report measures that assessed the functioning of their relationship. Each couple then discussed and tried to resolve existing points of disagreement or contention in their relationship; they also completed a collaborative problem-solving task. These interactions were videotaped and subsequently coded by trained observers (see below).

In earlier phases of the Minnesota Study of Risk and Adaptation from Birth to Adulthood, several measures were collected at three different stages of participants' social development: during very early childhood, early elementary school, and adolescence. Assessments were conducted at these specific periods of social development because each one represents a unique stage at which new and different kinds of relationships are being formed and developed. The earlier developmental measures relevant to the hypotheses of the current study include the following:

Infant attachment security. The quality of parent–infant attachment relationships was assessed with the Strange Situation (see Ainsworth et al., 1978) when the target participants were 12 months old. Certified raters classified infants' attachment patterns as secure, avoidant, or anxious/resistant. The present analyses used the conventional secure versus insecure distinction, in which avoidant and anxious/resistant classifications were collapsed into one group. Of the subsample of original participants who com-

pleted romantic relationship assessments in early adulthood, 61% had been classified as secure and 39% had been classified as insecure at 12 months old.

Peer competence. Peer competence was assessed in Grades 1, 2, and 3. Each target participant's classroom teacher was given a one-paragraph description of a hypothetical child who was well liked and respected by peers, had mutual friendships, demonstrated understanding of other children's perspectives and ideas, and constructively engaged peers in activities. The teacher then rank-ordered all children in the classroom according to how closely each student matched this criterion. Teachers were unaware of which child was the target child. Peer competence scores thus represent teachers' perceptions of each target participant's percentile rank in his or her class during Grades 1–3 divided by the total number of students in each respective class. Accordingly, each target participant received a mean peer competence percentile ranking relative to his or her classmates averaged across Grades 1, 2, and 3. Because each target participant's score came from a different teacher, concordance was computed between scores in each of the three consecutive years. The Pearson correlation was .50, $p < .01$, between the participants' scores in Grades 1 and 2 and was .45, $p < .01$, between the participants' scores in Grades 2 and 3.

Friendship security. Each target participant's level of friendship security at age 16 was rated from a comprehensive interview. This measure was developed from the premise that attachment security in later relationships should be facilitated by security in earlier relationships (see Ainsworth, 1989; Bowlby, 1969; Thompson, 1999; Waters & Cummings, 2000). Target participants were asked to describe their close friendships, including whether and how they disclosed behaviors and feelings indicative of trust and authenticity within their close friendships. The questions on which ratings were based included the degree to which the adolescent felt comfortable telling private things to close friends, how friends responded to such disclosures, and whether the adolescent felt "close" to friends. Two trained coders then rated global friendship quality on a 7-point scale. The scale assessed the extent to which target participants reported feeling that they could be themselves in their friendships, expected friends to be available and supportive, and could mutually (jointly) share both positive and negative emotional and interpersonal experiences. The interrater reliability (intraclass correlation) of this scale was .59; the Spearman–Brown correction was .74.

Contemporary Self-Report Measures

At ages 20–23, target participants and their partners of at least 4 months each completed a battery of measures about their relationship. The 4-month minimum criterion was adopted to increase the likelihood that participants were involved in meaningful and reasonably well-established romantic relationships. The contemporary measures most relevant to the current hypotheses were the following:

Emotional tone of the relationship. The Emotional Tone Index (ETI; Berscheid, Snyder, & Omoto, 1989) is a 27-item scale on which individuals report the extent to which they typically experience different emotions in their relationships. Each item is answered on a Likert-type scale, with higher scores reflecting the

more frequent experience of certain emotions. The ETI includes 12 positive emotions and 15 negative emotions that vary in intensity from high (e.g., elated, angry) to low (e.g., content, disappointed). It contains three subscales: (a) the extent to which individuals experience positive emotions (the sum of the 12 positive emotion items), (b) the extent to which individuals experience negative emotions (the sum of the 15 negative emotion items), and (c) the relative balance of positive versus negative emotions (the mean of the positive emotion index – the mean of the negative emotion index). The relative balance scores reported by both target participants and their romantic partners were the primary focus of the present analyses. Unless otherwise stated, ETI index in this study refers to the relative balance subscale. The internal consistency (Cronbach's alpha) for the positive emotion subscale was .87, and for the negative emotion subscale, it was .86. Within participants, positive emotion scores were negatively related to negative emotion scores ($r = -.46$, $p < .001$). Target participants' relative balance of positive versus negative emotion scores was positively correlated with their partners' balance scores ($r = .31$, $p < .01$).

Contemporary relationship observation measures. Couples also completed a videotaped observational procedure in our laboratory that consisted of two interaction tasks: the Markman–Cox procedure and the Ideal Couple Q-sort. The Markman–Cox procedure (Cox, 1991) is designed to elicit conflict between relationship partners. In the first phase of the procedure, each partner completed a relationship problem inventory privately to identify and rate the most salient problems in the relationship. Each couple then reviewed their inventories together and chose the problem that caused the most conflict in their relationship. In the second phase (which lasted 10 min), each couple was instructed to discuss the problem and to attempt to reach a solution. During a “cool down” phase (which lasted 4 min), each couple then discussed the areas on which they agreed the most in their relationship.

Following this, each couple completed an Ideal Couple Q-sort (Collins et al., 1999), which is designed to elicit collaborative behaviors. In this task, each couple was given 45 cards, and each card listed a potential quality of a romantic couple (e.g., make sacrifices for each other, have the same interests). The qualities included some items from the Dyadic Relationship Q-Sort (Bengtson & Grotevant, 1999). Each couple was instructed to read each card aloud and decide together into which of three labeled baskets the card should be placed: a basket labeled “Most like an ideal couple,” one labeled “Least like an ideal couple,” or one labeled “Middle/unsure.” Couples were told to base their decisions on their ideas of an ideal couple rather than on their own relationship. After sorting all of the cards, each couple narrowed their sort by selecting 7 cards from the “least ideal” basket (i.e., those that least described an ideal couple) and 7 cards from the “most ideal” basket (i.e., those that best described the ideal couple).

Seven trained observers then rated all of the interactions (both the videotaped conflict discussion and the Ideal Couple Q-Sort discussion) on dyadic scales that assessed the amount of shared positive affect, shared negative affect, anger, hostility, conflict resolution, secure base behavior, and overall quality (Collins et al., 1999; also see Sroufe et al., 2005). Ratings were also made on three “balance scales” that indexed the extent to which the partners in each relationship facilitated (a) acceptance of openness and

vulnerability (Balance Scale 1), (b) individual growth in the context of the relationship (Balance Scale 2), and (c) effective completion of the problem-solving task (Balance Scale 3). Interrater reliabilities (intraclass correlations) for these scales ranged from .82 to .96. All scales were coded at the dyadic level. Thus, the affect scales assessed the extent to which each couple engaged in reciprocal exchanges of positive affect, negative affect, anger, and hostility. Our two global relationship observation measures were based on two composite variables originally developed by Roisman et al. (2001). The first measure, adult romantic relationship process, was a unit-weighted composite of the positive affect, secure base, conflict resolution, and overall quality measures and Balance Scales 1 and 2. The second measure, adult romantic relationship negative affect, was a unit-weighted composite of the anger, hostility, and dyadic negative affect measures. The reliabilities of the relationship process and negative affect composites were .95 and .91, respectively.

We also calculated two additional measures: the ETI relative balance score of each participant, in which his or her partner's ETI score was statistically controlled, and a composite (z -scored) index composed of observer-rated adult relationship process scores, observer-rated negative affect scores, and both partners' self-reported ETI relative balance scores.

Results

Preliminary Analyses

As discussed above, the variables used in the present analyses were constructed to broadly assess important relationship experiences at critical points of social development. Thus, we first examined correlations between the variables that formed each multimeasure developmental construct: peer competence and ratings of the emotions expressed during the videotaped conflict and collaborative discussions with romantic partners at ages 20–23.

The peer competence composite measure contained ratings of each target participant's level of social competence reported by three different teachers when the participant was in Grades 1, 2, and 3. The correlations among teacher ratings for each grade ranged from .45 to .53.

With regard to the observer-rated scales, the adult romantic relationship negative affect measure was composed of three variables: anger, hostility, and negative affect. The correlations among these variables ranged from .77 to .86. The adult romantic relationship process measure involved six variables: Balance Scale I—openness versus concealment, Balance Scale II—development of the relationship versus development of the individual, quality of conflict resolution, overall quality of relationship, secure base, and shared positive affect. The correlations among these variables ranged from .60 to .94.

Descriptive Statistics and Correlations

In Table 1, means and standard deviations are presented for all of the major variables included in the structural models testing the main hypotheses. Table 2 reports zero-order correlations between all of the major variables. It is important to recognize that these variables span almost 20 years and four critical points in the social and

Table 1
Descriptive Statistics for the Major Variables

Variable	<i>M</i>	<i>SD</i>
Infant attachment security	1.20	0.40
Mean peer competence—Grades 1–3	46.84	22.10
Friendship security at age 16	4.39	1.50
Romantic relationship process	3.97	1.25
Romantic relationship negative affect	2.01	1.21
ETI	3.33	1.37
ETI (controlling for partner's ETI)	0.00	0.99
Composite index	0.00	1.00

Note. For each variable except the ETI, *N* = 78 observations. ETI = Emotional Tone Index.

interpersonal development of target participants, ranging from the quality of their attachment patterns at 12 months, to their social competence with peers in early elementary school, to their degree of security with close friends in adolescence, to their emotional experiences with adult romantic partners between the ages of 20 and 23 years.

As expected, infant attachment, peer competence in childhood, and friendship security in adolescence all correlated positively and sequentially, indicating that target participants who were secure at the beginning of their lives were rated as more socially competent in grade school and, in turn, as having more secure friendship representations at age 16 than those participants who were insecure at the beginning of their lives.

Peer competence was significantly correlated with three dependent measures. Target participants evaluated as less socially competent by their teachers during elementary school had interactions with their romantic partners in adulthood that contained greater negative affect. In addition, they reported experiencing relatively more negative than positive emotions in their relationships on a daily basis, even when their partner's ETI scores were partialled out. The same pattern emerged for security of friendships at age 16, with one additional finding. Not only did target participants who had less secure friendship representations report relatively more negative than positive emotions in their daily relationships and have interactions in the laboratory that were rated as containing greater negative affect,

but those interactions were also rated as indicating poorer relationship process (i.e., partners were lower in mutual responsiveness and were more likely to express hostility).

Primary Analyses

In the primary analyses, we tested the hypothesized structural relations between the antecedent measures and the nature and quality of emotions experienced in adult romantic relationships in early adulthood (both self-reported and observer-rated). We used structural equation modeling (SEM) to test our hypothesized mediation models. SEM is a widely used data analytic approach that is well suited for testing the type of mediation effects that we predicted (see Loehlin, 2004). We predicted that the association between measures of infant attachment security and measures of emotion in adult romantic relationships would be mediated by two intervening constructs—peer competence in early elementary school and the degree of security with close friends at age 16. The tested models are described below.

Given our sample size (*N* = 78 couples), it was impractical to construct and conduct tests of measurement models for each construct. Accordingly, the manifest composite variables were tested. We tested our hypothesized structural model for each of the three primary dependent variables: observer-rated adult romantic relationship process scores from the videotaped discussions, observer-rated adult romantic relationship negative affect scores from the videotaped discussions, and both partners' self-reported emotion balance scores on the ETI. Additionally, a structural model was tested in which the three dependent variables were aggregated into one composite dependent variable.

Structural Model 1: Predictors of adult romantic relationship process. Model 1 tested whether the link between infant attachment security and the adult romantic relationship process index was mediated through the measures of peer competence in elementary school and friendship security at age 16 (see Figure 1a). As predicted, this model fit the data very well, comparative fit index (CFI) = 1.0, root-mean-square error of approximation (RMSEA) = .00, $\chi^2(2, N = 78) = 0.24, ns$. Hence, the CFI, RMSEA,

Table 2
Correlations Between the Major Variables

Variable	1	2	3	4	5	6	7	8
1. Infant attachment (12 months)	—							
2. Peer competence (Grades 1–3)	.29**	—						
3. Friendship security (age 16)	.12	.37**	—					
4. Romantic relationship process (ages 20–23)	.09	.13	.43***	—				
5. Negative affect (ages 20–23)	-.12	-.27*	-.37**	-.75***	—			
6. ETI scores (ages 20–23)	.23*	.29**	.36**	.30**	-.41***	—		
7. ETI scores (ages 20–23; residualized score, controlling for partner's ETI score)	.19†	.25*	.32**	.19	-.27*	.95***	—	
8. Composite of relationship process, negative affect, and ETI scores	.20†	.27*	.48***	.87***	-.88***	.66***	.55***	—

Note. ETI = Emotional Tone Index.

† *p* < .10. * *p* < .05. ** *p* < .01. *** *p* < .001.

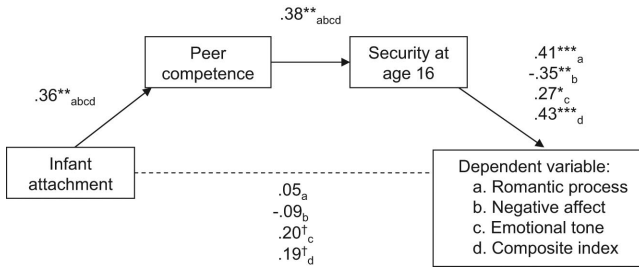


Figure 1. Structural Models 1–4. Four tests of the structural model were conducted, one for each of the four dependent variables: a, adult romantic relationship process; b, adult romantic relationship negative affect; c, adult romantic emotional tone; and d, the composite score for dependent variables a, b, and c. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

and chi-square test all indicated good model fit.¹ Neither the results of the chi-square test nor the other fit indexes dropped significantly when the direct path from infant attachment security to adult romantic relationship process was eliminated from the model.

Structural Model 2: Predictors of adult romantic negative affect. Model 2 tested whether the association between infant attachment security and the adult romantic relationship negative affect measure was mediated through measures of peer competence in elementary school and friendship security at age 16 (see Figure 1b). As hypothesized, this model also fit the data well, CFI = 1.0, RMSEA = .00, $\chi^2(2, N = 78) = 1.19$, *ns*. Again, neither the results of the chi-square test nor the other fit indexes dropped significantly when the direct path from infant attachment security to adult romantic relationship negative affect was eliminated from the model.

Structural Model 3: Predictors of adult romantic emotional tone. Model 3 tested whether the link between infant attachment security and the ETI balance scores were mediated by measures of peer competence in elementary school and friendship security at age 16 (see Figure 1c). Unlike the dependent variables in the first two models, the ETI balance scale in Model 1c involved self-reports provided by both the target participant and his or her romantic partner. If our hypotheses are correct, antecedent relationship experiences in an individual's life should predict the emotional tone (i.e., positive relative to negative emotions) of the individual's current romantic relationship, even when reports of emotional tone provided by the partner are statistically controlled. In other words, a stringent and precise test of our hypotheses should discount possible "partner effects." To control for the partner's influence on each target participant's emotional tone scores, we created a residualized variable in which the ETI balance scores reported by each partner were partialled out from each target participant's ETI balance scores (see Cohen & Cohen, 1983, for the logic of creating and using residualized scores). This residualized measure was then treated as the dependent measure in Structural Model 3.

As predicted, the model fit the data well, CFI = 1.0, RMSEA = .00, $\chi^2(2, N = 78) = 0.59$, *ns*. In addition, the same pattern emerged when we tested the target participant's ETI score as the dependent variable without partialing out his or her partner's ETI score, CFI = 1.0, RMSEA = .00, $\chi^2(2, N =$

78) = 0.70, *ns*. Similar to the tests of Models 1 and 2, neither analysis revealed a significant drop in either the results of the chi-square test or the other fit indexes when the direct path from infant attachment security to adult emotional tone was eliminated from the models.

Structural Model 4: Predictors of the composite score for all three dependent variables. For the hypothesized double-mediation model to be robust, evidence for it also should emerge when the three dependent measures are aggregated. Thus, in Model 4, we tested whether the association between the infant attachment index and the composite measure of all three dependent variables—adult romantic relationship process, adult romantic relationship negative affect, and adult emotional tone—was mediated through peer competence in elementary school and friendship security at age 16 (see Figure 1d). As expected, this model also fit the data well, CFI = 1.0, RMSEA = .00, $\chi^2(2, N = 78) = 0.20$, *ns*. Again, neither the results of the chi-square test nor the other fit indexes dropped significantly when the direct path from infant attachment security to the composite dependent variable was eliminated from the model.²

Tests of Alternative Models

Two alternative models also were tested with each of the dependent variables. First, we tested an alternative model in which the direct path from infant attachment security to each dependent measure was eliminated and replaced by a path from peer competence to each dependent measure (see Figure 2). As expected, each of the paths from peer competence to the four dependent variables—adult romantic relationship process, adult romantic relationship negative affect, adult emotional tone, and the composite dependent variable—was nonsignificant. The fit indexes remained good for all four tests of this alternative model; CFIs = 0.99–1.0, RMSEAs = .00–.04, and $\chi^2(2, N = 78) = 0.20$ –2.31, *ns*, for all models. Akaike information criterion (AIC) indexes for the tests of this first alternative model (which ranged from 16.20 to 18.27) were all slightly but not appreciably larger than was true for the primary models reported above (which ranged from 16.20 to 17.18; see Loehlin, 2004).

¹ Previous research has shown that the adequacy of chi-square tests can be questionable with small sample sizes (Herting, 1985). Given the sample size in this study, the chi-square test may not be an adequate estimate of model fit. It should be noted, however, that the hypothesized model showed no significant declines in any of the fit indexes (including the chi-square test) when the direct path from infant attachment security to each of the four dependent variables was eliminated from the model. Moreover, for all tests of the primary model, the robustness of fit across the different indexes indicated that sample size was not a problem in this study.

² We also performed five additional mediation tests examining portions of our full model. Specifically, we examined whether the relation between infant attachment security and friendship security at age 16 was mediated by peer competence in elementary school. We also tested whether the link between peer competence and each of the four dependent measures was mediated by friendship security at age 16. In all five mediation analyses, the result of Sobel's test was statistically significant (all z s > 2.04, all p s < .05), indicating at least partial mediation in each analysis.

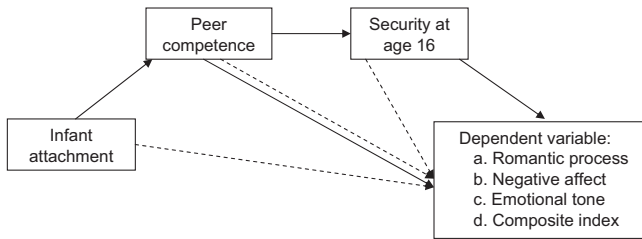


Figure 2. Alternative structural models. Four tests of each alternative model were conducted, one for each of the four dependent variables: a, adult romantic relationship process; b, adult romantic relationship negative affect; c, adult romantic emotional tone; and d, the composite index for dependent variables a, b, and c. The first alternative model (depicted by the solid lines) tested the paths connecting infant attachment to peer competence in elementary school, peer competence in elementary school to friendship security at age 16, friendship security at age 16 to each dependent variable, and peer competence in elementary school to each dependent variable. The second alternative model tested the direct paths (depicted by the dashed lines) from each of the predictor variables to each dependent variable.

Next, we tested a second alternative model in which the mediating paths were eliminated, and the direct paths from each predictor to a given dependent variable were included (see Figure 2). The direct path from infant attachment security to each of the primary dependent variables and the direct path from peer competence to each dependent measure were all nonsignificant. As expected, the four tests of this second alternative model revealed significant declines in goodness of fit, $CFIs = .39-.55$, $RMSEA = .29$ for all models, and $\chi^2(3, N = 78) = 20.62$, for all models. Furthermore, AIC indexes of the primary models revealed considerably better fit than was true of the second alternative model. AIC indexes for the second alternative model were all higher than 34.00, whereas those for the primary models were all significantly lower (16.20–17.18).³

In sum, the predicted double-mediation model provided a stronger or a more parsimonious fit than the two alternative models for each of the three dependent measures. Three additional considerations also highlight the robustness of the hypothesized double-mediation model effects. First, the effects were very consistent despite the fact that the two observer ratings of expressed emotion (adult romantic relationship process and negative affect measures) shared no method variance with the ETI self-reports. Second, all of the effects remained consistent even when variance associated with the partner's self-reports of emotions experienced in the relationship were partialled out from each target participant's own self-reports. Third, the double-mediation pattern also emerged when the three primary dependent measures were aggregated into a single composite index. Viewed as a whole, these results provided fairly clear and compelling evidence for the double-mediation model.

Discussion

Bowlby (1979) proposed that attachment relationships contribute to personality and social development from the cradle to the grave. The results of this longitudinal study support this core

premise of attachment theory. Assessing relationship experiences at four critical developmental stages, we found that both the experience and expression of emotions in adult romantic relationships were meaningfully linked to attachment-relevant experiences earlier in social development. Specifically, the early attachment security of target participants at 12 months of age predicted their competence with peers (as rated by teachers) during early elementary school. Elementary school peer competence, in turn, predicted the degree of security evident in target participants' representations of close friendships at age 16. This measure then predicted both daily reports of emotions experienced in romantic relationships (reported by both target participants and their partners) as well as the expression of emotions (as rated by observers) during videotaped interaction tasks. Support for this double-mediation model also remained when relationship partners' self-reports of daily emotions in the relationship (i.e., partner effects) were statistically controlled. Thus, corroborating Bowlby's conjectures, both the experience and expression of emotion in romantic relationships appear to be tied in significant and meaningful ways to experiences rooted in earlier relationships and stages of social development. However, the results also suggest that earlier developmental stages may have the strongest and most direct impact on the stages that immediately follow them.

We now discuss how the current findings extend attachment theory, add to the developmental attachment literature, and expand our understanding of the experience and expression of emotions in adult romantic relationships. We then consider how the current results might be understood within the Emotion in Relationships Model (ERM; Berscheid & Ammazalorso, 2001). We conclude by highlighting limitations and important caveats of the current research.

Theoretical and Empirical Extensions

Bowlby (1980) believed that life's deepest and most intense emotions arise in the context of attachment relationships. Indeed, one of the principal functions of the attachment system is to regulate negative affect, especially when individuals are ill, fatigued, afraid, overly challenged, or in pain. Bowlby also believed that experiences in and representations of attachment-based relationships from earlier periods of social development leave residual, lingering effects on attachment-based relationships later in life. Borrowing from Waddington's (1957) epigenetic landscape model, Bowlby (1973) likened social development as similar to a railway system in which individuals set out on a single developmental track early in life and then encounter multiple branch points

³ For comparisons involving the two alternative models, we were unable to conduct chi-square difference tests because of lack of nesting. Instead, we used the Akaike information criterion (AIC). There is no absolute AIC level that indicates a superior fitting model; rather, the AIC is used to compare models. As a rule of thumb, an AIC difference greater than 2 suggests that the models being compared are not identical in fit, but a difference of 10 or more is viewed as more trustworthy. As expected, our hypothesized double-mediation model had a slightly smaller AIC difference than did the first alternative model, indicating that these two models had comparable fit. Our hypothesized model had a significantly smaller AIC than did the second alternative model, indicating a superior fit.

at critical stages of social development that can lead to different outcomes in adulthood. According to Bowlby, the quality of the caregiving environment figures prominently not only in determining which specific developmental track individuals take at critical junctures but also in sustaining movement down a particular developmental track over time (see Fraley & Brumbaugh, 2004). The current findings extend our understanding of critical attachment processes not only by confirming that the quality of attachment-based relationships experienced earlier in life are meaningfully related to the emotional nature of later adult romantic relationships but also by elucidating one developmental pathway through which past relationships plausibly impinge on current ones.

From a developmental perspective, the findings add to the growing body of evidence that adult relationship experiences are embedded in a process that begins with the early caregiving conditions that inspired Bowlby's initial formulations of attachment theory. The current tests of the double-mediation hypothesis substantiate the contention that qualities of early caregiving are carried forward by the salient relationships of successive developmental periods (e.g., Collins & Sroufe, 1999; Sroufe, 1989; Sroufe & Fleeson, 1986; Waters & Sroufe, 1983). Recent tests of process models dealing with the longitudinal prediction of global ratings of social competence at age 19 (Carlson et al., 2004) imply that this carry-forward process is complex, involving a dynamic interplay between representations (internal working models) of relationships appropriate to each developmental period between infancy and late adolescence. The current findings suggest that this process may continue into the adult years and could partially account for the individuals' pattern of self-reported emotions in specific relationships as well as their more general social competence.

To our knowledge, this is the first study to document that early attachment experiences with caregivers, peers, and friends at different points of social development are systematically related to both the experience and the expression of emotions in subsequent romantic relationships. Corroborating Bowlby's claims, we found that a developmental trajectory reflecting a predominately secure and coherent relationship history forecasts more positive than negative emotions as experienced on a daily basis and as expressed in a stressful videotaped interaction. A developmental trajectory characteristic of a less secure and less coherent relationship history, on the other hand, forecasts somewhat bleaker emotional patterns. Needless to say, many factors can affect the experience and expression of positive versus negative emotions in relationships. The current evidence simply suggests that experiences in earlier relationships with different partners may be one important element.

The current findings also reveal that relevant life-history information from only one partner in a relationship (i.e., the target participant in the current study) predicts important dyad-level outcomes (i.e., behavioral ratings of each couple from a videotaped interaction). Knowledge about the developmental history of both partners would have provided a more complete picture of the interpersonal dynamics that could be responsible for and might sustain the experience and expression of positive and negative emotions in particular relationships; however, the indication that life-history information from only one partner provides clear and theoretically meaningful effects is compelling.

The Findings in the Context of the ERM

Although the current study was not designed to test the ERM (see Berscheid & Ammazalorso, 2001), one can envision how vestiges of an individual's past relationships could shape the experience and expression of emotions in his or her later romantic relationships. According to the ERM, emotions are experienced in relationships when expectations tied to important plans or goals are suddenly violated or disconfirmed. When plans or goals are completed or fulfilled more quickly or more easily than anticipated, individuals would be expected to experience positive emotions. Conversely, when important goals and plans are unexpectedly thwarted or blocked, negative emotions would be expected to follow. From the outset, experiences in and mental representations of relationships earlier in life are likely to influence the types of interpersonal goals, plans, and expectancies that individuals hold for later relationships and, hence, can be facilitated or hindered.

Individuals with a history of largely secure relationships and mental representations may experience and express more positive and fewer negative emotions in their relationships for several reasons. To begin with, they may be more willing to consider and accommodate their partner's preferences and desires, especially when making decisions about important relationship issues (cf. Rusbult, Verette, Whitney, Slovick, & Lipkus, 1991). Indeed, people who harbor more secure attachment representations typically strive for "goal-corrected partnerships" in which each partner's most critical needs and desires are considered before determining which course of action might be best for the relationship rather than merely for oneself (Simpson, 2007). Individuals who have more secure attachment histories also tend to engage in more constructive, problem-focused interaction strategies with their partners (Pistole, 1989; Simpson et al., 1996), make more benign attributions when partners perform questionable actions (Collins, 1996), and more readily forgive their partner's transgressions (Johnson, 2004). By adopting and constructively working toward plans and goals that may be more equitable and more relationship centered (e.g., MaxJoint outcomes; see Simpson, 2007), people who have secure attachment histories should be more capable of facilitating and attaining outcomes beneficial to both relationship partners (see also Mikulincer & Shaver, 2005). This could explain why more securely attached people habitually experience and express more positive emotions in their relationships; they are more likely to establish and achieve shared plans and goals with their partners.

Individuals who have a history of insecure relationships and mental representations, by comparison, typically experience and express less positive and more negative emotions in their relationships. From the start, these individuals should be less inclined to consider and accommodate their partner's preferences and desires, perhaps because of their entrenched concerns about autonomy, control, and independence (on the part of avoidant persons) or their fears of being abandoned, taken advantage of, or failing to meet needs for greater felt security (on the part of anxious persons). People who have insecure attachment representations may also be less motivated to achieve goal-corrected partnerships (Simpson, 2007). To compound matters, they are also more likely to use dysfunctional interaction strategies (Pistole, 1989; Simpson et al., 1996), make negative dispositional inferences regarding their part-

ner's questionable or possibly dubious actions (Collins, 1996), and are less likely to be forgiving (Johnson, 2004). These tendencies should render individuals with more insecure attachment histories less capable of facilitating and achieving mutually beneficial relationship outcomes. This might explain why insecurely attached people often experience and express more negative emotions in their relationships; they are less likely to facilitate and achieve shared plans and goals with their relationship partners on a regular basis.

Conclusions, Limitations, and Caveats

From the wider vantage point of personality and social psychology, the current findings are significant because they suggest how a major individual difference construct—attachment security—originates and retains some degree of continuity, but also how it can change as individuals enter new developmental stages and relationships across their lives. Many theoretical models in personality and especially social psychology focus on how proximate causal factors and processes affect individuals, sometimes to the neglect of ontogenetic variables and processes. However, as the current research highlights, the way in which individuals think, feel, and behave in their current relationships is governed not only by causal factors and processes in their immediate surroundings; how they think, feel, and behave may also be impacted by the nature and course of their development histories. Understanding these histories may shed novel light on how and why individuals perceive, feel, and behave as they do in their contemporary relationships.

Despite the unique longitudinal design of the current study, it does not allow us to draw causal conclusions about how relationship experiences and mental representations earlier in life impact later ones. The findings are consistent, however, with other analyses showing that adult social competence emerges from the continuous interplay between cognitive representations of earlier relationships and current social experiences (Carlson et al., 2004). Another caveat is that, for logistical reasons, life-history data could be gathered from only one partner in each romantic dyad. A fuller portrait of the emotional dynamics of each relationship would have been possible if complete longitudinal data had been available from both relationship partners.

It is also important to highlight what the current findings do not imply. The current longitudinal results do not suggest that an individual's past unalterably determines the future course of her or his relationships. Our results also do not suggest that people cannot overcome attachment or relationship difficulties encountered earlier in development or that other factors (such as personality traits, life stressors, personal resiliency) play trivial roles in generating or sustaining emotions in romantic relationships. Instead, the current findings are consistent with theory and recent empirical findings that indicate that current functioning reflects the history of attachment-relevant experiences in conjunction with current relationships and social contexts (see Carlson et al., 2004; Sroufe et al., 2005).

As the quotation that opened this article suggests, Bowlby (1980) believed that life's strongest emotions frequently arise during the development, maintenance, termination, and reformation of attachment relationships. He also surmised that ves-

tiges of one's interpersonal past should be related to the emotional tenor of successive attachment relationships across the life span. Merging these central premises of attachment theory, the current findings highlight one developmental pathway through which significant relationship experiences during the early years of life are tied to the daily experience and behavioral expression of positive versus negative emotions in romantic relationships during early adulthood. The relationship past is meaningfully linked to the present for many individuals but only through what transpires in different types of relationships during intervening stages of social development.

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