

Attachment Processes in Adult Romantic Relationships

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**AUTHOR NOTE**

Preparation of this chapter was facilitated by a grant from the National Cancer Institute (R01 CA133908) to Paula Pietromonaco.

Chapter to appear in J. A. Simpson & J. Dovidio (Eds.) *Handbook of interpersonal relations and group processes*. Washington, DC: American Psychological Association.

### **Abstract**

This chapter begins with an overview of attachment theory, including the main tenets of Bowlby's original theory as well as later extensions to adult romantic relationships. It provides an updated theoretical statement that incorporates Bowlby's original theory and Hazan and Shaver's (1987) provocative extension to adult romantic relationships as well as additional theoretical revisions from over two decades of theoretical development and empirical findings. We review and evaluate research following from attachment theory that has demonstrated that attachment shapes (a) how people experience and regulate emotion, (b) how they think about their romantic relationships, (c) their motives and goals in those relationships, (d) how they behave and interact with their partners (e.g., how they provide and seek support), and (e) how they initiate and maintain relationships and respond to relationship dissolution or loss. Finally, we discuss several emerging themes and promising directions for future research, including expanding on a person-in-context approach to attachment processes, investigating how partners may promote change or stability in each other's attachment representations, exploring interactions between attachment and temperament or personality, and examining the implications of attachment for both partners' health-related processes and outcomes.

### Attachment Processes in Adult Romantic Relationships

Attachment theory is a broad, comprehensive theory that provides an evolutionary, biologically-based account for why humans form and maintain close emotional bonds with others. Bowlby (1969, 1973, 1979, 1980) originally proposed that the attachment-behavioral system functions to protect infants from harm and increase their likelihood of survival by keeping them close to caregivers and leading them to seek proximity and contact when they encounter potentially threatening or dangerous situations. Comfort and contact with a caregiver helps infants regulate feelings of distress and reestablish a sense of emotional well-being, or “felt security” (Sroufe & Waters, 1977). As this sequence of events implies, a primary function of the attachment-behavioral system is to regulate feelings of distress: the perception of threat pushes infants closer to their attachment figure, who typically will provide comfort and safety, leading infants to experience emotional relief (Mikulincer & Shaver, 2007). Through interactions of this sort, individuals develop internal working models (mental representations) about themselves in relation to important others that are thought to guide attachment processes from infancy through adulthood (Bowlby, 1973; Mikulincer & Shaver, 2007; Pietromonaco & Barrett, 2000).

Bowlby’s original attachment theory focused on the infant-caregiver bond, and not surprisingly, the majority of research following from it initially examined attachment processes in infants and children. Bowlby recognized, however, that attachment processes are implicated in relationships throughout the life span, noting the significance of attachment processes from “cradle to grave” (Bowlby, 1979). Building on this idea and the broader theory, Hazan and Shaver (1987) proposed that the emotional bonds between romantic partners resemble those between infants and caregivers and that adult romantic relationships serve attachment functions. This seminal article provided the impetus for thousands of studies examining attachment in adult

relationships, including those with dating partners, spouses, friends, siblings and others (see Mikulincer & Shaver, 2007). A large body of research has yielded widespread empirical support for attachment processes in adult relationships as well as revisions and extensions of attachment theory (e.g., Collins & Feeney, 2010; Fraley & Shaver, 2000; Mikulincer & Shaver, 2007; Pietromonaco & Barrett, 2000; Simpson & Rholes, 1994).

This chapter focuses on work within social and personality psychology that has examined attachment processes in adult romantic relationships. Although other adult relationships (e.g., with parents, siblings, friends, children) can serve attachment functions in adulthood, we focus on romantic partners because they are often the primary attachment figure for adults (see Doherty & Feeney, 2004). Furthermore, the majority of research on romantic attachment has been conducted within social and personality psychology, and accordingly we emphasize this literature (for related developmental work, see Mikulincer & Shaver, 2007). Our review is organized around the ideas that the attachment system functions to regulate negative affect when individuals are faced with an actual or perceived threat and that attachment-related processes, including affective, cognitive, motivational, and support-seeking and caregiving, operate to reduce distress and restore feelings of emotional well-being. We first discuss core principles of attachment theory and its extensions. We next review research examining attachment in relation to affective, cognitive, motivational, and support processes, and then discuss how these attachment-related processes are implicated in relationship formation, functioning, and stability. Finally, we discuss selected emerging themes and promising directions for future research.

### **Attachment Theory: Basic Principles**

Attachment theory emphasizes both normative attachment processes fundamental to the human experience (e.g., seeking an attachment figure for protection when danger looms) as well

as individual differences in attachment processes based on each person's history of experiences with caregivers (e.g., consistently responsive caregivers or inconsistent or neglectful caregivers).

### **Normative Features of Attachment Processes**

**Attachment behavioral system.** The attachment behavioral system is conceptualized as a biologically-based, innate system that serves to protect individuals by keeping them close to caregivers in the face of danger or threat (Bowlby, 1969). The perception of threat is key in evoking attachment processes (Bowlby, 1980; Simpson & Rholes, 1994; Simpson, Rholes, & Phillips, 1996). Any situation that threatens an attachment bond (e.g., physical danger, illness, failure, rejection, loss of a loved one, conflict), whether real or imagined, can activate attachment behaviors (e.g., clinging, crying, attention-getting) that are designed to reestablish and maintain the bond (see Mikulincer & Shaver, 2007). The attachment system promotes infants' survival by fostering safety, and it enables individuals of any age who feel threatened to reestablish security through contact and comfort from an attachment figure. Bowlby (1988) argued that turning to one's attachment figure is a normative and healthy response to adversity and threat.

**Affect and affect regulation.** The *attachment system* serves not only to protect individuals from physical harm but also to help them regulate negative feelings and to restore a sense of calm, or "felt security" (Bowlby, 1973; Sroufe & Waters, 1977). This affect regulation function is evident when distressed infants seek proximity to their caregivers, and when caregivers respond by providing comfort and reassurance, thereby helping infants regulate negative affect and regain felt security. Paralleling the process observed in children, adults who are distressed in response to a threat may seek out an attachment figure (e.g., their spouse) in an attempt to restore emotional well-being, and adult partners typically respond by providing care through reassurance, comfort, and/or concrete support (Collins & Feeney, 2010; Simpson & Rholes,

1994). Thus, the attachment relationship serves as a regulatory system in which a distressed individual seeks out a relationship partner, who in turn responds in ways that will either facilitate or inhibit the distressed person's efforts to cope with and alleviate negative feelings. Although this process often involves assistance from an actual partner, adults also may imagine or recall a partner's supportive and soothing responses at times when their attachment figure is not readily accessible (e.g., Bowlby, 1969; Mikulincer & Shaver, 2007).

Recent groundbreaking research provides evidence that affect and affect regulation processes may be fundamental in the normative development of attachment bonds (Beckes, Simpson, & Erickson, 2010). This research demonstrated that, in the context of threat, a responsive person becomes automatically associated with attachment-related feelings of security. By combining ideas from attachment theory with a neurobiological model of an integrative emotional system (Nelson & Panksepp, 1998), Beckes et al. reasoned that threat triggers the separation/distress subsystem, producing a need for support/reassurance; if another person is responsive, then the comfort subsystem becomes activated, thereby down regulating distress. In this work, participants first completed a training phase in which either a fear-inducing unconditioned stimulus (e.g., a picture of a snake about to strike) or a neutral stimulus (e.g., a rolling pin) was presented below conscious awareness and paired with a conditioned stimulus (e.g., a smiling face). During a subsequent test phase, smiling faces that had been paired with the fear-inducing stimulus (but not the neutral one) facilitated participants' responses to attachment security-related words but not to non-attachment-related positive words. This research points to a normative process in which people implicitly form attachment bonds through the pairing of a fear-provoking event with a responsive person. If the formation of attachment bonds indeed follows such a process, then this evidence suggests that affect-based processes are integral to

attachment bonds and associated attachment-related expectations, beliefs and goals (see Pietromonaco & Barrett, 2000 and Pietromonaco, Barrett, & Powers, 2006).

**Related behavioral systems.** Bowlby (1969, 1973, 1980) proposed that other behavioral systems (e.g., caregiving, sexual behavior, exploration) work together with the attachment system (see also Mikulincer & Shaver, 2007). For example, the *caregiving system* leads individuals to be attuned to their relationship partner's distress signals, and typically triggers behaviors that will protect, support, and promote the well-being of the relationship partner. In adults, the *sexual behavior system* promotes reproduction, but it also can operate with other behavioral systems. For example, sexual behavior can interconnect with caregiving (e.g., sex may provide comfort) and can strengthen an attachment bond (Davis, Shaver, & Vernon, 2004). *Exploration* of the environment (e.g., working, playing, pursuing personal goals) also is facilitated when individuals are confident that their attachment figure will be available and responsive if the need arises (e.g., Collins & Feeney, 2010).

### **Internal Working Models**

Internal working models are dynamic, affectively charged representations that include event-related details of attachment-related experiences, the affect associated with those experiences, and importantly, generalized expectations, beliefs and feelings about whether attachment figures will be sufficiently responsive, available and reliable and whether the self is worthy of receiving such care (Bowlby, 1973; Bretherton, 1985; Collins, Guichard, Ford, & Feeney, 2004; Mikulincer & Shaver, 2007; Pietromonaco & Barrett, 2000). Furthermore, working models are assumed to include both explicit, consciously accessible knowledge and implicit, less consciously accessible knowledge (Bowlby, 1980; Bretherton, 1985, 1990; Collins et al., 2004; Mikulincer & Shaver, 2007).

Although working models were originally discussed in the context of individuals' earliest attachment relationships (e.g., with a parent), theorists have suggested that they can be revised over the life course as attachment figures shift from parents or childhood caregivers to other important relationship partners such as peers, dating partners, or spouses (Bowlby, 1973; Hazan & Shaver, 1987; see also Hazan & Zeifman, 1994). Within any given relationship, working models tend to be stable, reflecting consistencies in how relationship partners interact with each other as well as tendencies for people to interpret relational events in ways that fit with their existing mental representations (Ainsworth, 1989; Bowlby, 1973; Hazan & Shaver, 1987). Attachment representations based on earlier relationships also may have enduring effects on later representations (e.g., Fraley, 2002; Fraley & Brumbaugh, 2004), although the extent of this influence is open to debate (e.g., Fraley & Brumbaugh, 2004; Fraley, Vicary, Brumbaugh, & Roisman, 2011). The idea that people have multiple representations corresponding to different attachment relationships fits with extensions of attachment theory that suggest that working models may be multifaceted and organized within a complex network of associations, from generalized representations that may provide a default model for close relationships to more specific representations for particular relationship partners across the life course (parents, friends, romantic partners; Collins et al., 2004; Pietromonaco & Barrett, 2000).

### **Individual Differences in Working Models**

Through recurring interactions with caregivers, individuals develop working models and associated attachment styles that reflect the nature of those experiences. As a result, individuals differ in the content of their working models as evidenced in their attachment patterns. Early work examining attachment patterns in infants with their caregivers revealed three types of attachment styles: secure, anxious-ambivalent, and avoidant (e.g., Ainsworth, Blehar, Waters, &



Wall, 1978). These categorizations were based on behavioral observations of 12-18 month old babies in a laboratory situation (the Strange Situation) in which babies were separated from their caregiver, left with a stranger, and reunited with their caregiver. Secure babies were easily comforted and calmed in this situation, suggesting a history of responsiveness and warmth from their caregiver. Anxious-ambivalent babies were hard to comfort, more likely to protest, and more likely to show approach-avoidance behavior (e.g., crying, clinging, and pushing away), all behaviors assumed to reflect a history of inconsistent responsiveness and warmth. Avoidant babies resisted contact, distancing themselves from the caregiver, a pattern that may develop when caregivers are distant and neglect or reject infants' demands for attention. A critical point is that these attachment behavior patterns are assumed to reflect infants' underlying working models and the history of attachment-related experiences on which they are built. In line with this idea, a meta-analysis (van IJzendoorn, 1995) indicated that parents' state of mind with respect to attachment (as reflected in their responses to the Adult Attachment Interview, see Hesse, 1999) was associated with their own sensitivity and responsiveness to infants' attachment signals during infant-caregiver interactions as well as with their infants' attachment classification in the Strange Situation.

Working models based on the parent-child bond need to be considered in the context of adult attachment because, to some extent, they establish a basis for working models with other important attachment figures throughout life (e.g., peers, romantic partners). Of course, working models are likely to evolve with age as cognitive abilities become more complex, as individuals gain experience in new and different relationships, and as life circumstances change (Bowlby, 1969; Bretherton, 1990; Fraley, 2002; Vaughn, Egeland, Sroufe, & Waters, 1979). At a conceptual level, attachment styles in romantic relationships parallel those in parent-child

relationships, although measures of attachment in adults differ considerably from those used to assess attachment in children. Adult attachment is typically measured via self-report in the social/personality literature, in contrast to behavioral (e.g., observations in the Strange Situation) and interview assessments (e.g., the Adult Attachment Interview) typically employed in the developmental literature (see Mikulincer & Shaver, 2007). Early measures of attachment style in adults mapped onto the three (secure, anxious-ambivalent, avoidant; Hazan & Shaver, 1987) or four (secure, preoccupied/anxious, fearful-avoidant, dismissing-avoidant; Bartholomew & Horowitz, 1991) categories identified in babies. Subsequent research has demonstrated that attachment styles in adults are best captured by two dimensions: anxiety and avoidance (Fraley, Waller, & Brennan, 2000). People high in *anxiety* desire excessive closeness, worry about their partner not being responsive or abandoning them, and often see themselves as unworthy of love. People high in *avoidance* are uncomfortable with closeness and reluctant to rely on others, preferring to maintain emotional distance and self-reliance.<sup>1</sup>

As suggested by Mikulincer and Shaver's (2007) control systems model of attachment dynamics, anxious versus avoidant individuals rely on different affect regulation strategies to deal with threat or danger. Anxious individuals expect that their attachment figures will be insufficiently available and therefore need to draw attention to their distress. The result is a pattern of hyperactivation in response to threat in which anxiously attached individuals display heightened distress and persistently seek proximity and reassurance from attachment figures. In contrast, avoidant individuals anticipate that attachment figures will not be available or responsive. As a consequence, they show a pattern of deactivation in response to threat in which they minimize distress, turn their attention away from the threat, and overly rely on themselves. Secure individuals are confident that their attachment figures will be available when they need

them, and they are able reestablish felt security and emotional well-being by turning to their partner (or to an internalized representation of their partner).

### **Attachment Processes and Affect Regulation**

A large literature has examined the links between attachment style and affective, cognitive, motivational, and behavioral responses (see Mikulincer & Shaver, 2007). Many of these associations reflect differences in the extent to which people with different attachment styles experience distress and how they attempt to regulate those feelings. In the next sections, we first review and evaluate representative studies that demonstrate connections between attachment and affective responses; second, we turn to studies examining cognitive, motivational, and social support processes that are implicated in the regulation of affect; third, we examine the consequences of these chronic attachment patterns and associated affect regulation strategies for relationship processes and outcomes (e.g., satisfaction, stability).

### **Affective Responses**

The pattern of hyperactivation associated with anxious-ambivalence suggests that anxious individuals will show exaggerated emotional reactions, whereas the pattern of deactivation associated with avoidance suggests blunted emotional reactions (Mikulincer & Shaver, 2007). Consistent with the idea of hyperactivation, people with a more anxious attachment style evidence greater affective reactivity and distress in response to aversive situations (e.g., Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Pietromonaco & Barrett, 1997; Simpson et al., 1992). They report more intense emotions (Collins & Read, 1990; Pietromonaco & Barrett, 1997; Pietromonaco & Carnelley, 1994), frequent emotional ups and downs (Hazan & Shaver, 1987), high emotional expressiveness (Bartholomew & Horowitz, 1991), and high anxiety and impulsiveness (Shaver & Brennan, 1992). Anxiously attached individuals tend to

respond with more intense anger and hostility (e.g., Dutton, Saunders, Starzomski, & Bartholomew, 1994; Mikulincer, 1998a) and heightened feelings of rejection and negative feelings about the self in response to a hurtful interpersonal experience (Cassidy, Shaver, Mikulincer, & Lavy, 2009). They also report greater pain (Feeney & Ryan, 1994) and experience greater sensitivity to pain induced via laboratory tasks (Meredith et al., 2006; Wilson & Ruben, 2011). Furthermore, they appear highly sensitive to emotional cues; for example, more anxious individuals are quicker to notice changes in emotional expressions than are less anxious individuals (Fraley, Niedenthal, Marks, Brumbaugh, & Vicary, 2006).

In contrast to anxious individuals, avoidant individuals tend to report dampened emotionality (Pietromonaco & Barrett, 1997) and interviewers rate them as less emotionally expressive than other individuals (Bartholomew & Horowitz, 1991, Study 1). They also are more able to suppress their feelings (Fraley & Shaver, 1997) and to tolerate pain (Wilson & Ruben, 2011). Avoidant individuals, however, do not always show diminished emotional reactions, suggesting that deactivating strategies are not always effective. Avoidant individuals exhibit heightened distress in situations involving severe, chronic stress, such as caring for an infant with a severe coronary heart defect (Berant, Mikulincer, & Shaver, 2008) or when task demands inhibit their ability to control responses (Mikulincer, Dolev, & Shaver, 2004). Furthermore, both attachment anxiety and avoidance have been associated with depressive symptoms (e.g., Carnelley, Pietromonaco, & Jaffe, 1994; Cooper, Shaver, & Collins, 1998; Davila, 2001; Simpson, Rholes, Campbell, Tran, & Wilson, 2003; Wei, Mallinckrodt, Larson, & Zakalik, 2005), which may arise in reaction to chronic or uncontrollable stress.

In addition, recent work suggests that the link between each type of attachment insecurity and depression depends on whether situational contingencies evoke threats relevant to anxiety

(e.g., fear of abandonment, rejection) or to avoidance (e.g., fear of losing autonomy). For example, a study examining couples over the first two years of the transition to parenthood found that, for anxious individuals, depression symptoms depended on concerns about partner responsiveness and abandonment (Rholes et al., 2011). When anxious individuals perceived that their partner provided less support, wives' depression remained high over time and husbands' depression levels increased. The opposite pattern occurred for anxious individuals who perceived more support: in this case, both women and men showed a decline in depressive symptoms. In contrast, for avoidant individuals, depression varied as a function of their concerns about autonomy. For example, avoidant individuals experienced higher initial depression that increased over time when they perceived that the baby interfered with their ability to freely spend time with their partner, but avoidant individuals who did not perceive interference showed lower initial symptoms that decreased over time.

Another study illustrating the importance of attachment-related situational contingencies examined adults' negative and positive affect following daily interpersonal interactions with a variety of relationship partners (e.g., romantic, friends, coworkers; Sadikaj, Moskowitz, & Zuroff, 2011). All participants reported greater negative affect after interactions in which they perceived that their partner had behaved less agreeably than after those in which they perceived that their partner had behaved more agreeably, but this association was significantly stronger for individuals high in attachment anxiety than for those low in attachment anxiety. A partner's more or less agreeable behavior may intensify affective reactions for anxious individuals because it conveys acceptance or rejection. Avoidant individuals, however, may be less reactive to these cues because they are less concerned about approval from others. In line with this idea, individuals higher in avoidance showed a smaller association between perceptions of their

partners' less agreeable behavior and negative and positive affect than did those lower in avoidance. Furthermore, the effects of attachment style were more pronounced for interactions with romantic partners, which is noteworthy because romantic partners are most likely to serve adults' attachment needs. Both of these studies (Rholes et al., 2011; Sadikaj et al., 2011) highlight the importance of situational contingencies relevant to anxiety or avoidance in understanding connections between attachment and negative affective reactions.

An emerging literature has begun investigating links between romantic attachment and physiological responses (Diamond, 2001; Diamond & Fagundes, 2010), which are particularly important given that attachment is closely linked to biological and neural mechanisms implicated in affective reactions (e.g., Carter, 1998; Schore, 2001; Siegel, 2001). Furthermore, because physiological responses are automatic and occur below conscious awareness, they can provide different insights into affective responses than those revealed through more consciously controlled self-reports of affect.

A small literature suggests that attachment insecurity is associated with heightened or dysregulated patterns of activation in the autonomic nervous system (ANS) and hypothalamic-pituitary-adrenal (HPA) axis. For example, participants high in either attachment anxiety or avoidance have shown increased heart rate and blood pressure when they were separated from their romantic partner during a stress task (Carpenter & Kirkpatrick, 1996; Feeney & Kirkpatrick, 1996), or when they imagined themselves in anger-evoking scenarios involving their romantic partner (Mikulincer, 1998a). Attachment insecurity (anxiety, avoidance, or both) also has been linked to greater HPA activation (assessed via cortisol) in response to stress (Brooks, Robles, & Dunkel Schetter, 2011; Diamond, Hicks, & Otter-Henderson, 2008; Powers, Pietromonaco, Gunlicks, & Sayer, 2006; Quirin, Pruessner, & Kuhl, 2008). For instance,

research examining the cortisol responses of members of 124 dating couples (Powers et al., 2006) to a conflict discussion found that more anxiously attached men showed heightened cortisol levels in reaction to the discussion and slower recovery rates; more avoidantly attached women showed heightened cortisol levels before and during the discussion but rapid recovery rates when the discussion ended. In addition, men whose dating partners were more secure showed less cortisol reactivity and quicker recovery compared with men who had more insecure (anxious, avoidant, or both) dating partners. A smaller study of 30 dating couples (Brooks et al., 2011) similarly revealed that more anxious men evidenced higher cortisol reactivity during discussions of both a relationship conflict and their own personal concerns; women, however, showed greater cortisol reactivity only when their partner was more avoidant. Although a number of differences between the studies (e.g., in sample size, number of cortisol samples, measures of reactivity and recovery) could account for the somewhat different findings, both studies indicate that men's attachment anxiety predicts their physiological stress in relationship discussions and that one partner's attachment style may be important in predicting the other's physiological stress. In addition, research examining individuals' daily cortisol levels before, during, and after a 4-7 day separation when their marital partner was traveling also has shown a link between attachment anxiety and cortisol reactivity (Diamond et al., 2008); attachment anxiety was associated with higher cortisol during the separation, an event that should be especially stress-inducing for anxious individuals.

These studies focused on cortisol responses during an acute stressor, but cortisol patterns in general are of interest because cortisol at awakening and over the course of the day has been linked to depression, with flatter patterns associated with greater depression (e.g., Bhattacharyya, Molloy, & Steptoe, 2008; Hsiao et al., 2010). In a study of cortisol patterns after awakening,

more anxiously attached working women showed less of an increase in cortisol after awakening (i.e., a flatter pattern from time of awakening to 75 minutes later) compared to less anxious women, suggesting dysregulated HPA activation for more anxious women (Quirin et al., 2008).

Overall, the few available studies suggest that attachment insecurity, especially anxiety, is associated with different, and perhaps dysregulated, physiological responses than attachment security. However, considerable variation exists in the samples (young/dating couples, married couples, working women), measures (e.g., blood pressure, acute cortisol, diurnal cortisol), and methods (after lab interactions, separations, or non-relational stress), and thus any conclusions are necessarily tentative. There are also hints that one partner's attachment style may influence the other's physiological stress reactions. Given the potential for partners to influence each other's physiological responses and downstream health outcomes (see Pietromonaco, Uchino, & Dunkel-Schetter, in press; Sbarra & Hazan, 2008), this issue represents an important avenue for future research. One direction is suggested by prior work indicating that behavioral patterns play a key role in partners' physiological reactions: specifically, wives' cortisol levels were higher when they engaged in negative behavior from which their husbands withdrew (Kiecolt-Glaser et al., 1996). Research on attachment and physiological responses has not incorporated an analysis of couples' behavior patterns, but investigating the interplay among attachment, behavior, and physiological reactions may help clarify this link.

Taken together, this literature suggests different patterns of affective reactivity for anxiously and avoidantly attached individuals. Anxious individuals are more likely to experience intense subjective feelings of distress, and they also may show physiological dysregulation. In contrast, avoidant individuals generally report blunted affective reactions, although they evidence distress in situations where stress is severe or chronic or when they do



not have the cognitive resources to cope, and sometimes in their less consciously controlled (e.g., physiological) responses. As discussed in the next sections, the regulation of attachment-related affect can occur through cognitive processes such as attention, memory, and interpretation, through the pursuit of relational goals, and through relationship processes (e.g., support).

### **Cognitive Processes**

Internal working models are thought to guide people's attention to and memory for relational information and to provide a lens for interpreting relational information (for a review, see Dykas & Cassidy, 2011). These processes should work in the interest of confirming individuals' attachment-related expectations, beliefs, and goals and regulating feelings of distress. For avoidant individuals, cognitive processes should promote distance from others and serve to maintain self-reliance as a way of protecting them from potential attachment-related distress. For anxious individuals, cognitive processes should maintain proximity to others in the interest of achieving reassurance and security. We examine these propositions with regard to how people attend to, remember, and interpret attachment-relevant information.

**Attention.** Although relatively few studies have examined how attachment is associated with attentional processes, the findings generally suggest that avoidant individuals turn their attention away from relationship-relevant emotional information (e.g., Dewitte, 2011; Dewitte, Koster, De Houwer, & Buysse, 2007; Edelstein & Gillath, 2008; Fraley, Garner, & Shaver, 2000; Rholes, Simpson, Tran, Martin, & Friedman, 2007). For example, recent work investigated the connection between attachment and attention using a task designed to evaluate the inhibition of attention (Dewitte, 2011). This research found that individuals higher in attachment avoidance (but not anxiety) inhibited attention to negative (angry or sad faces) but not to positive (happy faces) relational information. This inhibitory process may allow avoidant individuals to prevent

distress that may be triggered by such information (Dewitte, 2011). Similarly, in work using an emotional Stroop task, people who were highly avoidant and not under cognitive load attended less to attachment-related emotional words; attachment anxiety, however, was unrelated to attention patterns (Edelstein & Gillath, 2008). Importantly, avoidant individuals did not attend less to emotional material that was not attachment-related. Furthermore, these effects held only for avoidant individuals who were currently in a romantic relationship, presumably because the relationship context heightened their need to apply defensive, self-protective strategies to regulate affect. In addition, avoidant individuals evidenced attentional biases only when they were not under cognitive load; performing a simultaneous difficult cognitive task interfered with their ability to turn their attention away from attachment-related information.

Anxious attachment has not been consistently associated with attentional biases in studies examining attention to generic attachment-related words (e.g., Edelstein & Gillath, 2008) or faces (e.g., Dewitte, 2011; see also Dykas & Cassidy, 2011). However, in studies in which individuals were exposed to the names of their own attachment figures, people higher in attachment anxiety (but not those higher in avoidance) were more likely to respond in ways indicating greater selective attention to their attachment figure, and surprisingly, this effect occurred in threatening and positive contexts (Dewitte, De Houwer, Koster, & Buysse, 2007) and in threatening and neutral contexts (Mikulincer, Gillath, & Shaver, 2002). These findings raise the possibility that anxious individuals' tendency to monitor the availability of their attachment figure may become chronic, such that they do so even in situations where no clear threat exists.

These findings support the idea that avoidant people divert attention from information that could activate the attachment system, allowing them to prevent attachment-related distress

(Bowlby, 1980). Although attentional effects are less consistent for anxious individuals, they appear to be vigilant to information about the availability of their own attachment figures.

**Memory.** Studies have consistently revealed that avoidant individuals have difficulty remembering attachment-related information (e.g., Edelstein, 2006; Fraley & Brumbaugh, 2007; Mikulincer & Orbach, 1995; Simpson, Rholes, & Winterheld, 2010), which again may help to regulate negative affect by preventing it. For example, more avoidant individuals showed deficits in working memory when the task included both positive and negative attachment-related words but not when it included non-attachment-related emotional or non-emotional words; however, attachment anxiety was unrelated to working memory capacity (Edelstein, 2006).

People also may reconstruct their memories in ways that support their preferred affect regulation strategies of seeking closeness or distance. In a study examining this idea, couples discussed a major disagreement in their relationship and rated how supportive and distant/disengaged they had been during the discussion both immediately afterward and 1 week later (Simpson et al., 2010). This work is noteworthy because couple members remembered their perceptions of their own actual relationship behavior, which is likely to be more emotionally significant and relevant than the standardized stimuli (e.g., attachment-related words) typically used in other studies. As expected, more avoidant individuals remembered being less supportive, whereas more anxious individuals remembered being less distant. In each case, individuals remembered their behavior in a way that confirmed their attachment-related beliefs and goals and that was congruent with their preferred approach to regulating distress. Moreover, these reconstructive memory biases occurred only when individuals appeared more

distressed (as rated by observers) during the actual discussion, supporting the idea that these biases serve to regulate negative affect.

Other work also has distinguished between the type of information most likely to be remembered by those high in attachment avoidance versus anxiety (Ein-Dor, Mikulincer, & Shaver, 2011). Ein-Dor et al. proposed that anxious individuals are most likely to remember information related to quickly detecting danger and warning others while staying close to them (a “sentinel schema”) because such information is adaptive for those who are apt to experience intense distress in response to threat and to turn to others for help with affect regulation. In contrast, Ein-Dor et al. suggest that avoidant individuals are most likely to remember information related to taking rapid and independent action to protect themselves (a “rapid fight-flight schema”) because such information is adaptive for individuals who seek to protect themselves from distress and whose primary affect regulation strategy is to rely on themselves and maintain distance from others. Results indicated that attachment anxiety predicted more accurate and rapid recognition memory for information related to danger (Study 2), and attachment avoidance predicted more rapid recognition of fight-flight related sentences (Study 3). Furthermore, in recalling information from a story with sentinel-based and neutral information, anxious people were more likely to make inferences (e.g., elaborations) congruent with a sentinel schema (Study 4). In contrast, after hearing a story with fight-flight and neutral information, avoidant people were more likely to make inferences congruent with a rapid fight-flight schema (Study 5). This work, together with the Simpson et al. (2010) study, argues for examining how the specific content of working models (e.g., content related to intimacy, distance, or strategies used in response to threat), beyond the global positive or negative valence

of that content, might bias memories in ways that confirm and perpetuate attachment-related expectations, beliefs, and goals and that allow for the regulation of negative feelings.

**Interpretation.** The evidence generally indicates that secure individuals are inclined to give their partners the benefit of the doubt and interpret negative events in less relationship threatening ways, whereas insecure individuals are more inclined to assign a negative interpretation. In studies of attribution patterns, individuals typically read hypothetical scenarios in reference to a partner (either imagined or their own) who performs either negative or positive attachment-related behaviors. Across several studies, anxious individuals were more likely to explain a partner's negative behavior in more pessimistic, relationship threatening terms (Collins, 1996; Collins, Ford, Guichard, & Allard, 2006; Gallo & Smith, 2001; Pearce & Halford, 2008). In addition, anxious individuals selected more pessimistic interpretations to explain their partner's negative or positive behavior, especially if they were less satisfied in their current romantic relationship (Collins et al., 2006). Attachment avoidance has been less consistently associated with pessimistic attributions, with some studies finding that avoidance predicts more negative (or less positive) attributions and others showing no association. Other work has indicated that insecure individuals (both anxious and avoidant) are more likely to interpret ambiguous feedback from romantic partners in a negative light (Collins & Feeney, 2004) and to assign greater hostile intent to romantic partners' ambiguous behavior (Mikulincer, 1998a). These findings suggest that insecure individuals will have greater difficulty with affect regulation because they are inclined to construe partners' behaviors in more pessimistic terms, thereby maintaining their own distress. Furthermore, their partners may become frustrated if the insecure person's distress persists, leading them to withdraw or even become hostile.

In general, research on cognitive processes is consistent with the idea that working models guide people's attention, memory and interpretation of attachment-relevant information. However, few studies have examined how attachment style contributes to attention and memory, and even fewer have investigated these processes in the context of actual relationships where people are more likely to experience intense affect and involvement (e.g., Simpson et al., 2010). For example, one critical future direction would be to examine attentional and memory biases as they occur in actual relationships and the conditions under which they enhance or impair individuals' ability to regulate feelings of distress.

### **Goal-Directed Processes**

At a normative level, working models are organized around the overarching goal to achieve felt security (Ainsworth, 1989; Sroufe & Waters, 1977). When individuals experience a threat, they will engage in behaviors in an attempt to restore felt security. Some evidence supports this normative process and suggests that it occurs automatically and effortlessly: When people were primed below conscious awareness (i.e., subliminally) with the name of a security-promoting attachment figure, they reported greater willingness to disclose personal information and to seek support, and they were faster to respond to goal-related words such as comfort and support, suggesting increased accessibility of these constructs (Gillath et al., 2006).

How people attempt to achieve felt security, however, will vary as a function of their attachment-relevant experiences and resulting attachment styles (see Pietromonaco & Barrett, 2000). Avoidant individuals (especially dismissing-avoidants) have chronic interpersonal goals to maintain independence and distance and to protect themselves from attachment-related distress. Anxious individuals (especially preoccupied ones) chronically strive for intimacy and closeness, and are most likely to turn to others for reassurance to regulate their negative feelings.

People who are more secure may hold a variety of interpersonal goals (e.g., for support, independence, self-protection) but they apply these goals more flexibly and appropriately, depending on the demands of the situation. Content analyses of dating partners' conversations about their relationships support these ideas: Secure people focus on achieving balance between intimacy and independence, whereas avoidant people focus on restricting intimacy and anxious people focus on enhancing intimacy (Feeney, 1999; Feeney & Noller, 1991).

Consistent with this reasoning, anxious individuals are more likely to excessively seek reassurance in their relationships (Davila, 2001; Eberhart & Hammen, 2009) and to seek information about their dating partner's personal thoughts and to evaluate such knowledge as more important (Rholes et al., 2007). Individuals higher in attachment anxiety are more likely to pursue approach goals (relevant to sex or sacrificing) to obtain intimacy and closeness as well as avoidance goals to prevent rejection in their relationships (Impett & Gordon, 2010; Impett, Gordon, & Strachman, 2008). This pursuit of both approach and avoidance goals in the service of maintaining a relationship may illuminate recent findings showing that, on both implicit and explicit measures, anxious individuals evidenced dual motivations to approach and avoid a romantic partner (Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010). These dual motivations make sense if anxious individuals use both in the broader interest of maintaining their relationship and closeness over the longer term. Other work indicates that, for anxious individuals, intimacy goals are closely tied to their feelings for their partners, suggesting their importance for the quality of anxious individuals' relationships (Pietromonaco & Barrett, 2006); after interactions in which anxious (preoccupied) individuals believed that their partner had behaved in ways that fulfilled intimacy-related needs (i.e., understood them, cared for them, approved of them), they valued their partner more.

In contrast, avoidant individuals prefer to seek distance and escape closeness. They are less likely to pursue approach goals that might push them toward intimacy with their romantic partner (Impett & Gordon, 2010; Impett et al., 2008), less likely to seek personal information about a dating partner, and more likely to downplay the importance of such knowledge (Rholes et al., 2007). Avoidant individuals even distance themselves in situations where people typically seek closeness and comfort. When avoidant women appeared distressed about an upcoming stressful task, they sought *less* support and comfort from their dating partner; in contrast, when secure women were distressed, they sought *more* support (Simpson, Rholes, & Nelligan, 1992).

### **Social Support Processes**

Interactions involving seeking, perceiving, and providing support are central in helping individuals reestablish emotional well-being when they encounter threatening situations (e.g., see Collins & Feeney, 2010). Partners need to effectively solicit support when needed and to accurately detect when their partner is offering comfort; as caregivers, individuals need to be attuned to their partner's needs and, when appropriate, be responsive, caring, and available. Attachment styles have been linked to chronic differences in these support-related processes.

**Support-seeking.** Attachment theory suggests that the ability to effectively use a secure base (i.e., the relationship partner who serves as an attachment figure) to restore emotional equilibrium requires providing a clear and consistent signal to the partner (Crowell et al., 2002). Securely attached people are more likely to attempt to solicit support and to do so in ways that are constructive and effective; in contrast, insecure people are less likely to actively seek support, and when they do, they use indirect, less effective means such as sulking or crying (e.g., Collins & Feeney, 2000; Fraley & Shaver, 1998; Simpson et al., 1992). Studies of dating couples have found that more avoidant individuals solicited less support from their partner when discussing a



problem, even when the problem was a major source of stress (Collins & Feeney, 2000), and that avoidant women who showed more distress when anticipating a stressor were less likely to seek support from their partner (Simpson et al., 1992). Avoidant individuals also were less likely to seek proximity or support when they were about to be separated from their romantic partner at the airport (Fraley & Shaver, 1998). Although anxious individuals are more likely than secure individuals to want partners to help them regulate their distress (Pietromonaco & Barrett, 2006), they do not actually seek more support in experimental studies than those lower in anxiety (Collins & Feeney, 2000). One explanation for this inconsistency is that anxious individuals both desire support and fear rejection and abandonment, and these latter worries may prevent them from directly seeking support (Mikulincer & Shaver, 2007). This work suggests that whether people seek support will vary depending on their attachment style, and thus their partner's knowledge of their style and ability to detect and respond sensitively to their distress is apt to be important in helping threatened individuals regulate distress and cope in a crisis.

**Perceptions of support/responsiveness.** To benefit from a partner's responsiveness, individuals must accurately perceive a partner's supportive attempts. People who are more securely attached generally expect support to be available if it is needed, and they are more likely to view support attempts as effective (for reviews, see Collins & Feeney, 2010 and Mikulincer & Shaver, 2007). In experimental studies manipulating the quality of support from a partner, participants received notes ostensibly from their dating partner that conveyed either ambiguous or clear-cut support; insecure individuals were more likely than secure individuals to perceive the ambiguous notes in a negative light, although secure and insecure individuals did not differ in their evaluations of the highly supportive notes (Collins & Feeney, 2004, Study 1). Similarly, in a follow-up study in which participants wrote their own notes, insecure individuals perceived

their partner's note as less supportive when the note was somewhat ambiguous in conveying support compared to secure individuals (Collins & Feeney, 2004, Study 2).

Insecure individuals also differ from secure individuals in their perceptions of daily support from a dating partner (Campbell, Simpson, Boldry, & Kashy, 2005). At the end of each of 14 days, dating partners described the most supportive experience in their relationship (if one had occurred) for that day and rated its implications for the future longevity of the relationship and the degree to which it was a positive experience. Although attachment style was not related to the number of supportive events reported, it did predict different perceptions of these events. When anxiously attached individuals reported a supportive daily experience, they were more optimistic about its implications for the longevity of their relationship, suggesting that their relationship perceptions may depend heavily on what happens on a particular day. When avoidant individuals reported a supportive daily experience in their relationship, they viewed it as a less positive experience, which was attributed to their discomfort with interdependence.

These examples, together with other research (see Collins & Feeney, 2010; Mikulincer & Shaver, 2007) suggest that insecurely attached individuals are less likely to experience emotional relief when partners provide support. Insecure individuals may not interpret a partner's gesture as supportive or pleasant, or their perceptions may be more variable depending on their most recent interactions. We are aware of only one study that has examined whether particular kinds of support (e.g., emotional, instrumental) might be more or less effective in helping insecure individuals modulate distress (Simpson, Winterheld, Rholes, & Oriña, 2007). Simpson et al. (2007) found that young adults' attachment to parents (assessed by the Adult Attachment Interview) predicted the extent to which they were calmed by different kinds of support from their dating partner; individuals showing secure attachment to parents were more calmed after

their romantic partner provided emotional support during a conflict interaction, whereas dismissing avoidant individuals were more calmed after receiving instrumental (concrete, rational advice) support. These patterns in young dating couples were linked specifically to attachment to parents and not to self-reported romantic attachment style; however, it is possible that romantic attachment would predict links between one partner's use of a particular form of caregiving and the other's distress relief in more established couples (e.g., married couples) in which partners are more likely to serve as primary attachment figures.

**Providing support/being responsive.** Because the attachment and caregiving systems are intertwined in adults, attachment styles are associated not only with attachment-related thoughts, feelings and behaviors but also with the provision of care and support to close partners (Collins & Feeney, 2010). Secure individuals are better equipped than insecure individuals to help their partners regulate distress (Carnelley, Pietromonaco, & Jaffe, 1996; Collins & Feeney, 2000; Feeney & Collins, 2001; Simpson et al., 1992; Simpson et al., 2002). Secure adults are more sensitive to their partner's signals, and they are more cooperative and less controlling in responding to their partner (Feeney & Collins, 2001; Kane et al., 2007). Securely attached women also respond more flexibly to their partner's needs, providing more support when their partner desires it and less support when he does not (Simpson, Rholes, Oriña, & Grich, 2002).

In contrast, insecure adults are more likely to offer ineffective support and care (see Collins & Feeney, 2010). For example, in one study, dating couples were videotaped while one partner disclosed a personal problem to the other (Collins & Feeney, 2000). When caregiving partners were high in attachment anxiety, they were less responsive, offered less instrumental support, and displayed more negative behavior (e.g., minimizing the problem, blaming the discloser for the problem) to the disclosing partner. In other work, women who expected to undergo a

stressful procedure were videotaped while they waited with their dating partner (Rholes, Simpson, & Oriña, 1999; Simpson et al., 1992). Secure men provided more emotional support and anticipated their partner's needs, but avoidant men provided less support as their partner's distress increased (Simpson et al., 1992); avoidant men also were more likely to show anger toward their distressed partner (Rholes et al., 1999). These findings suggest that being in a relationship with an insecurely attached partner may reduce one's ability to regulate distress, which may interfere with maintaining a satisfying relationship over time.

### **Attachment Processes and Relationship Functioning and Stability**

Attachment-related differences in affective, cognitive, motivational, and support-related processes can directly serve affect regulation functions, but they also can contribute to how individuals form new relationships, how they function as relationships become more established, and how they maintain relationships over time.

### **Relationship Initiation**

Even the earliest romantic encounters can activate attachment-related processes. Such encounters often are emotionally salient: They raise concerns about care and regard, acceptance and rejection. Some findings (Brumbaugh & Fraley, 2006) support the idea that working models of attachment are implicated in relationship initiation processes. Specifically, people transferred their attachment expectations to potential romantic partners; anxious individuals expected to feel anxious toward potential partners and avoidant individuals expected to feel avoidant toward potential partners, even when those partners did not resemble their past partners.

**Normative processes in partner preference.** Most people desire mutually satisfying romantic relationships and therefore are apt to prefer secure partners who offer the best opportunity to form a secure attachment bond (e.g., Chappell & Davis, 1998; Klohnen & Luo,

2003). Across studies in which people read about potential romantic partners, people of all attachment styles viewed secure partners as more attractive than insecure partners (Frazier, Byer, Fischer, Wright, & DeBord, 1996; Klohnen & Luo, 2003; Latty-Mann & Davis, 1996), reported fewer negative emotions and more positive emotions when they imagined relationships with secure partners (Chappell & Davis, 1998; Pietromonaco & Carnelley, 1994), and preferred to date secure partners (Chappell & Davis, 1998).

Although people prefer secure partners in general, they also distinguish between avoidant and anxious partners. People evaluate and react to anxious partners more favorably than avoidant partners (Chappell & Davis, 1998; Frazier et al., 1996; Klohnen & Luo, 2003; Latty-Mann & Davis, 1996; Pietromonaco & Carnelley, 1994). Klohnen and Luo (2003) propose that the anxiety dimension of attachment may be less important to preferences during initial romantic encounters than the avoidance dimension. This reasoning is supported by evidence that the state-like experience of attachment anxiety is a normative part of relationship initiation that has functional implications for developing relationships because it motivates people to communicate interest and care for potential romantic partners (Eastwick & Finkel, 2008). This normative process may help explain why people evaluate potential partners with anxious qualities as more desirable than those with avoidant qualities during the early stages of relationships.

**Individual difference processes in partner preference.** Individuals' own attachment orientations also predict their preferences for potential romantic partners. Insecure people view insecure potential partners as more attractive than do secure people (Frazier et al., 1996; Klohnen & Luo, 2003; Latty-Mann & Davis, 1996), even though both secure and insecure people view secure potential partners as more attractive overall. Some work (Frazier et al., 1996; Klohnen & Luo, 2003; Latty-Mann & Davis, 1996) finds similarity between insecure people's attachment

orientations and their partner preferences, such that avoidant individuals are more attracted to partners high in avoidance (i.e., avoidant or fearful) and anxious individuals are more attracted to partners high in anxiety (i.e., anxious or fearful). Other work (e.g., Pietromonaco & Carnelley, 1994) finds complementary patterns, such that avoidant individuals prefer anxious partners, perhaps because these partners confirm their expectations of others as needy and dependent and their expectations of themselves as self-reliant and independent. Both patterns of partner preference have implications for relationship well-being and emotional health because relationships with insecure partners tend to function less well than those with secure partners.

People's attachment orientations not only guide their preferences for relationship partners, but they also contribute to how people initiate relationships. For example, people higher in attachment avoidance seek less information about potential partners than do those lower in avoidance when deciding whom to date (Aspelmeier & Kerns, 2003), which indicates that avoidant individuals may avoid exploring relational information. Indeed, when given the opportunity, avoidant individuals evade situations that provide information about others' relational interest in them. Avoidant individuals, but not others, prefer social situations that do not provide feedback about how another person feels about them, and people who are experimentally primed to feel avoidant also are less likely than those primed to feel secure or anxious to choose to receive feedback about how another person feels about them (Beck & Clark, 2009). By restricting information seeking, avoidant individuals can manage potential distress by maintaining relational distance. Such strategies, however, can prevent them from receiving clear feedback that a partner likes them, which is a powerful determinant of reciprocating liking and presumably of developing close relationships, or from detecting that a partner does not reciprocate interest and that the relationship may not be worth pursuing.

Taken together, the research consistently finds that people seek attachment security in potential romantic partners, regardless of their own attachment style. Entering a relationship with a secure partner who is better able to provide sensitive and responsive care may enhance insecure individuals' ability to regulate distress. At the same time, insecure people are more attracted to insecure potential partners than are secure people, and entering such relationships may impair their ability to effectively regulate feelings of distress. For example, insecure individuals' generally ineffective affect regulation strategies may interact with an insecure partner's difficulty with supportively responding to their distress, further exacerbating feelings of distress and interfering with attempts to restore felt security.

**Self-presentation and self-disclosure.** Self-presentation and self-disclosure processes are especially important during the early stages of romantic relationships. People often are uncertain about whether a potential partner will reciprocate romantic interest, so they may be particularly focused on securing that person's approval and regard (e.g., Swann, De La Ronde, & Hixon, 1994). During relationship initiation, people may be especially concerned about presenting themselves as desirable partners (Beck & Clark, 2010; Clark & Beck, 2011), but individual differences in attachment may facilitate or inhibit self-presentation. Because almost everyone would prefer a relationship with a secure partner, people who present themselves in a way that reflects attachment security—such as being supportive, responsive, and comfortable with balancing relational closeness and distance—convey that they would be a desirable partner.

Of course, presenting oneself as a desirable relationship partner may be easier for secure individuals because it is consistent with authentic self-presentation. In contrast, avoidant people may present an overly positive view of themselves to seem self-reliant and independent (Mikulincer, 1998b), which may communicate that they are not really interested in a relationship.

In contrast, anxious people may present an overly negative view of themselves to elicit support and compassion (Mikulincer, 1998b), which may convey that they would be a needy or demanding relationship partner. Both of these self-presentation strategies can hinder rather than promote relationship development. At the same time, recent research (Brumbaugh & Fraley, 2010) suggests that insecure individuals may use compensatory strategies to present themselves as desirable partners. For example, anxious individuals may present themselves as warm and engaging when interacting with potential romantic partners, and both anxious individuals and avoidant individuals may present themselves as humorous. These positive qualities may help insecure people win over potential romantic partners, at least in the early stages of relationships.

The pace at which people share personal information and their responsiveness to their partners' disclosures contribute to relationship development. The early stages of relationships involve initially low levels of self-disclosure that gradually increase over time (Altman & Taylor, 1973). During these early stages, immediate disclosure of personal feelings and concerns may be perceived as neediness. As the relationship develops, however, failure to self-disclose can be perceived as a lack of investment or disinterest in one's partner and the relationship.

Secure attachment can facilitate self-disclosure through responsiveness, sensitivity, and reciprocation of romantic partners' disclosures. Secure people synchronize their own disclosures with those of their partners, which promotes partners' self-disclosure and assuages concerns about vulnerability and rejection (Grabill & Kerns, 2000; Keelan, Dion, & Dion, 1998; Mikulincer & Nachshon, 1991). In addition, secure people reveal more intimate information to high-disclosing partners than to low-disclosing partners (Mikulincer & Nachshon, 1991) and are more responsive to their partners' disclosures (Grabill & Kerns, 2000; Keelan et al., 1998). These behaviors can support the development of intimacy and trust.



In contrast, insecure individuals can behave in ways that disrupt self-disclosure. Avoidant people disclose information to dating partners less frequently than do secure people (Bradford, Feeney, & Campbell, 2002). In contrast, anxious people tend to disclose personal information indiscriminately—often before such disclosures are appropriate—and are not very responsive to their partners' disclosures, perhaps due to intense self-focus (Grabill & Kerns, 2000; Mikulincer & Nachshon, 1991). They share more negative information with dating partners and report more dissatisfaction with their interactions (Bradford et al., 2002). Ironically, the more interested anxious individuals are in a potential romantic partner, the less interest they actually express (Vorauer, Cameron, Holmes, & Pearce, 2003), which may further interfere with self-disclosure.

Working models of attachment, as well as associated affect regulation strategies, appear to be implicated in relationship initiation processes. Insecure individuals may self-present and self-disclose to potential partners in ways that support their affect regulation goals. Avoidant individuals often present themselves as self-reliant and disclose little information to their partners, which can serve to protect them from attachment-related distress by promoting distance from others. In contrast, anxious individuals may present an overly negative view of themselves to elicit support and compassion from others. They also may disclose personal information freely (often before their partner feels comfortable with such disclosures), both of which may represent attempts to attain closeness in the interest of achieving reassurance and security.

### **Relationship Maintenance**

People's attachment-related desires for closeness and distance and their ability to balance their own needs with those of their partner can contribute to the development of intimacy and commitment in romantic relationships. Secure individuals consistently evidence more intimate relationships than do insecure individuals (e.g., Feeney & Noller, 1991; Hazan & Shaver, 1987;

Mikulincer & Erev, 1991; Treboux, Crowell, & Waters, 2004), yet insecure individuals differ in their desire for intimacy. Anxious people tend to desire greater intimacy than they report having, perhaps because they cannot achieve the intense intimacy they want or because their desire for excessive closeness pushes away their partner (Mikulincer & Erev, 1991). In contrast, avoidant people report low levels of both the intimacy they have and the intimacy they want.

Interestingly, avoidant individuals believe that their partner feels less intimacy than he or she actually does (Mikulincer & Erev, 1991), which may be another affect regulation strategy that allows them to keep their partner at a distance and to maintain independence.

People's commitment to their relationships follows a similar pattern: Secure individuals experience greater commitment as well as greater intimacy in their relationships. A prospective study of relationship formation found that avoidant individuals were less likely to initiate committed dating relationships than were secure individuals (Schindler, Fagundes, & Murdock, 2010), and other work suggests that avoidant individuals begin new relationships with elaborate scripts for commitment aversion that lead them to expect their relationships to fail (Birnie, McClure, Lydon, & Holmberg, 2009). Furthermore, the many studies on commitment in dating and marital relationships consistently find that attachment security predicts greater commitment, often for both partners (e.g., Keelan, Dion, & Dion, 1994; Pistle, Clark, & Tubbs, 1995; Simpson, 1990). For example, secure individuals maintained high commitment to their dating partners over four months, whereas anxious and avoidant individuals decreased their commitment to their partners over the same time period (Keelan et al., 1994).

Anxious and avoidant people, however, differ considerably in their *desire* for commitment, just as they differ in their desire for intimacy. Anxious individuals are more likely to want a highly committed relationship than are avoidant individuals (Feeney & Noller, 1990), and these

desires are reflected in their behavior. For example, anxious husbands spent significantly less time dating their partner before getting married (19 months) than did avoidant (46 months) or secure (49 months; Senchak & Leonard, 1992) husbands. An important consequence is that anxious people may commit to a relationship before they truly know their partner, making them more likely to become involved with an uncaring, uncommitted partner who cannot fulfill their needs for security (Morgan & Shaver, 1999). Furthermore, the partners of insecure individuals evidence less commitment than those of secure individuals (Kirkpatrick & Davis, 1994; Mikulincer & Erev, 1991; Simpson, 1990), which may further frustrate anxious individuals' desires for commitment and their attempts to regulate distress by drawing closer to their partner.

### **Relationship Satisfaction**

From an attachment perspective, relationship satisfaction should be enhanced when partners offer a safe haven of support and security, are dependable and available, and provide a secure base from which each partner can explore and grow (Collins & Feeney, 2010). Attachment insecurity consistently predicts relationship dissatisfaction for men and women (e.g., Campbell et al., 2005; Davila, Karney, & Bradbury, 1999; Feeney, 2002; Shaver, Schachner, & Mikulincer, 2005), even when other personality characteristics (e.g., depression, self-esteem, Big Five traits; Carnelley et al., 1994; Jones & Cunningham, 1996; Nofle & Shaver, 2006; Shaver & Brennan, 1992) have been taken into account. Gender, however, plays a role in this association: Whereas both avoidance and anxiety predict women's relationship satisfaction, avoidance more consistently predicts men's relationship satisfaction than does anxiety. Mikulincer and Shaver (2007) offer two possible explanations for this pattern: Avoidance may intensify (or be intensified by) male gender role norms of self-reliance and emotional restraint, or women may be

especially dissatisfied with avoidant men, leading them to communicate their feelings to their partners which, in turn, lowers men's satisfaction.

Studies with prospective and daily diary designs reduce the possibility that links between insecure attachment and relationship satisfaction may result from dissatisfaction leading to lower attachment security, rather than vice versa. For example, one such study found that higher levels of anxiety and avoidance during the first six months of marriage led to declines in marital satisfaction over two years (Davila et al., 1999). These findings also revealed a reciprocal relationship between insecure attachment and relationship dissatisfaction, which suggests that they may influence one another over time. Several diary studies ranging from 1-3 weeks in length also have indicated that insecure attachment predicts less daily relationship satisfaction (Campbell et al., 2005; Feeney, 2002; Shaver et al., 2005). For example, individuals high in attachment anxiety were more reactive to day-to-day changes in their partners' behaviors; they responded to their partners' positive behaviors (e.g., support) with increased relationship satisfaction and to partners' negative behaviors (e.g., conflict) with decreased satisfaction (Campbell et al., 2005; Feeney, 2002). Campbell and colleagues (2005) suggest that this intense focus on day-to-day relationship events may explain why anxious individuals and their partners experience less relationship satisfaction; their relationships should feel more turbulent and less stable because they are focused on daily events rather than on long-term experiences.

In contrast, attachment security can enhance relationship satisfaction, particularly during times of stress and life transitions. For instance, one study found that women with prolonged infertility problems experienced lower relationship satisfaction than women with more recent infertility problems, but these effects were primarily for anxious women; secure women were better able to maintain relationship satisfaction (Amir, Horesh, & Lin-Stein, 1999). Similarly,

when anxious women—but not secure women—perceived low levels of support from their spouse six weeks before the birth of their first child, both they and their partner experienced declines in relationship satisfaction six months later (Rholes et al., 2001). Taken together, this research suggests that attachment security serves as a resource for individuals and their partners by preserving relationship satisfaction during times of life stress.

### **Relationship Stability**

Individual differences in attachment also contribute to people's ability to maintain stable, enduring romantic relationships. Secure people have longer, more stable relationships than insecure people (e.g., Feeney & Noller, 1990; Hill, Young, & Nord, 1994). Furthermore, insecure attachment predicts relationship dissolution in dating couples (Duemmler & Kobak, 2001; Kirkpatrick & Hazan, 1994; Shaver & Brennan, 1992) and divorce in married couples (e.g., Birnbaum, Orr, Mikulincer, & Florian, 1997; Crowell & Treboux, 2001; Hill et al., 1994).

Importantly, anxious and avoidant people may experience relationship dissolution in different ways. Avoidant individuals may want to leave their relationship as soon as they feel distressed (Kirkpatrick & Hazan, 1994), consistent with their strategy of regulating affect by turning attention away from a threat. Anxious individuals, however, may break up and reunite with the same partner, sometimes more than once (Kirkpatrick & Hazan, 1994), consistent with their attempts to regulate affect by seeking closeness. Attachment anxiety also may lead to reluctance to leave romantic relationships, even when those relationships are no longer fulfilling. For example, a longitudinal study of dating couples revealed that when people's partners failed to help them meet their needs for autonomy and relatedness, individuals low in anxiety—but not those high in anxiety—experienced less commitment to their relationships at the beginning of the study, deteriorating commitment over time, and a higher risk of break up (Slotter & Finkel,

2009). These findings suggest that anxious people may maintain their romantic relationships even when their partner does not fulfill their psychological needs. Similarly, a four-year longitudinal study of newlywed couples found that spouses who were in unhappy marriages had the highest levels of attachment anxiety—both initially and over time—compared to spouses in happy marriages and to spouses who were divorced (Davila & Bradbury, 2001). Thus, spouses' attachment anxiety may contribute both to dissatisfaction and stability in their marriage.

### **Relationship Dissolution and Loss**

Many theorists (e.g., Bowlby 1980; Fraley & Shaver, 1999; Mikulincer & Shaver, 2007; Sbarra & Hazan, 2008; Weiss, 2001) assert that distress in response to separation from an attachment figure is the most powerful indicator of an attachment relationship and, in turn, that separation or loss of an attachment figure disturbs the sense of felt security. Sbarra and Hazan (2008) provide a provocative extension by arguing that the loss of a long-term romantic relationship leads people to lose the very person who helped them maintain psychophysiological homeostasis, which centers on the sense of felt security; this disturbance in homeostasis can result in biobehavioral dysregulation, ranging from mild psychophysiological arousal to an extreme stress response, which can be attenuated by reestablishing felt security.

In addition to these normative responses, people's attachment orientations predict how they respond to relationship dissolution and loss. Attachment security facilitates emotional recovery and adjustment in both dating and married couples (e.g., Birnbaum et al., 1997; Davis, Shaver, & Vernon, 2003; Feeney & Noller, 1992; Moller, Fouladi, McCarthy, & Hatch, 2003; Moller, McCarthy, & Fouladi, 2002; Pistole, 1995; Sbarra, 2006; Sbarra & Emery, 2005; Sprecher, Felmlee, Metta, Fehr, & Vanni, 1998). In contrast, attachment insecurity can interfere with the

recovery process, in part because insecure individuals may use less effective affect regulation strategies than secure individuals when coping with relationship dissolution.

Consistent with their attempts to regulate distress under other conditions of threat, avoidant individuals tend to rely on distancing strategies, anxious individuals tend to rely on emotion-focused strategies, and secure individuals tend to rely on social coping strategies (e.g., Birnbaum et al., 1997; Davis et al., 2003). For example, an Internet survey with more than 5,000 respondents (Davis et al., 2003) found that secure individuals were more likely to react to romantic breakups with social coping strategies, such as turning to family and friends as safe havens of support. In contrast, anxious individuals were more likely to react with dysfunctional coping strategies, emotional and physical distress, angry behavior, interference with school and work, attraction to and preoccupation with their former partner, perseveration about the breakup, and attempts to reunite with their former partner. These strategies reflect anxious individuals' attempts to regulate affect by seeking closeness and reassurance from their attachment figure (even when it may no longer be appropriate to do so) as well as their heightened affective reactivity to distress. Finally, avoidant individuals were more likely to react with self-reliant and avoidant coping strategies, such as avoiding new romantic relationships or failing to seek support, which are consistent with their attempts to regulate distress by suppressing negative emotions and turning their attention away from attachment-related threats.

How avoidant people react to relationship dissolution may depend on the nature of the relationship. Although avoidant individuals may respond to the dissolution of dating relationships with decreased distress (e.g., Davis et al., 2003; Simpson, 1990) and increased relief (e.g., Feeney & Noller, 1992), they may respond to the dissolution of marital relationships with increased distress. For example, one study found that both avoidant and anxious individuals

responded to divorce with increased distress and decreased well-being compared to secure individuals (Birnbaum et al., 1997); although avoidant people believed they could cope, they also viewed divorce as a threat and displayed ineffective coping strategies that led to their increased distress and decreased well-being. The researchers suggest that avoidant individuals may be able to regulate their distress when a more casual dating relationship ends, but they may not be able to do so when a long-term attachment relationship ends, as in the case of divorce. These findings fit with other work showing that avoidant individuals' defensive distancing strategies may breakdown under severe or chronic stress or under high cognitive demand (e.g., Berant et al., 2008; Mikulincer et al., 2004), any of which may apply when individuals are faced with reorganizing their lives, identities, and interpersonal connections in the aftermath of divorce.

Attachment-related processes play a critical role in people's ability to maintain long-term, mutually satisfying romantic relationships, which in turn can influence their ability to manage distress. Attachment security predicts a host of positive relationship outcomes, such as responsive caregiving and enhanced relationship satisfaction, even in the face of stress. In contrast, attachment insecurity appears to interfere with healthy relationship functioning.

### **Emerging Themes and Future Directions**

Although research over the past 25 years has yielded a great deal of knowledge about attachment-related processes in adults, there is still much to learn. We focus here on four emerging themes that are particularly likely to lead to novel insights into attachment processes and their implications for affect regulation (for additional emerging themes, see Simpson & Rholes, 2010). We call for research that (1) incorporates a person-in-context approach in investigating attachment processes in romantic couples, (2) investigates the processes through which adult romantic partners may promote change or stability in each other's attachment



representations, (3) tests the interactive effects of attachment and temperament or personality, and (4) identifies the processes (e.g., behavioral, biological) through which attachment may influence individuals' health-related processes and outcomes as well as those of their partners.

### **Person-in-Context Effects**

An emergent theme in the literature is that the effects of adult attachment styles often depend on the situational context. In many studies, individuals' attachment styles interact with aspects of the situation to enhance or attenuate their reactions. For example, avoidant individuals divert their attention from emotionally threatening words but only for attachment-relevant words (Edelstein & Gillath, 2008); insecure individuals show reconstructive memory biases congruent with their preferred affect regulation strategies only when the to-be-remembered event was distressing (Simpson et al., 2010); and anxious individuals evidence poorer emotional outcomes only when they also perceived an attachment-relevant threat (less support from their spouse, Rholes et al., 2011, or less agreeable behavior from their partner, Sadikaj et al., 2011). These studies and others make salient that different situations may be threatening for different people. Anxious individuals are likely to be threatened in situations where support is insufficient or partners are rejecting, whereas avoidant individuals are apt to be threatened when situations promote intimacy and closeness. Not all studies, however, have found context effects (e.g., Mikulincer et al., 2002), so it would be important to further specify the contingencies under which stress activates the attachment system for people with different attachment styles.

In addition, the characteristics of both partners and the relationship are critical features of the situation. Attachment relationships are dyadic, and any examination of attachment styles must take into account not only individuals' own characteristics, but also those of their partner and the potential interaction between the two. Although some attachment research has

incorporated a dyadic approach, more work along these lines would better capture how the relationship context might predict outcomes for both partners. For example, it would be important to know which partner characteristics and behaviors might enhance or impair individuals' ability to engage in constructive problem-solving, cope with stress, or benefit from a partner's attempts to soothe them (e.g., see Simpson et al., 2007). Furthermore, little work has examined how dyadic processes might shape what partners attend to and remember, yet these processes are likely pivotal in whether working models remain stable or change.

### **Stability and Change in Attachment Representations in Adulthood**

Bowlby (1973) theorized that working models developed early in life guide how the attachment system functions in close relationships throughout the life course, an idea with important implications for affective, support, and maintenance processes in adult relationships. Bowlby (1973) also suggested that working models become increasingly stable from infancy to adulthood, in part because people attend to, remember, interpret, and behave in their interactions in ways that reinforce their relationship expectations and beliefs. This assumption of continuity and stability in attachment representations from infancy through adulthood is a central tenet of attachment theory, yet it has remained an open question due to a lack of quantitative predictions about what, exactly, constitutes attachment stability or change over the life course. Fraley and Brumbaugh (2004), for example, note that a stability coefficient of .30 suggests some degree of attachment stability, but that it is unclear whether this value strengthens arguments for attachment stability or attachment change. Consequently, longitudinal studies on attachment from infancy to young adulthood and on attachment during adulthood provide ambiguous support for assumptions of stability because of variations in the findings as well as differences in researchers' interpretations of these findings. For example, some studies of attachment from

infancy to young adulthood have found moderate to high levels of stability (e.g., Waters, Merrick, Treboux, Crowell, & Albersheim, 2000), whereas others have found little to no stability (e.g., Lewis, Feiring, & Rosenthal, 2000). Furthermore, some researchers examining attachment in adults interpret their results as evidence of instability in adult attachment style (e.g., Baldwin & Fehr, 1995; Davila, Burge, & Hammen, 1997; Kirkpatrick & Hazan, 1994), whereas others interpret similar results as evidence of stability (e.g., Keelan et al., 1994; Klohnen & Bera, 1998; Scharfe & Bartholomew, 1994; Shaver & Brennan, 1992).

Two meta-analyses address these conflicting interpretations of attachment stability from infancy to young adulthood and throughout adulthood. One meta-analysis on attachment stability from infancy to young adulthood (Fraley, 2002) used 27 samples that collected test-retest data on parent-child attachment at 12 months and at later ages, whereas another meta-analysis on attachment stability during adulthood (Fraley & Brumbaugh, 2004) used 34 samples that collected test-retest data on either parent-child or romantic attachment among adults. Attachment patterns were more stable in adulthood ( $r = .54$ ; Fraley & Brumbaugh, 2004) than in childhood ( $r = .39$ ; Fraley, 2002). In both cases, the researchers concluded that the findings supported a prototype model of attachment, such that a stable, latent pattern of attachment endures over time and underlies changes in attachment (e.g., Sroufe, Egeland, Carlson, & Collins, 2005; Sroufe, Egeland, & Kreutzer, 1990).

Importantly, Fraley (2002) notes that although early attachment representations should influence adult attachment in romantic relationships, none of the studies examining attachment through young adulthood specifically assessed attachment to romantic partners. Indeed, few studies have explicitly examined the link between early attachment representations and adult romantic attachment. However, recent longitudinal work (Zayas, Mischel, Shoda, & Aber, 2011)

has shown that the quality of maternal caregiving at 18 months of age predicts adults' attachment style at 22 years of age. When mothers showed more sensitive caregiving, individuals were less avoidant and less anxious in their romantic relationships and less avoidant in their adult relationships with friends. In contrast, when mothers showed more controlling caregiving, individuals were more avoidant and more anxious with romantic partners and more avoidant in their relationships with friends. These findings suggest that early caregiving experiences—a central component of working models—shape adult attachment patterns in friendships and romantic relationships, and support the idea that a stable, latent pattern of attachment endures from infancy through adulthood (cf. Simpson, Collins, Tran, & Haydon, 2007).

Theorists (e.g., Bowlby, 1973; Fraley, 2002; Fraley & Brumbaugh, 2004; Mikulincer & Shaver, 2007; Sroufe et al., 1990; Waters et al., 2000) also acknowledge the possibility that change in attachment style occurs through experiences that challenge existing attachment representations. These experiences could include negative interactions (e.g., involving rejection, criticism) or relationship dissolution for secure individuals and positive interactions (e.g., involving acceptance, support) or maintaining a satisfying relationship for insecure individuals (e.g., Mikulincer & Shaver, 2007). In fact, Bowlby's (1988) model of therapeutic change assumes that insecure attachment representations can be revised in adulthood through the therapist-patient relationship, and related clinical interventions explicitly target attachment-related beliefs and behaviors in couples (e.g., emotionally focused therapy; e.g., Johnson, 2004). These ideas raise the provocative question of whether relationship partners can shape one another's attachment style over time in adulthood.

A few studies have examined the possibility that experiences with relationship partners can challenge existing attachment representations and, in turn, change people's attachment

orientations. Some work suggests that attachment-related life transitions—such as initiating a new romantic relationship, dissolving an existing romantic relationship, or becoming a parent—can produce changes in one's attachment style. For example, longitudinal research on dating couples has found that relationship problems or breakups lead to lower levels of attachment security (e.g., Kirkpatrick & Hazan, 1994; Ruvolo, Fabin, & Ruvolo, 2001), whereas the initiation (e.g., Kirkpatrick & Hazan, 1994) or maintenance of a romantic relationship (Ruvolo et al., 2001) leads to higher levels of attachment security. Similarly, longitudinal studies of newlyweds have shown that people generally become more secure as they transition to marriage (Crowell, Treboux, & Waters, 2002; Davila et al., 1999). Other work, however, has not found links between attachment-related experiences and attachment style change (Davila & Cobb, 2003; Davila et al., 1997; Scharfe & Bartholomew, 1994).

Davila and Cobb (2004) suggest that people's subjective perceptions of attachment-related events may underlie the inconsistencies in studies of attachment change. They argue that whether a given experience influences attachment representations may depend on whether people perceive that experience as challenging their working models of attachment. Recent research provides preliminary support for this perspective; for example, newlyweds became more secure over time when they perceived their marriage as satisfying (Davila et al., 1999). Furthermore, a longitudinal study of the transition to parenthood (Simpson, Rholes, Campbell, & Wilson, 2003) found associations between changes in attachment style and spouses' perceptions of support. Wives became more anxiously attached during the transition to parenthood when they perceived their husbands as less supportive and more rejecting during pregnancy, whereas wives became more avoidant when they sought less support during pregnancy and when their husbands were more avoidant. In contrast, husbands became less avoidant when they perceived

themselves as giving more support to their wives during pregnancy. Taken together, these findings suggest that attachment-related experiences may work through subjective perceptions of events to produce attachment style change. Additional prospective longitudinal studies that assess partners' attachment orientations and subjective perceptions at multiple time points will help shed light on whether relationship partners shape one another's attachment style over time.

### **Interconnections Among Attachment Style, Temperament and Personality**

A persistent question is whether links among attachment style, affect regulation and relationship processes could be explained by associated temperament, personality and/or genetic factors. In the developmental literature, this issue has been a longstanding source of controversy, but the evidence generally suggests that temperament and attachment are not identical (see Mikulincer & Shaver, 2007; Vaughn & Shin, 2011). Similarly, in adults, attachment dimensions have been associated with personality traits such as the Big Five factors (e.g., Brennan & Shaver, 1992; Nofle & Shaver, 2006; see Mikulincer & Shaver, 2007), which are assumed to reflect underlying temperamental and/or genetic predispositions (e.g., Loehlin, McCrae, Costa, & John, 1998) and genetic influences (e.g., Donnellan, Burt, Levendosky, & Klump, 2008; Gillath, Shaver, Baek, & Chun, 2008). Anxious attachment is moderately associated with greater neuroticism (a tendency to experience negative emotions), and avoidance is associated with less extraversion and conscientiousness, although the magnitude of these associations is typically small (e.g., Nofle & Shaver, 2006). When adult attachment researchers have controlled for personality variables such as neuroticism, attachment dimensions have remained significant predictors of relationship-related outcomes (e.g., stability of attachment representations, Fraley et al., 2011; relationship quality, Nofle & Shaver, 2006; attachment-related memory biases,

Simpson et al., 2010; perceived support and depression, Simpson et al., 2003), suggesting that broad personality factors are not redundant with adult attachment style.

Although controlling for temperament and personality variables offers some assurance that attachment style produces unique effects, little work in the adult literature has investigated how temperament and personality might modulate the links between attachment style and relationship processes and outcomes. The developmental literature suggests that temperament may create a contextual push toward attachment security or insecurity; for example, infants with more difficult temperaments (e.g., high irritability) appear more likely to become insecurely attached when they live under adverse conditions (i.e., under economic strain, see Susman-Stillman, Kalkose, Egeland, & Waldman, 1996). Temperament also can interact with attachment, as illustrated by findings that infants with a fearful temperament experience heightened cortisol reactivity to stress only when they also are insecurely attached (Gunnar, Brodersen, Nachmias, Buss, & Rigatuso, 1996). Furthermore, temperament and environments may interact such that some people may fare poorly under adverse conditions but blossom under beneficial ones; the “differential susceptibility” hypothesis suggests that children with difficult temperaments may be more likely to develop insecure attachments under adverse conditions but they also may be more likely to become securely attached under favorable conditions (Belsky & Pluess, 2009).

Few studies in the adult attachment literature, however, have explored how temperament might interact with either contextual factors (e.g., stressful circumstances, partner characteristics) or individuals’ attachment style in ways that influence individual and relationship outcomes (but see Laurent & Powers, 2007). Little theory exists on how adult attachment and temperament might interact to predict such outcomes. For example, anxious attachment combined with high neuroticism may be associated with quite different reactions to relationship conflict (e.g., greater

emotional intensity, hostility) than anxious attachment combined with low neuroticism. Another possibility is that secure attachment protects individuals from the negative psychological and interpersonal outcomes that accompany high neuroticism (e.g., Donnellan, Assad, Robins, & Conger, 2007). In addition, the notion of differential susceptibility (Belsky & Pluess, 2009) suggests that people who are temperamentally more susceptible to environmental influences, both good and bad, may be the most likely to benefit from a relationship with a secure romantic partner or from interventions to enhance security (e.g., Carnelley & Rowe, 2007), but this intriguing idea has yet to be examined in adults. Research that considers the joint effects of attachment and temperament or personality across both adverse and beneficial situations will enhance our understanding of the complex interplay among environmental, biological and genetic factors in attachment processes in adulthood.

### **Attachment and Health**

A wealth of evidence indicates that being in a supportive relationship predicts better health (e.g., Cohen, 2004; Uchino, 2009), and that the lack of close relationships is associated with an increased risk of mortality from cardiovascular and other diseases (see Holt-Lunstad, Smith, & Layton, 2010). Much more needs to be known, however, about the processes through which close relationships translate into better or worse health outcomes, and attachment theory offers a highly relevant and rich framework for generating hypotheses to address this gap (see Pietromonaco et al., in press). Despite the relevance of attachment theory for understanding the link between relationships and health, little is known about how attachment processes in adult relationships might contribute to physical health outcomes over the life course. Work so far has focused primarily on connections between individuals' attachment styles and their own health outcomes. For example, insecure attachment (anxiety, avoidance, or both) has been linked to



risky health behaviors (e.g., drug use, risky sexual behavior, alcohol use, poor diet; Cooper et al., 1998; Feeney, Peterson, Gallois, & Terry, 2000), less adherence to treatment regimens (e.g., Ciechanowski, Katon, Tusso, & Walker, 2001), and more problematic interactions with health care providers (e.g., Maunder et al., 2006; Noyes et al., 2003). Anxious attachment also has been associated with heightened reactions to experimentally induced pain (Wilson & Ruben, 2011) and poorer ability to cope with chronic pain (Meredith, Strong, & Feeney, 2006). In addition, recent longitudinal evidence indicates that individuals who were classified as insecurely attached at age 12-18 months in the Strange Situation were more likely to experience health problems in their early 30s (i.e., 30 years later). Importantly, these effects held even after the researchers statistically controlled for a variety of known predictors of health problems such as participants' current BMI, SES, life stress, and perceived social support (Puig, Englund, Collins, & Simpson, in press).

The next generation of studies on attachment and health need to identify the mechanisms through which individuals' attachment orientations contribute to health outcomes, or as noted by Simpson and Rholes (2010), how attachment "gets under the skin." Emerging work suggests that adult attachment insecurity is associated with physiological responses that have been linked with poorer health outcomes, such as dysregulated HPA patterns in insecurely attached young adults (Brooks et al., 2011; Powers et al., 2006) and greater inflammatory responses to conflict in avoidant spouses (Gouin et al., 2009). Many questions remain, however, about the conditions under which these attachment-related physiological responses are most likely to influence health (e.g., responses to acute stress, diurnal response patterns), the patterns of those responses (e.g., whether responses are heightened vs. dampened), and what constellations of physiological markers (e.g., cortisol, oxytocin) and responses across different systems (e.g., HPA, ANS) are

associated with better or worse health outcomes (see Diamond & Fagundes, 2010). Furthermore, we are not aware of any work that has shown that attachment style predicts physiological responses, which in turn, lead to adverse health outcomes over time. Such mediation models need to be tested to establish whether attachment patterns predict longer-term health outcomes through physiological mechanisms (e.g., through HPA dysregulation). Additionally, we need to understand whether physiological changes that may occur as a function of early relationship experiences (e.g., Repetti, Taylor, & Seeman, 2002; Taylor, Lerner, Sage, Lehman, & Seeman, 2004) also shape physiological responses in adult relationships, whether physiological changes resulting from early experiences can be modulated by later relationship experiences (e.g., a relationship with a secure partner), and how physiological response patterns linked to both early and later relationship experiences contribute to health and disease outcomes.

Most research on attachment and physical health has emphasized attachment as an individual difference variable detached from the relationship context, offering little insight into how attachment processes within dyadic relationships might influence health and disease outcomes over time. The affect regulation functions of attachment relationships suggest that how partners respond to each other will be critical in understanding connections between attachment and health. For example, do security-enhancing interactions with a romantic partner reduce health risks for cardiovascular disease, cancer, or diabetes, and if so, how? Do such interactions increase the likelihood that individuals can initiate and sustain difficult behavioral changes (e.g., losing weight, quitting smoking), follow challenging medical regimens (e.g., diabetes care), or cope with a chronic and potentially life-threatening disease such as cancer? And, how are these processes affected by the attachment orientations of each partner, or by the

combination of attachment styles within a couple (e.g., a secure/secure pair or an anxious/avoidant pair)?

In particular, questions about whether and how romantic partners influence each other's physiological responses need to be considered, given the possible mediating role of physiological processes in the link between attachment and health. For example, some theorists have argued that coregulation, defined as the dynamic, reciprocal maintenance of psychophysiological homeostasis or equilibrium between partners, is an essential feature of attachment relationships (e.g., Butler & Randall, in press; Diamond, 2001; Sbarra & Hazan, 2008). Research on coregulation in adult relationships is just beginning (e.g., Diamond et al., 2008), and we need to understand how these processes operate at the normative level in adult romantic relationships as well as how they may be moderated by individual (and couple) differences in attachment style. If partners regularly influence each other's physiological responses (e.g., cortisol levels, immune functioning), then we will need to ask how their interconnected physiological patterns predict health risks for each partner as well as health and disease outcomes over time.

### **Conclusion**

Our overview of the large and growing literature on adult romantic attachment indicates that attachment-related processes, including affective, cognitive, motivational, and support processes, operate in the interest of managing distress and restoring feelings of security. Furthermore, these processes contribute to and shape a variety of relationship processes, from relationship initiation to breakup. Knowledge about attachment processes in romantic relationships has progressed significantly on both theoretical and empirical fronts since Hazan and Shaver's original extension of Bowlby's attachment theory. Our goal in evaluating this literature was to identify several emerging themes that will lead to further innovative and

exciting research. We have suggested several future directions that we believe will enhance knowledge about attachment processes in romantic relationships: (a) emphasizing the interplay between individuals' working models and situational activators (taking a person-in-context approach), (b) further elaborating the conditions under which partners influence each other's attachment representations, (c) exploring interactions between attachment and temperament or personality, and (d) examining how attachment processes might influence couple members' health-related processes and outcomes. Research addressing these issues will help us better understand how attachment processes in romantic relationships contribute to people's long-term emotional and physical health and well-being.

## Footnote

<sup>1</sup> To aid in interpreting research findings based on earlier measures using four attachment prototypes (Bartholomew & Horowitz, 1991), note that the anxiety and avoidance dimensions map onto *preoccupied* attachment when anxiety is high and avoidance is low, *fearful-avoidance* when both anxiety and avoidance are high, *dismissing-avoidance* when anxiety is low and avoidance is high, and *secure attachment* when both anxiety and avoidance are low.

## References

- Ainsworth, M. D. (1989). Attachments beyond infancy. *American Psychologist, 44*, 709-716.
- Ainsworth, M. S., Blehar, M. C., & Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Altman, I., & Taylor, D. A. (1973). *Social penetration: The development of interpersonal relationships*. New York, NY: Holt, Rinehart, and Winston.
- Amir, M., Horesh, N., & Lin-Stein, T. (1999). Infertility and adjustment in women: The effects of attachment style and social support. *Journal of Clinical Psychology in Medical Settings, 6*(4), 463-479.
- Aspelmeier, J. E., & Kerns, K. A. (2003). Love and school: Attachment/exploration dynamics in college. *Journal of Social and Personal Relationships, 20*(1), 5-30.
- Baldwin, M. W., & Fehr, B. (1995). On the instability of attachment style ratings. *Personal Relationships, 2*(3), 247-261.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226-244.
- Beck, L. A., & Clark, M. S. (2009). Choosing to enter or avoid diagnostic social situations. *Psychological Science, 20*(9), 1175-1181.
- Beck, L. A., & Clark, M. S. (2010). What constitutes a healthy communal marriage and why relationship stage matters. *Journal of Family Theory & Review, 2*(4), 299-315.
- Beckes, L., Simpson, J. A., & Erickson, A. (2010). Of snakes and succor: Learning secure attachment associations with novel faces via negative stimulus pairings. *Psychological Science, 21*, 721-728.
- Belsky, J., & Pluess, M. (2009). Beyond diathesis stress: Differential susceptibility to environmental influences. *Psychological Bulletin, 135*(6), 885-908.
- Berant, E., Mikulincer, M., Shaver, P. R. (2008). Mothers' attachment style, their mental health, and their children's emotional vulnerabilities: A 7-year study of children with congenital heart disease. *Journal of Personality, 76*(1), 31-66.

- Bhattacharyya, M. R., Molloy, G. J., & Steptoe, A. (2008). Depression is associated with flatter cortisol rhythms in patients with coronary artery disease. *Journal of Psychosomatic Research, 65*, 107–113.
- Birnbaum, G. E., Orr, I., Mikulincer, M., & Florian, V. (1997). When marriage breaks up: Does attachment style contribute to coping and mental health? *Journal of Social and Personal Relationships, 14*(5), 643-654.
- Birnie, C., McClure, M. J., Lydon, J. E., & Holmberg, D. (2009). Attachment avoidance and commitment aversion: A script for relationship failure. *Personal Relationships, 16*, 79-97.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. New York: Basic Books.
- Bowlby, J. (1979). *The making and breaking of affectional bonds*. London: Tavistock.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Sadness and depression*. New York: Basic Books.
- Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. London: Routledge.
- Bradford, S. A., Feeney, J. A., & Campbell, L. (2002). Links between attachment orientations and dispositional and diary-based measures of disclosure in dating couples: A study of actor and partner effects. *Personal Relationships, 9*(4), 491-506.
- Bretherton, I. (1985). Attachment theory: Retrospect and prospect. *Monographs of the Society for Research in Child Development, 50*, 3-35.
- Bretherton, I. (1990). Open communication and internal working models: Their role in the development of attachment relationships. In R. A. Thompson (Ed.), *Nebraska Symposium on Motivation* (Vol. 36, pp. 57-113). Lincoln: University of Nebraska Press.
- Brooks, K.P., Robles, T.F., & Dunkel Schetter, C. (2011). Adult attachment and cortisol responses to discussions with a romantic partner. *Personal Relationships, 18*, 302-320.

- Brumbaugh, C. C., & Fraley, R. C. (2006). Transference and attachment: How do attachment patterns get carried forward from one relationship to the next? *Personality and Social Psychology Bulletin*, 32(4), 552-560.
- Brumbaugh, C. C., & Fraley, R. C. (2010). Adult attachment and dating strategies: How do insecure people attract mates? *Personal Relationships*, 17(4), 599-614.
- Butler, E. A. & Randall, A. K. (in press). Emotional coregulation in close relationships. *Emotion Review*.
- Campbell, L., Simpson, J. A., Boldry, J., & Kashy, D. A. (2005). Perceptions of conflict and support in romantic relationships: The role of attachment anxiety. *Journal of Personality and Social Psychology*, 88(3), 510-531.
- Carnelley, K. B., Pietromonaco, P. R., & Jaffe, K. (1994). Depression, working models of others, and relationship functioning. *Journal of Personality and Social Psychology*, 66(1), 127-140.
- Carnelley, K. B., Pietromonaco, P. R., & Jaffe, K. (1996). Attachment, caregiving, and relationship functioning in couples: Effects of self and partner. *Personal Relationships*, 3, 257-278.
- Carnelley, K. B., & Rowe, A. C. (2007). Repeated priming of attachment security influences later views of self and relationships. *Personal Relationships*, 14(2), 307-320.
- Carpenter, E. M., & Kirkpatrick, L. A. (1996). Attachment style and presence of a romantic partner as moderators of psychophysiological responses to a stressful laboratory situation. *Personal Relationships*, 3, 351-367.
- Carter, C. S. (1998). Neuroendocrine perspectives on social attachment and love. *Psychoneuroendocrinology*, 23, 779-818.
- Cassidy, J., Shaver, P. R., Mikulincer, M., & Lavy, S. (2009). Experimentally induced security influences responses to psychological pain. *Journal of Social and Clinical Psychology*, 28, 463-478.
- Chappell, K. D., & Davis, K. E. (1998). Attachment, partner choice, and perception of romantic



- partners: An experimental test of the attachment-security hypothesis. *Personal Relationships*, 5(3), 327-342.
- Ciechanowski, P. S., Katon, W. J., Russo, J. E., & Walker, E. A. (2001). The patient-provider relationship: attachment theory and adherence to treatment in diabetes. *American Journal of Psychiatry*, 158, 29-35.
- Clark, M. S., & Beck, L. A. (2011). Initiating and evaluating close relationships: A task central to emerging adults. In F. D. Fincham & M. Cui (Eds.), *Romantic relationships in emerging adulthood* (pp. 190-212). New York, NY: Cambridge University Press.
- Cohen, S. (2004). Social relationships and health. *American Psychologist*, 59, 676-684.
- Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology*, 71(4), 810-832.
- Collins, N. L., Ford, M. B., Guichard, A. C., & Allard, L. M. (2006). Working models of attachment and attribution processes in intimate relationships. *Personality and Social Psychology Bulletin*, 32(2), 201-219.
- Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theoretical perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology*, 78, 1053-1073.
- Collins, N. L., & Feeney, B. C. (2004). Working models of attachment shape perceptions of social support: Evidence from experimental and observational studies. *Journal of Personality and Social Psychology*, 87, 363-33.
- Collins, N. L. & Feeney, B. C. (2010). An attachment theoretical perspective on social support dynamics in couples: Normative processes and individual differences. In K. Sullivan & J. Davila (Eds.), *Support processes in intimate relationships* (pp. 89-120). New York, NY: Oxford University Press.
- Collins, N. L., Guichard, A. C., Ford, M. B., & Feeney, B. C. (2004). Working models of attachment: New developments and emerging themes. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (pp. 196-239). New

York, NY: Guilford.

- Collins, N.L., & Read, S.J. (1990). Adult attachment, working models and relationship quality in dating couples. *Journal of Personality and Social Psychology*, *58*, 644–663.
- Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology*, *74*(5), 1380-1397.
- Crowell, J. A., Treboux, D., & Waters, E. (2002). Stability of attachment representations: The transition to marriage. *Developmental Psychology*, *38*(4), 467-479.
- Crowell, J., & Treboux, D. (2001). Attachment security in adult partnerships. In C. Clulow (Ed.), *Adult attachment and couple psychotherapy: The “secure base” in practice and research* (pp. 28-42). New York, NY: Brunner-Routledge.
- Davila, J. (2001). Refining the association between excessive reassurance seeking and depressive symptoms: The role of related interpersonal constructs. *Journal of Social and Clinical Psychology*, *20*, 538-559.
- Davila, J., & Bradbury, T. N. (2001). Attachment insecurity and the distinction between unhappy spouses who do and do not divorce. *Journal of Family Psychology*, *15*(3), 371-393.
- Davila, J., & Cobb, R. J. (2003). Predicting change in self-reported and interviewer-assessed adult attachment: Tests of the individual difference and life stress models of attachment change. *Personality and Social Psychology Bulletin*, *29*(7), 859-870.
- Davila, J., & Cobb, R. J. (2004). Predictors of change in attachment security during adulthood. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (pp. 133-156). New York, NY: Guilford Publications.
- Davila, J., Burge, D., & Hammen, C. (1997). Why does attachment style change? *Journal of Personality and Social Psychology*, *73*(4), 826-838.
- Davila, J., Karney, B. R., & Bradbury, T. N. (1999). Attachment change processes in the early years of marriage. *Journal of Personality and Social Psychology*, *76*(5), 783-802.
- Davis, D., Shaver, P. R., & Vernon, M. L. (2003). Physical, emotional, and behavioral reactions

- to breaking up: The roles of gender, age, emotional involvement, and attachment style. *Personality and Social Psychology Bulletin*, 29(7), 871-884.
- Davis, D., Shaver, P. R., & Vernon, M. L. (2004). Attachment style and subjective motivations for sex. *Personality and Social Psychology Bulletin*, 30, 1076-1090
- Diamond, L. (2001). Contributions of psychophysiology to research on adult attachment: Review and recommendations. *Personality and Social Psychology Review*, 5, 276-295.
- Diamond, L. M. & Fagundes, C. P. (2008). Developmental perspectives on links between attachment and affect regulation over the lifespan. *Advances in Child Development and Behavior*, 36, 83-134.
- Diamond, L. M. & Fagundes, C. P. (2010). Psychobiological research on attachment. *Journal of Social and Personal Relationships*, 27, 218-225.
- Diamond, L. M., Hicks, A. M., and Otter-Henderson, K. D. (2008). Every time you go away: Changes in affect, behavior, and physiology associated with travel-related separations from romantic partners. *Journal of Personality and Social Psychology*, 95, 385-403.
- Dewitte, M. (2011). Adult attachment and attentional inhibition of interpersonal stimuli. *Cognition and Emotion*, 25(4), 612-625.
- Dewitte, M., De Houwer, J., Koster, E.H.W., & Buysse, A. (2007). What's in a name? Attachment-related attentional bias. *Emotion*, 7, 535-545.
- Dewitte, M., Koster, E.H.W., De Houwer, J., & Buysse, A. (2007). Attentive processing of threat and adult attachment. *Behaviour Research and Therapy*, 45, 1307-1317.
- Doherty, N. A., & Feeney, J. A. (2004). The composition of attachment networks throughout the adult years. *Personal Relationships*, 11, 469-488.
- Donnellan, M. B., Assad, K. K., Robins, R. W., & Conger, R. D. (2007). Do negative interactions mediate the effects of negative emotionality, communal positive emotionality, and constraint on relationship satisfaction? *Journal of Social and Personal Relationships*, 24(4), 557-573.
- Donnellan, M. B., Burt, S. A., Levendosky, A. A., & Klump, K. L. (2008). Genes, personality,

- and attachment in adults: A multivariate behavioral genetic analysis. *Personality and Social Psychology Bulletin*, 34(1), 3-16.
- Duemmler, S. L., & Kobak, R. (2001). The development of commitment and attachment in dating relationships: Attachment security as relationship construct. *Journal of Adolescence*, 24(3), 401-415.
- Dutton, D. G., Starzomski, A. J., Saunders, K., & Bartholomew, K. (1994). Intimacy-anger and insecure attachment as precursors of abuse in intimate relationships. *Journal of Applied Social Psychology*, 24(15), 1367-1386.
- Dykas, M. J., & Cassidy, J. (2011). Attachment and the processing of social information across the life span. *Psychological Bulletin*, 135, 19-46.
- Eastwick, P. W., & Finkel, E. J. (2008). The attachment system in fledgling relationships: An activating role for attachment anxiety. *Journal of Personality and Social Psychology*, 95(3), 628-647.
- Eberhart, N., & Hammen, C. (2009). Interpersonal predictors of stress generation. *Personality and Social Psychology Bulletin*, 35, 544-556
- Edelstein, R. S. (2006). Attachment and emotional memory: Investigating the source and extent of avoidant memory deficits. *Emotion*, 6, 340-345.
- Edelstein, R. S., & Gillath, O. (2008). Avoiding interference: Adult attachment and emotional processing biases. *Personality and Social Psychology Bulletin*, 34, 171-181.
- Ein-Dor, T., Mikulincer, M., & Shaver, P. R. (2011). Attachment insecurities and the processing of threat-related information: Studying the schemas involved in insecure people's coping strategies. *Journal of Personality and Social Psychology*, 101(1), 78-93.
- Feeney, B. C., & Collins, N. L. (2001). Predictors of caregiving in adult intimate relationships: An attachment theoretical perspective. *Journal of Personality and Social Psychology*, 80, 972-994.
- Feeney, B. C., & Kirkpatrick, L. A. (1996). The effects of adult attachment and presence of romantic partners on physiological responses to stress. *Journal of Personality and Social*

- Psychology*, 70, 255-270.
- Feeney, J. A. (1999). Issues of closeness and distance in dating relationships: Effects of sex and attachment style. *Journal of Social and Personal Relationships*, 16(5), 571-590.
- Feeney, J. A. (2002). Attachment, marital interaction, and relationship satisfaction: A diary study. *Personal Relationships*, 9(1), 39-55.
- Feeney, J. A., & Noller, P. (1990). Attachment style as a predictor of adult romantic relationships. *Journal of Personality and Social Psychology*, 58(2), 281-291.
- Feeney, J. A., & Noller, P. (1991). Attachment style and verbal descriptions of romantic partners. *Journal of Social and Personal Relationships*, 8(2), 187-215.
- Feeney, J. A., & Noller, P. (1992). Attachment style and romantic love: Relationship dissolution. *Australian Journal of Psychology*, 44(2), 69-74.
- Feeney, J. A., Peterson, C., Gallois, C., Terry, D. J. (2000). Attachment style as a predictor of sexual attitudes and behavior in late adolescence. *Psychology & Health*, 14(6), 1105-1122.
- Feeney, J. A., & Ryan, S. M. (1994). Attachment style and affect regulation: Relationships with health behavior and family experiences of illness in a student sample. *Health Psychology*, 13, 334-345.
- Fraley, R. C. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and Social Psychology Review*, 6(2), 123-151.
- Fraley, R. C., & Brumbaugh, C. C. (2004). A dynamical systems approach to understanding stability and change in attachment security. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (pp. 86-132). New York, NY: Guilford Press.
- Fraley, R. C., & Brumbaugh, C. C. (2007). Adult attachment and preemptive defenses: Converging evidence on the role of defensive exclusion at the level of encoding. *Journal of Personality*, 75, 1033-1050.

- Fraley, R. C., Garner, J. P., & Shaver, P. R. (2000). Adult attachment and the defensive regulation of attention and memory: Examining the role of preemptive and postemptive defensive processes. *Journal of Personality and Social Psychology, 79*, 816-826.
- Fraley, R. C., Niedenthal, P. M., Marks, M. J., Brumbaugh, C. C., & Vicary, A. (2006). Adult attachment and the perception of emotional expressions: Probing the hyperactivating strategies underlying anxious attachment. *Journal of Personality, 74*, 1163-1190.
- Fraley, R. C., & Shaver, P. R. (1997). Adult attachment and the suppression of unwanted thoughts. *Journal of Personality and Social Psychology, 73*, 1080-1091.
- Fraley, R. C., & Shaver, P. R. (1998). Airport separations: A naturalistic study of adult attachment dynamics in separating couples. *Journal of Personality and Social Psychology, 75*, 1198-1212.
- Fraley, R. C., & Shaver, P. R. (1999). Loss and bereavement: Attachment theory and recent controversies concerning “grief work” and the nature of detachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 735-759). New York: Guilford Press.
- Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology, 4*, 132-154.
- Fraley, R. C., Vicary, A. M., Brumbaugh, C. C., & Roisman, G. I. (2011). Patterns of stability in adult attachment: An empirical test of two models of continuity and change. *Journal of Personality and Social Psychology, 101*(5), 974-992.
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78*, 350-365.
- Frazier, P. A., Byer, A. L., Fischer, A. R., Wright, D. M., & DeBord, K. A. (1996). Adult attachment style and partner choice: Correlational and experimental findings. *Personal Relationships, 3*(2), 117-136.

- Gallo, L. C., & Smith, T. W. (2001). Attachment style in marriage: Adjustment and responses to interaction. *Journal of Social and Personal Relationships, 18*(2), 263-289.
- Gillath, O., Mikulincer, M., Fitzsimons, G. M., Shaver, P. R., Schachner, D. A. & Bargh, J. A. (2006). Automatic activation of attachment-related goals. *Personality and Social Psychology Bulletin, 32*, 1375-1388.
- Gillath, O., Shaver, P. R., Baek, J.-M., & Chun, D. S. (2008). Genetic correlates of adult attachment style. *Personality and Social Psychology Bulletin, 34*(10), 1396-1405.
- Gouin, J.-P., Glaser, R., Loving, T. J., Malarkey, Stowell, J., Houts, C., & Kiecolt-Glaser, J. (2009). Attachment avoidance predicts inflammatory responses to marital conflict. *Brain, Behavior, and Immunity, 23*, 898-904.
- Grabill, C. M., & Kerns, K. A. (2000). Attachment style and intimacy in friendship. *Personal Relationships, 7*(4), 363-378.
- Gunnar, M. R., Brodersen, L., Nachmias, M., Buss, K., & Rigatuso, J. (1996). Stress reactivity and attachment security. *Developmental Psychobiology, 29*(3), 191-204.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*(3), 511-524.
- Hazan, C., & Zeifman, D. (1994). Sex and the psychological tether. In D. Perlman and K. Bartholomew (Eds.), *Advances in personal relationships* (Vol. 5, pp. 151-180). London: Kingsley.
- Hesse, E. (1999). The Adult Attachment Interview: Historical and current perspectives. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 395-433). New York: Guilford Press.
- Hill, E. M., Young, J. P., & Nord, J. L. (1994). Childhood adversity, attachment, security, and adult relationships: A preliminary study. *Ethology & Sociobiology, 15*(5-6), 323-338.
- Holt-Lunstad, J., Smith, T.B., & Layton, B. (2010). Social Relationships and mortality: A meta-analysis. *PLoS Medicine, 7*, 1-20.
- Hsiao, F.-H., Yang, T.-T., Ho, R. T. H., Jow, G.-M., Ng, S.-M., Chan, C. L. W., Lai, Y.-M.,

- Chen, Y.-T., & Wang, K.-C. (2010). The self-perceived symptom distress and health-related conditions associated with morning to evening diurnal cortisol patterns in outpatients with major depressive disorder. *Psychoneuroendocrinology, 35*(4), 503-515.
- Impett, E. A., & Gordon, A. M. (2010). Why do people sacrifice to approach rewards versus to avoid costs? Insights from attachment theory. *Personal Relationships, 17*, 299–315.
- Impett, E. A., Gordon, A. M., & Strachman, A. (2008). Attachment and daily sexual goals: A study of dating couples. *Personal Relationships, 15*, 375–390.
- Johnson, S. M. (2004). *The practice of emotionally focused couple therapy: Creating connection* (2nd ed.). New York: Brunner-Routledge.
- Jones, J. T., & Cunningham, J. D. (1996). Attachment styles and other predictors of relationship satisfaction in dating couples. *Personal Relationships, 3*(4), 387-399.
- Kane, H. S., Jaremka, L. M., Guichard, A. C., Ford, M. B., Collins, N. L., & Feeney, B. C. (2007). Feeling supported and feeling satisfied: How one partner's attachment style predicts the other partner's relationship experiences. *Journal of Social and Personal Relationships, 24*, 535-555.
- Keelan, J. P. R., Dion, K. K., & Dion, K. L. (1998). Attachment style and relationship satisfaction: Test of a self-disclosure explanation. *Canadian Journal of Behavioural Science, 30*(1), 24-35.
- Keelan, J. P. R., Dion, K. L., & Dion, K. K. (1994). Attachment style and heterosexual relationships among young adults: A short-term panel study. *Journal of Social and Personal Relationships, 11*(2), 201-214.
- Kiecolt-Glaser, J. K., Newton, T., Cacioppo, J. T., MacCallum, R. C., Glaser, R., Malarkey, W. B. (1996). Marital conflict and endocrine function: Are men really more physiologically affected than women? *Journal of Consulting and Clinical Psychology, 64*(2), 324-332.
- Kirkpatrick, L. A., & Davis, K. E. (1994). Attachment style, gender, and relationship stability: A longitudinal analysis. *Journal of Personality and Social Psychology, 66*(3), 502-512.
- Kirkpatrick, L. A., & Hazan, C. (1994). Attachment styles and close relationships: A four-year



- prospective study. *Personal Relationships*, 1(2), 123-142.
- Klohnen, E. C. & Bera, S. (1998). Behavioral and experiential patterns of avoidantly and securely attachment women across adulthood: A 31-year longitudinal perspective. *Journal of Personality and Social Psychology*, 74(1), 211-223.
- Klohnen, E. C., & Luo, S. (2003). Interpersonal attraction and personality: What is attractive--Self similarity, ideal similarity, complementarity or attachment security? *Journal of Personality and Social Psychology*, 85(4), 709-722.
- Latty-Mann, H., & Davis, K. E. (1996). Attachment theory and partner choice: Preference and actuality. *Journal of Social and Personal Relationships*, 13(1), 5-23.
- Laurent, H., & Powers, S. (2007). Emotion regulation in emerging adult couples: Temperament, attachment, and HPA response to conflict. *Biological Psychology*, 76(1-2), 61-71.
- Lewis, M., Feiring, C., & Rosenthal, S. (2000). Attachment over time. *Child Development*, 71(3), 707-720.
- Loehlin, J. C., McCrae, R. R., Costa, P. T., & John, O. P. (1998). Heritabilities of common and measure-specific components of the Big Five personality factors. *Journal of Research in Personality*, 32(4), 431-453.
- Maunder, R. G., Panzer, A., Viljoen, M., Owen, J., Human, S., & Hunter, J. J. (2006). Physicians' difficulty with emergency department patients is related to patients' attachment style. *Social Science & Medicine*, 63(2), 552-562.
- Meredith, P., Strong, J., & Feeney, J. (2006). Adult attachment, anxiety, and pain self-efficacy as predictors of pain intensity and disability. *Pain*, 123, 146-154.
- Mikulincer, M. (1998a). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology*, 74, 513-524.
- Mikulincer, M. (1998b). Adult attachment style and affect regulation: Strategic variations in self-appraisals. *Journal of Personality and Social Psychology*, 75(2), 420-435.
- Mikulincer, M., Dolev, T., & Shaver, P. R. (2004). Attachment-related strategies during thought-

- suppression: Ironic rebounds and vulnerable self-representations. *Journal of Personality and Social Psychology*, 87, 940-956.
- Mikulincer, M., & Erev, I. (1991). Attachment style and the structure of romantic love. *British Journal of Social Psychology*, 30(4), 273-291.
- Mikulincer, M., Gillath, O., & Shaver, P. R. (2002). Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *Journal of Personality and Social Psychology*, 83(4), 881-895.
- Mikulincer, M., & Nachshon, O. (1991). Attachment styles and patterns of self-disclosure. *Journal of Personality and Social Psychology*, 61(2), 321-331.
- Mikulincer, M., & Orbach, I. (1995). Attachment styles and repressive defensiveness: The accessibility and architecture of affective memories. *Journal of Personality and Social Psychology*, 68, 917-925.
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood : Structure, dynamics, and change*. New York, NY: Guilford Press.
- Mikulincer, M., Shaver, P. R., Bar-On, N., & Ein-Dor, T. (2010). The pushes and pulls of close relationships: Attachment insecurities and relational ambivalence. *Journal of Personality and Social Psychology*, 98, 450-468.
- Moller, N. P., Fouladi, R. T., McCarthy, C. J., & Hatch, K. D. (2003). Relationship of attachment and social support to college students' adjustment following a relationship breakup. *Journal of Counseling & Development*, 81(3), 354-369.
- Moller, N. P., McCarthy, C. J., & Fouladi, R. T. (2002). Earned attachment security: Its relationship to coping resources and stress symptoms among college students following relationship breakup. *Journal of College Student Development*, 43(2), 213-230.
- Morgan, H. J., & Shaver, P. R. (1999). Attachment processes and commitment to romantic relationships. In J. M. Adams & W. H. Jones (Eds.), *Handbook of interpersonal commitment and relationship stability* (pp. 109-124). Dordrecht, Netherlands: Kluwer Academic Publishers.

- Maunder, R. G., Panzer, A., Viljoen, M., Owen, J., Human, S., & Hunter, J. J. (2006). Physicians' difficulty with emergency department patients is related to patients' attachment style. *Social Science and Medicine*, *63*, 552-562.
- Nelson, E.E., & Panksepp, J. (1998). Brain substrates of infant-mother attachment: Contributions of opioids, oxytocin, and norepinephrine. *Neuroscience and Biobehavioral Reviews*, *22*, 437-452.
- Noftle, E. E., & Shaver, P. R. (2006). Attachment dimensions and the big five personality traits: Associations and comparative ability to predict relationship quality. *Journal of Research in Personality*, *40*(2), 179-208.
- Noyes, Jr., R., Stuart, S. P., Langbehn, D. R., Happel, R. L., Longley, S. L., Muller, B. A., & Yagla, S. J. (2003). Test of an interpersonal model of hypochondriasis. *Psychosomatic Medicine*, *65*, 292-300.
- Pearce, Z. J., & Halford, W. K. (2008). Do attributions mediate the association between attachment and negative couple communication? *Personal Relationships*, *15*(2), 155-170.
- Pietromonaco, P. R., & Barrett, L. F. (1997). Working models of attachment and daily social interactions. *Journal of Personality and Social Psychology*, *73*, 1409-1423.
- Pietromonaco, P. R., & Barrett, L. F. (2000). Internal working models: What do we really know about the self in relation to others? *Review of General Psychology*, *4*, 155-175.
- Pietromonaco, P. R., & Barrett, L. F. (2006). What can you do for me? Attachment style and motives underlying esteem for partners. *Journal of Research in Personality*, *40*, 313-338.
- Pietromonaco, P. R., Barrett, L. F., & Powers, S. A. (2006). Adult attachment theory and affective reactivity and regulation. In J. Simpson, D. Snyder, & J. Hughes (Eds.), *Emotion regulation in families and close relationships: Pathways to dysfunction and health* (pp. 57-74). Washington, DC: American Psychological Association.
- Pietromonaco, P. R., & Carnelley, K. B. (1994). Gender and working models of attachment: Consequences for perceptions of self and romantic relationships. *Personal Relationships*, *1*(1), 63-82.

- Pietromonaco, P. R., Uchino, B., & Dunkel Schetter, C. (in press). Close relationship processes and health: Implications of attachment theory for health and disease. *Health Psychology*.
- Pistole, M. C. (1995). College students' ended love relationships: Attachment style and emotion. *Journal of College Student Development, 36*(1), 53-60.
- Pistole, M. C., Clark, E. M., & Tubbs, A. L. (1995). Love relationships: Attachment style and the investment model. *Journal of Mental Health Counseling, 17*(2), 199-209.
- Powers, S. I., Pietromonaco, P. R., Gunlicks, M., & Sayer, A. (2006). Dating couples' attachment styles and patterns of cortisol reactivity and recovery in response to a relationship conflict. *Journal of Personality and Social Psychology, 90*, 613-628.
- Puig, J., Englund, M. M., Collins, W. A., & Simpson, J. A. (in press). Predicting adult physical illness from infant attachment: A prospective longitudinal study. *Health Psychology*.
- Quirin, M., Pruessner, J. C., Kuhl, J. (2008). HPA system regulation and adult attachment anxiety: Individual differences in reactive and awakening cortisol. *Psychoneuroendocrinology, 33*(5), 581-590.
- Repetti, R. L., Taylor, S. E., & Seeman, T. E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128*(2), 330-366.
- Rholes, W. S., Simpson, J. A., Campbell, L., & Grich, J. (2001). Adult attachment and the transition to parenthood. *Journal of Personality and Social Psychology, 81*(3), 421-435.
- Rholes, W. S., Simpson, J. A., Kohn, J. L., Wilson, C. L., Martin, A. M., Tran, S., & Kashy, D.A. (2011). Attachment orientations and depression: A longitudinal study of new parents. *Journal of Personality and Social Psychology, 100*, 567-586.
- Rholes, W. S., Simpson, J. A., & Oriña, M. (1999). Attachment and anger in an anxiety-provoking situation. *Journal of Personality and Social Psychology, 76*, 940-957.
- Rholes, W. S., Simpson, J. A., Tran, S., Martin, A. M., III, Friedman, M. (2007). Attachment and information seeking in romantic relationships. *Personality and Social Psychology Bulletin, 33*, 422-438.

- Ruvolo, A. P., Fabin, L. A., & Ruvolo, C. M. (2001). Relationship experiences and change in attachment characteristics of young adults: The role of relationship breakups and conflict avoidance. *Personal Relationships, 8*(3), 265-281.
- Sadikaj, G., Moskowitz, D. S., & Zuroff, D. C. (2011). Attachment-related affective dynamics: Differential reactivity to others' interpersonal behavior. *Journal of Personality and Social Psychology, 100*, 905-917.
- Sbarra, D. A. (2006). Predicting the onset of emotional recovery following nonmarital relationship dissolution: Survival analyses of sadness and anger. *Personality and Social Psychology Bulletin, 32*(3), 298-312.
- Sbarra, D. A., & Emery, R. E. (2005). The emotional sequelae of nonmarital relationship dissolution: Analysis of change and intraindividual variability over time. *Personal Relationships, 12*(2), 213-232.
- Sbarra, D. A., & Hazan, C. (2008). Coregulation, dysregulation, self-regulation: An integrative analysis and empirical agenda for understanding adult attachment, separation, loss, and recovery. *Personality and Social Psychology Review, 12*(2), 141-167.
- Scharfe, E., & Bartholomew, K. (1994). Reliability and stability of adult attachment patterns. *Personal Relationships, 1*(1), 23-43.
- Schindler, I., Fagundes, C. P., & Murdock, K. W. (2010). Predictors of romantic relationship formation: Attachment style, prior relationships, and dating goals. *Personal Relationships, 17*(1), 97-105.
- Schore, A. N. (2001). Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal, 22*, 7-66.
- Senchak, M., & Leonard, K. E. (1992). Attachment styles and marital adjustment among newlywed couples. *Journal of Social and Personal Relationships, 9*(1), 51-64.
- Shaver, P. R., & Brennan, K. A. (1992). Attachment styles and the "Big Five" personality traits: Their connections with each other and with romantic relationship outcomes. *Personality and Social Psychology Bulletin, 18*(5), 536-545.

- Shaver, P. R., Schachner, D. A., & Mikulincer, M. (2005). Attachment style, excessive reassurance seeking, relationship processes, and depression. *Personality and Social Psychology Bulletin, 31*(3), 343-359.
- Siegel, D.J. (2001). Toward an interpersonal neurobiology of the developing mind: Attachment, “mind sight” and neural integration. *Infant Mental Health Journal, 22*(1-2), 67-94.
- Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology, 59*(5), 971-980.
- Simpson, J. A., Collins, W. A., Tran, S., & Haydon, K. C. (2007). Attachment and the experience and expression of emotions in adult romantic relationships: A developmental perspective. *Journal of Personality and Social Psychology, 92*, 355-367.
- Simpson, J. A., & Rholes, W. S. (1994). Stress and secure base relationships in adulthood. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 181-204). London: Jessica Kingsley.
- Simpson, J. A., & Rholes, W. S. (2010). Attachment and relationships: Milestones and future directions. *Journal of Social and Personal Relationships, 27*, 173-180.
- Simpson, J. A., Rholes, W. S., Campbell, L., Tran, S., & Wilson, C. L. (2003). Adult attachment, the transition to parenthood, and depressive symptoms. *Journal of Personality and Social Psychology, 84*, 1172-1187.
- Simpson, J. A., Rholes, W. S., Campbell, L., & Wilson, C. L. (2003). Changes in attachment orientations across the transitions to parenthood. *Journal of Experimental Social Psychology, 39*(4), 317-331.
- Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology, 62*, 434-446.
- Simpson, J. A., Rholes, W. S., Oriña, M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality and Social Psychology Bulletin, 28*, 598-608.

- Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology, 71*, 899–914.
- Simpson, J. A., Rholes, W. S., & Winterheld, H. A. (2010). Attachment working models twist memories of relationship events. *Psychological Science, 21*, 252-259.
- Simpson, J. A., Winterheld, H. A., Rholes, W. S., & Oriña, M. M. (2007). Working models of attachment and reactions to different forms of caregiving from romantic partners. *Journal of Personality and Social Psychology, 93*, 466-477.
- Slotter, E. B., & Finkel, E. J. (2009). The strange case of sustained dedication to an unfulfilling relationship: Predicting commitment and breakup from attachment anxiety and need fulfillment within relationships. *Personality and Social Psychology Bulletin, 35*(1), 85-100.
- Sprecher, S., Felmlee, D., Metts, S., Fehr, B., & Vanni, D. (1998). Factors associated with distress following the breakup of a close relationship. *Journal of Social and Personal Relationships, 15*(6), 791-809.
- Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development, 48*, 1184-1199.
- Sroufe, L. A., Egeland, B., & Kreutzer, T. (1990). The fate of early experience following developmental change: Longitudinal approaches to individual adaptation in childhood. *Child Development, 61*(5), 1363-1373.
- Sroufe, L. A., Egeland, B., Carlson, E. A., & Collins, W. A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York, NY: Guilford Publications.
- Susman-Stillman, A., Kalkoske, M., Egeland, B., & Waldman, I. (1996). Infant temperament and maternal sensitivity as predictors of attachment security. *Infant Behavior and Development, 19*(1), 33-47.
- Swann, W. B., De La Ronde, C., & Hixon, J. G. (1994). Authenticity and positivity strivings in marriage and courtship. *Journal of Personality and Social Psychology, 66*(5), 857-869.

- Taylor, S. E., Lerner, J. S., Sage, R. M., Lehman, B. J., & Seeman, T. E. (2004). Early environment, emotions, responses to stress, and health. *Journal of Personality, 72*(6), 1365-1393.
- Treboux, D., Crowell, J. A., & Waters, E. (2004). When “new” meets “old”: Configurations of adult attachment representations and their implications for marital functioning. *Developmental Psychology, 40*(2), 295-314.
- Uchino, B.N. (2009). Understanding the links between social support and physical health: A lifespan perspective with emphasis on the separability of perceived and received support. *Perspectives in Psychological Science, 4*, 236-255.
- van IJzendoorn, M.H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin, 117*, 387-403.
- Vaughn, B. E., Egeland, B. R., Sroufe, L. A., & Waters, E. (1979). Individual differences in infant-mother attachment at 12 and 18 months: Stability and change in families under stress. *Child Development, 50*, 971-975.
- Vaughn, B. E., & Shin, N. (2011). Attachment, temperament, and adaptation: One long argument. In D. Cicchetti & G. I. Roisman (Eds.), *The origins and organization of adaptation and maladaptation* (pp. 55-107). Hoboken, NJ, US: John Wiley & Sons Inc.
- Vorauer, J. D., Cameron, J. J., Holmes, J. G., & Pearce, D. G. (2003). Invisible overtures: Fears of rejection and the signal amplification bias. *Journal of Personality and Social Psychology, 84*(4), 793-812.
- Waters, E., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2003). Attachment security in infancy and early adulthood: A twenty-year longitudinal study. In M. E. Hertzog & E. A. Farber (Eds.), *Annual progress in child psychiatry and child development: 2000–2001*. (pp. 63-72). New York, NY: Brunner-Routledge.
- Wei, M., Mallinckrodt, B., Larson, L. A., & Zakalik, R. A. (2005). Attachment, depressive symptoms, and validation from self versus others. *Journal of Counseling Psychology, 52*,



368-377.

Weiss, R. S. (2001). Grief, bonds, and relationships. In M. S. Stroebe, R. O. Hansson, W.

Stroebe, & H. Schut (Eds.), *Handbook of bereavement research: Consequences, coping, and care*(pp. 47-62). Washington, DC: American Psychological Association.

Wilson, C. L., & Ruben, M. A. (2011). A pain in her arm: Romantic attachment orientations and the tourniquet task. *Personal Relationships, 18*, 242-265.

Zayas, V., & Shoda, Y. (2005). Do automatic reactions elicited by thoughts of romantic partner, mother, and self relate to adult romantic attachment? *Personality and Social Psychology Bulletin, 31*, 1011-1025.