

Working Models of Attachment Shape Perceptions of Social Support: Evidence From Experimental and Observational Studies

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Two studies examined the association between attachment style and perceptions of social support. Study 1 ($N = 95$ couples) used an experimental paradigm to manipulate social support in the context of a stressful task. Insecure participants (anxious and avoidant) who received low-support messages appraised these messages more negatively, rated a prior behavioral interaction with their partner as having been less supportive, and performed significantly worse at their task compared with secure participants. Study 2 ($N = 153$ couples) used a similar paradigm except that partners were allowed to send genuine support messages. Insecure participants (especially fearful) perceived their partners' messages as less supportive, even after controlling for independent ratings of the messages and relationship-specific expectations. These studies provide evidence that individuals are predisposed to appraise their support experiences in ways that are consistent with their chronic working models of attachment, especially when the support message is ambiguous.

Kelly is feeling stressed about having just lost an important client at work. When she tells her husband about the horrible day she had, he replies, "Don't worry about it. I'm sure you did the best you could under the circumstances." How will Kelly interpret this response? Will she view her husband's behavior as supportive or will she view his response as patronizing and insensitive? Will her husband's response make her feel better and help her to cope with her distress or will she feel even more frustrated and disappointed? A large body of research points to the important role of social support for individual health and well-being (B. R. Sarason, Sarason, & Gurung, 1997; Uchino, Cacioppo, & Kiecolt-Glaser, 1996) and for relationship satisfaction (Acitelli, 1996; Barbee & Cunningham, 1995; Collins & Feeney, 2000; Cutrona, 1996; Pasch, Bradbury, & Davila, 1997). However, there is growing evidence that the degree to which a person feels supported and cared for by others is not simply a function of the amount and quality of one's supportive transactions with others but may also be influenced by features of the support recipient such as his or her personality,

expectations, preferences, and needs (e.g., Coriell & Cohen, 1995; Cutrona, Hessling, & Suhr, 1997; Lakey & Cassady, 1990; Lakey, Moineau, & Drew, 1992; G. R. Pierce, Sarason, & Sarason, 1992; I. G. Sarason, Sarason, & Shearin, 1986; B. R. Sarason et al., 1991). Moreover, *perceived available support* (the perception that one is loved and valued by others and that others can be counted on to be available when needed) appears to be a stronger correlate of health and well-being than *received support* (the objective social resources that one actually receives; Cohen & Syme, 1985; Dunkel-Schetter & Bennett, 1990; Lakey & Heller, 1988; Wethington & Kessler, 1986). Thus, the impact of any potentially supportive interaction may depend in large part on the support recipient's subjective construal of that interaction.

Because subjective perceptions of social support are critical for health and personal adjustment, researchers have become increasingly interested in the personal factors that shape perceptions of support (Lakey & Drew, 1997). Although there are undoubtedly many such factors, working models of attachment may play an especially important role because they are automatically activated in response to stressful events and should act as interpretive filters through which individuals evaluate and appraise their interactions with significant others (Collins & Feeney, 2000; T. Pierce, Baldwin, & Lydon, 1997). As such, support recipients who have relatively secure working models should be predisposed to construe their interactions more favorably than those who have insecure models. This bias in social construal may then have important implications for stress and coping processes as well as for relationship functioning. Thus, the primary goal of the current research was to investigate whether working models of attachment shape perceptions of social support in intimate relationships. To accomplish this goal, we conducted two laboratory studies in which we either experimentally manipulated (Study 1) or observed (Study 2) the social support that individuals received from their romantic partners in the context of a stressful laboratory task. We then examined how secure and insecure support recipients perceived

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their social support transactions after controlling (either experimentally or statistically) for the objective features of the support they received. We begin with a brief review of prior work on adult attachment processes and social support.

Adult Attachment Theory

Adult attachment theory begins with the assumption that individuals of all ages possess an attachment behavioral system that is prone to activation in response to stressful or threatening events and has functions to promote security and survival (Bowlby, 1982; Bretherton, 1985). Although the attachment system is believed to be universally activated in response to threat, people differ systematically in the way they cope with distress and regulate feelings of security, and these differences are thought to be contingent, at least in part, on one's history of regulating distress with caretakers and other important attachment figures in childhood and adolescence (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1973; Bretherton, 1985; Kobak & Sceery, 1988). On the basis of experiences with attachment figures, individuals develop generalized representations about whether close others will be responsive and supportive in times of need and whether the self is worthy of support and care. Attachment theorists refer to these mental representations as *internal working models* of attachment (Bowlby, 1973; Bretherton & Munholland, 1999), which are cognitive-affective-motivational schemas that contain not only attachment-related knowledge and episodic memories but also goal structures and action tendencies (Collins & Allard, 2001; Collins & Read, 1994; Shaver, Collins, & Clark, 1996). Once developed, working models are thought to operate largely outside awareness (Bargh & Chartrand, 1999) and to play an important role in shaping cognition, affect, and behavior in attachment-relevant contexts (Collins & Allard, 2001; Collins & Read, 1994).

Much of the adult attachment literature has focused on individual differences in styles of attachment, which are thought to reflect differences in internal working models of self and others. Adult attachment researchers typically define four prototypic attachment styles derived from two underlying dimensions (Brennan, Clark, & Shaver, 1998; Fraley & Waller, 1998; Griffin & Bartholomew, 1994). The first dimension, labeled *anxiety*, assesses the degree to which individuals worry about being rejected, abandoned, or unloved by significant others. The second dimension, labeled *avoidance*, assesses the degree to which individuals limit intimacy and interdependence with others. *Secure* individuals are low in both anxiety and avoidance. They feel valued by others and worthy of affection, and they perceive attachment figures as generally responsive, caring, and reliable. They are comfortable developing close relationships and depending on others when needed. *Preoccupied* individuals are high in anxiety but low in avoidance. They desire closeness and intimacy with others but lack confidence in others' availability and likely responsiveness to their needs; they depend greatly on the approval of others for a sense of personal well-being but have heightened concerns about being rejected or abandoned. *Fearful-avoidant* individuals are high in both anxiety and avoidance. They tend to experience a strong sense of distrust in others coupled with heightened expectations of rejection, which result in discomfort with intimacy and avoidance of close relationships. Finally, *dismissing-avoidant* individuals are low in anxiety but high in avoidance. They tend to feel confident and to view themselves as invulnerable to negative feelings. However, they perceive attachment figures as generally unreliable and unresponsive. These individuals attempt to maintain a positive self-image in the face

of potential rejection by denying attachment needs, distancing themselves from others, and restricting expressions of emotionality.

These attachment styles represent theoretical prototypes that individuals can approximate to varying degrees, and there is growing consensus that individual differences are best measured in terms of the two continuous dimensions (anxiety and avoidance) that underlie the prototypes (Brennan et al., 1998; Fraley & Waller, 1998). In the present research, we measured these two dimensions and conducted analyses that enabled us to explore the dimensions as well as the prototypical styles derived from them.

Attachment Security and Perceptions of Social Support

Attachment theory has obvious relevance to social support processes not only because the attachment behavioral system will be automatically activated in response to stressful or threatening events (Mikulincer, Birnbaum, Woddis, & Nachmias, 2000; Mikulincer, Gillath, & Shaver, 2002) but also because working models of attachment contain both implicit and explicit expectations about the likelihood that significant others will be emotionally available in response to need (Baldwin, Fehr, Keedian, & Seidel, 1993; Bartholomew & Horowitz, 1991; Bowlby, 1973; Bretherton & Munholland, 1999; Collins & Read, 1990; Waters & Rodrigues-Doolabh, 2001). Like other social scripts and schemas, cognitive representations of attachment, once activated, direct attention and memory and organize and filter new information (Collins & Allard, 2001; Collins & Read, 1994). As such, they should play an important role in the interpretation of, and memory for, support-relevant behaviors and events (Collins & Feeney, 2000; T. Pierce, Baldwin, & Lydon, 1997). This assumption is compatible with a large body of research in social psychology that indicates that many aspects of social perception are guided by top-down, theory-driven processes in which people's existing goals, schemas, and expectations shape the way they view new information (Baldwin, 1992; Holmes, 2002; Olson, Roese, & Zanna, 1996; Taylor, 1998).

What, then, are the implications of attachment theory for perceived social support? Because secure and insecure adults differ considerably in their general expectations about the availability of close others and their likely responsiveness to need as well as in their expectations about acceptance and rejection, they should be predisposed to differ in the way in which they process information about social support and construe potentially supportive transactions with close others. These biases may be especially likely to occur when the support attempt is somewhat ambiguous, providing greater room for subjective construal. Support attempts may be ambiguous either because support providers are unskilled at providing effective support—because their behavior contains a mixture of helpful and unhelpful responses—or because they misunderstand the type (or amount) of support that is wanted or needed by the support recipient (Coyne, Wortman, & Lehman, 1988; Dakof & Taylor, 1990; Dunkel-Schetter, Blasband, Feinstein, & Herbert, 1992; Lehman & Hemphill, 1990). In such cases, the support recipient's subjective sense of feeling supported may hinge greatly on his or her appraisal of the support provider's good will and benevolent intent.

Prior Research on Attachment and Social Support

A number of self-report studies provide indirect evidence for attachment style differences in perceptions of social support (Anders & Tucker, 2000; Bartels & Frazier, 1994; Bartholomew,

Cobb, & Poole, 1997; Blain, Thompson, & Whiffen, 1993; Davis, Morris, & Kraus, 1998; Florian, Mikulincer, & Bucholtz, 1995; Kobak & Sceery, 1988; Ognibene & Collins, 1998; Priel & Shamai, 1995; Rholes, Simpson, Campbell, & Grich, 2001). Overall, secure adults tend to be confident that support is available to them and are generally satisfied with the support they receive. In contrast, insecure adults (both anxious and avoidant) report less available support, less satisfaction with the support they receive, and a larger gap between what they say they need and what they say they receive. Insecure attachment is also associated with pessimistic beliefs and expectations about the risks, costs, and futility of seeking help from others (Wallace & Vaux, 1993). Other studies have demonstrated that perceptions of support availability are linked to reports of early experiences with attachment figures (Blain et al., 1993; Kobak & Sceery, 1988; B. R. Sarason et al., 1990, 1991).

Taken together, these studies indicate that adults with different attachment styles do indeed differ in their subjective perceptions of support from friends and family. However, self-report studies such as these are difficult to interpret because we are unable to determine the degree to which differences in support experiences are due to biased construal processes or to differences in objective support environments. Indeed, attachment theory argues that adults with different attachment styles should differ in the nature and quality of their social interactions with others and not simply in their subjective construals. Support recipients contribute to their support experiences in critical ways by mobilizing (or failing to mobilize) support and by cultivating (or failing to cultivate) mutually supportive relationships with others (Barbee & Cunningham, 1995; Collins & Feeney, 2000).

Consistent with this idea, a number of studies have found that secure and insecure adults differ in their tendency to *seek* social support as a coping strategy. Using questionnaire or vignette methodologies, several studies have found that secure individuals seek more support than insecure individuals (Armsden & Greenberg, 1987; Florian et al., 1995; Mikulincer, Florian, & Weller, 1993; Rholes et al., 2001); other studies have found that secure and anxious adults seek more support than avoidant adults (Ognibene & Collins, 1998; Mikulincer & Florian, 1995; T. Pierce & Lydon, 1998). In addition, observational studies of dating and married couples have shown that avoidant adults seek less social support in response to stressful events in the laboratory (Collins & Feeney, 2000; Simpson, Rholes, & Nelligan, 1992) and in natural field settings (Fraleigh & Shaver, 1998). Finally, self-report and observational studies reveal that secure adults *provide* more sensitive and responsive care toward others (Carnelley, Pietromonaco, & Jaffe, 1996; Collins & Feeney, 2000; B. C. Feeney & Collins, 2001; J. A. Feeney, 1999; Fraleigh & Shaver, 1998; Kunce & Shaver, 1994; Simpson, Rholes, Campbell, Tran, & Wilson, 2003; Simpson et al., 1992; Simpson, Rholes, Orina, & Grich, 2002; Westmaas & Silver, 2001).

Because secure and insecure individuals differ in their willingness and ability to seek social support and to provide responsive care to others, it is likely that differences in perceived available support from friends and family are rooted, at least to some degree, in objective differences in social support transactions. Of course, even if working models of attachment shape social support experiences by influencing the quality of one's objective support transactions, they may also influence one's subjective construal of those transactions. Nevertheless, prior research fails to provide clear evidence for the role of biased construal processes. From a broader perspective, it makes good sense that perceptions of support should

be a function of top-down, theory-driven processes (shaped by working models of attachment) as well as bottom-up, data-driven processes (shaped by objective features of support transactions). What is needed, then, are methodologies that enable us to distinguish these two sources of social input.

Current Investigation

The primary purpose of the current investigation was to test whether perceptions of social support are colored by working models of attachment. To accomplish this goal, we conducted two studies in which we created a stressful event for one member of a couple and then examined whether secure and insecure support recipients differed in their perceptions of support received from their romantic partners. In the first study, we experimentally manipulated the support they received by asking the partner to copy standardized support messages. By manipulating the supportiveness of the partner's behavior, we were able to provide an objective benchmark for identifying biases in social construal. In the second study, we used the same paradigm but allowed partners to write genuine messages. These messages were then evaluated by the support recipient and also by three objective raters. Thus, we sought to find evidence for biased construal either by creating an objective benchmark by using false notes (Study 1) or by providing objective ratings of authentic notes (Study 2).

Study 1

Study 1 tested the hypothesis that working models of attachment influence the degree to which a standardized support message is perceived as supportive. To create a stressful and realistic context within which to examine perceptions of support, we brought romantic couples into the laboratory and asked one member of each couple (the support recipient) to give a speech that would be videotaped and evaluated. We then experimentally manipulated the support that the speech giver received from his or her partner by delivering two notes that were designed to be either supportive or relatively unsupportive. The content of these notes was standardized so that everyone (within experimental condition) received the same two notes. Do secure and insecure adults differ in their construal of the *same* support messages?

Overall, we expected that perceptions of support would be shaped, at least in part, by objective features of the supportive messages. That is, we predicted that individuals who received unambiguously supportive notes would feel more supported and cared for than those who received less supportive notes. However, we also expected that this effect would be moderated by attachment style. Specifically, we predicted that secure individuals (those low in anxiety and avoidance) would be more likely than insecure individuals (those high in anxiety and/or avoidance) to construe their partner's notes as supportive, even in the low-support condition. Likewise, we predicted that insecure individuals would be less likely than secure individuals to construe the notes as supportive, even in the high-support condition.

It is important to note that different forms of insecure attachment (anxiety vs. avoidance) are associated with distinct working models of self and others and with distinct patterns of support-seeking and caregiving behavior. However, relative to secure adults, both anxious and avoidant adults lack confidence in the sensitivity and responsiveness of others and have more pessimistic expectations about the likelihood that close others can be relied on to be available when needed. Because anxious individuals (preoccupied and fearful) also worry about being rejected, they may be especially likely to have

doubts about their partners' support attempts. For these reasons, we expected both forms of insecurity to be linked to more negative interpretations of a partner's support attempt, especially when that attempt was somewhat ambiguous and more open to subjective construal processes (the low-support condition).

In addition to investigating perceptions of standardized notes, we also examined perceptions of a spontaneous behavioral interaction that took place *prior* to the note manipulation but which was evaluated by support recipients *after* the manipulation. Our goal was to examine whether a later support experience (the receipt of two supportive or two unsupportive notes) would color support recipients' construal of their prior behavioral interaction. We hypothesized that insecure support recipients, who have less confident (more labile) views concerning the responsiveness of others (those high in anxiety and/or avoidance) and the worthiness of the self (those high in anxiety), may be more easily influenced by the intervening note experience. Finally, we explored whether supportive and unsupportive notes would differentially affect the speech performance of secure and insecure support recipients. (A correlation matrix of major study variables appears in Appendix A.)

Method

Research Design and Overview

This study used a quasiexperimental design with manipulated support (high–low) as the independent variable and attachment style as a measured variable. Attachment style was assessed along the two continuous dimensions of anxiety and avoidance. The dependent variables were the support recipient's (a) perception of two standardized support notes, (b) perception of their partner's support during a spontaneous interaction, and (c) speech performance.

Participants

Ninety-five couples participated in this study. One member of each couple was enrolled in an introductory psychology course and was asked to bring his or her romantic partner to the study. The recruited class member participant was designated as the "caregiver," and his or her romantic partner was designated as the "support recipient." The participant of interest in this study was the person in the role of support recipient (49 women and 46 men).¹ The mean age of support recipients was 19.4 years and the mean age of caregivers was 20.2 years. Couples had been romantically involved for an average of 15.8 months (range: 1–90), and all were heterosexual with the exception of one lesbian couple. The majority of couples were involved in dating relationships (93.5%), and a small percentage were either married or engaged to be married (6.5%). Participants received either course credit or \$5 and the opportunity to win \$25 in a drawing.

Experimental Procedure

Couples were informed that they would be completing questionnaires and participating in a series of activities designed to help researchers learn about social interactions that occur between romantic partners under various conditions. In the first part of the study, couple members completed questionnaires that included measures of attachment style and relationship satisfaction (described later).

Next, the person assigned to the role of support recipient was told that he or she had been randomly selected to prepare and give a speech (on "the value of a college education") that would be videotaped and rated by a group of other students. The person assigned to the role of the caregiver was told that he or she would be taken to a waiting room while the support recipient prepared for the speech task. Couple members were further

informed that although they would be working on separate activities during this phase of the study, we would give them an opportunity to interact by allowing the caregiver to send a couple of brief notes to the support recipient. This speech procedure was adapted from a procedure used by G. R. Pierce et al. (1992).

The experimenter then left the room (under the pretense of getting materials) and unobtrusively videotaped the couple for 5 min to observe their spontaneous support-seeking and caregiving behavior. Following this 5-min period, the experimenter returned, gave the support recipient materials for preparing for his or her speech, and escorted the caregiver to another room.

The experimenter then requested the caregiver's assistance in creating a note that would be used to manipulate support behavior. The caregiver was asked to copy either a supportive or relatively unsupportive note (described later) in his or her handwriting.² The note was immediately delivered to the support recipient, who read it and then continued preparing for the speech task. Then, at the end of the speech-preparation period, the support recipient completed several questionnaires assessing his or her thoughts and feelings about the upcoming speech task and about the caregiver's note.

Next, the support recipient delivered his or her speech, and the caregiver watched from the observation room along with the experimenter. Although both couple members were led to believe that the speech was being videotaped, the experimenter did not actually record the speech. After the speech, the caregiver was asked to copy another supportive or unsupportive note (described later). This note was immediately delivered to the support recipient. After giving the support recipient time to read the note, the experimenter returned with additional questionnaires that assessed the support recipient's thoughts and feelings about the second note and also about the partner's behavior during the prior 5-min interaction.

Thus, during the course of the study, support recipients in the high-support condition received two supportive notes and those in the low-support condition received two relatively unsupportive notes. On completion of the experimental procedure, couple members were thoroughly debriefed and asked for permission to use their videotape for research purposes (only 1 couple chose to erase their tape). Because this study involved several instances of deception, we took special care in debriefing our participants.

Materials

Support manipulation: Prespeech and postspeech notes. Each couple was randomly assigned to either a high- or low-support condition. To manipulate support behavior, we adapted a methodology developed by G. R. Pierce et al. (1992) in which we gave the support recipient two notes written by his or her partner, the content of which was determined by the experimenter and simply copied by the partner in his or her handwriting. The caregiver was asked to address the partner the way he or she normally does, to copy the prepared text, and to sign his or her name normally. For couples in the high-support condition, the caregiver copied the following pre- and postspeech notes: "Don't worry—just say how you feel and what you think and you'll do great," and "I liked your speech. That was a hard

¹ An additional 8 couples were recruited for the study but did not complete the experimental session—6 of these couples discontinued their participation after hearing about the videotaped speech task, 1 terminated participation because of illness, and 1 terminated participation because of time constraints. One additional couple completed the study but was excluded from data analysis because they failed to cooperate with the experimental procedure.

² Caregivers were also given an opportunity to write a real prespeech note (and a real postspeech note) before being asked to copy the standardized note. Because these real notes were not delivered to and evaluated by the support recipient, they were not examined as part of this investigation.

thing to do and you did a really good job.” For couples in the low-support condition, caregivers copied the following pre- and postspeech notes. “Try not to say anything too embarrassing—especially since so many people will be watching your tape,” and “Your speech was a little hard to follow, but I guess you did the best you could under the circumstances.” The notes used in the high-support condition were unambiguously supportive and were similar to those used by G. R. Pierce et al. (1992). The notes used in the low-support condition were new to this study and were designed to be somewhat ambiguous. For example, the prespeech note could be interpreted as an attempt to be lighthearted and humorous (a strategy that support providers often use to counteract a stressful situation), and the postspeech note contained a mixture of positive and negative feedback.

Attachment style. Attachment style was assessed with two widely used and validated measures of adult attachment style. First, participants completed the revised Adult Attachment Scale (AAS; Collins & Read, 1990). This 18-item scale contains three subscales that can be used to measure attachment-related anxiety and avoidance (Collins, 1996). The Close subscale measures the extent to which a person is comfortable with closeness and intimacy ($\alpha = .85$), and the Depend subscale measures the extent to which a person is comfortable depending on others ($\alpha = .88$). Together, these two subscales reflect the degree to which individuals tend to avoid (vs. approach) intimacy and interdependence with others. The Anxiety subscale measures the extent to which a person is worried about being rejected or unloved ($\alpha = .83$). Participants were asked to respond to each item in terms of their general orientation toward romantic relationships.

Next, participants were presented with Bartholomew’s (Bartholomew & Horowitz, 1991) four attachment prototypes (secure, preoccupied, fearful, dismissing) and were asked to rate the extent to which each one corresponded to their general style in romantic relationships. Following Bartholomew’s guidelines, we computed two attachment dimensions: (a) Model of Self ([fearful + preoccupied] – [secure + dismissing]), in which higher scores reflect a sense of self-worth and confidence and a lack of anxiety about being rejected, and (b) Model of Other ([dismissing + fearful] – [secure + preoccupied]), in which higher scores reflect comfort with closeness and a tendency to approach intimate relationships.

The AAS and Bartholomew measures were standardized and combined to form two composite attachment dimensions. Attachment-related anxiety was computed by combining the AAS Anxiety subscale with Bartholomew’s Model of Self Index, which were highly correlated ($r = -.59$, $p < .001$). Scores were coded such that high scores reflect greater anxiety about being rejected or abandoned. Attachment-related avoidance was computed by combining the AAS Close and Depend subscales with Bartholomew’s Model of Other Index, which were highly intercorrelated ($r = .74$ for Close and Depend, $r = .72$ for Close and Model of Other, and $r = .71$ for Depend and Model of Other, all $ps < .001$). Scores were coded such that high scores reflect greater discomfort with closeness and a tendency to avoid intimacy. The resulting anxiety and avoidance dimensions were moderately correlated ($r = .46$, $p < .001$).

Relationship satisfaction. Participants completed the following three-item Index of Relationship Satisfaction ($\alpha = .94$): (a) All things considered, how happy are you in your relationship?, (b) All things considered, how satisfied are you in your relationship?, and (c) Overall, how good is your relationship? Each item was answered on a 7-point scale.

Prespeech stress. Prior to the speech task and after receiving their partner’s note, support recipients were asked two questions to assess their degree of anxiety about the speech task: (a) How nervous are you about performing the speech task? and (b) How upsetting or stressful is this task for you? Each item was rated on a 7-point scale. The two items were averaged to form an Index of Prespeech Anxiety ($\alpha = .79$).

Prespeech note evaluation. Prior to the speech and after receiving their partner’s prespeech note, participants completed a 12-item scale assessing their thoughts and feelings about their partner’s note. Each item was rated on a scale from 1 (*not at all*) to 5 (*very much*). Some items were adapted from those used by G. R. Pierce et al. (1992); other items were new to this

study. A principal-components analysis with orthogonal rotation revealed two distinct factors. The first factor contained the following 6 items and reflected positive interpretations of the note: My partner’s note (a) makes me feel better, (b) lets me know he or she cares about me, (c) shows that he or she understands the way that I’m feeling, (d) was intended to make me feel good, (e) increases my confidence about giving my speech, and (f) makes me feel more comfortable about giving my speech. Items were averaged to form a Prespeech Positive Appraisal Index ($\alpha = .94$).

The second factor contained the following six items that reflected negative appraisals of the note: My partner’s note (a) makes me feel more anxious about giving my speech, (b) was intended to make me feel bad, (c) is inconsiderate, (d) is disappointing, (e) is upsetting, and (f) makes me angry. These items were averaged to form a Prespeech Negative Appraisal Index ($\alpha = .82$).

Postspeech note evaluation. Following the speech task and after receiving the partner’s postspeech note, participants completed a similar 10-item scale asking them to report their thoughts and feelings about their partner’s note. A principal-components analysis with orthogonal rotation revealed two distinct factors. The first factor contained the following five items and reflected positive interpretations of the note: My partner’s note (a) makes me feel good about myself, (b) lets me know he or she cares about me, (c) shows that he or she understands the way that I’m feeling, (d) was intended to make me feel good, and (e) makes me feel understood. These five items were averaged to form a Postspeech Positive Appraisal Index ($\alpha = .95$).

The second factor contained the following five items and reflected negative appraisals of the note: My partner’s note (a) was intended to make me feel bad, (b) makes me feel like he or she doesn’t understand how difficult it was to give my speech, (c) is disappointing, (d) is upsetting, and (e) makes me angry. These five items were averaged to form a Postspeech Negative Appraisal Index ($\alpha = .92$).

Perception of partner support during the spontaneous interaction. Following the speech task and the postspeech note ratings, support recipients were asked to think back to the brief period during which they were left alone with their partner prior to preparing for their speech. They were asked, explicitly, to think about their partner’s behavior during this time and not about their partner’s notes. They then completed an 11-item scale assessing their partner’s behavior. Sample items include: (a) How supportive was your partner with regard to your upcoming speech task? (b) How much did your partner help you deal with your upcoming speech task? (c) How much genuine concern did your partner show for your feelings? (d) Did your partner criticize you or put you down in any way? and (e) Did your partner disappoint you or let you down in any way? Each item was rated on a 7-point scale. Principal-components analysis with orthogonal rotation indicated that the 11 items formed a single factor. Therefore, the items were averaged (with negative items reverse coded) to form an Index of Perceived Partner Support ($\alpha = .93$). (The sample size for this variable is reduced [$n = 73$] because we added the behavioral support measure after the study was already underway.)

Observer ratings of partner support. To obtain an objective assessment of partner support during the spontaneous interaction, two independent observers who were unaware of the study hypotheses or experimental condition coded each interaction. Observers rated the partner’s behavior along the following six dimensions: (a) proximity seeking (the provision of physical closeness and affection), (b) emotional support (verbal reassurance, compassion, and understanding), (c) instrumental support (tangible assistance and aid with the speech task), (d) responsiveness (sensitivity to the distressed partner’s expressed needs), (e) overall warmth (expressions of warmth, friendliness, and positive regard), and (f) negative support (unsupportive behavior including criticism, ridiculing, irritation, minimizing the event). Each dimension was rated on a 5-point scale. Intraclass correlations (ICCs; McGraw & Wong, 1996) were computed to assess

interrater reliability.³ ICCs ranged from .81 to .95, indicating strong consensus between observers. The average of the two observers' ratings was then computed. For the current purpose, the six dimensions were combined (with negative items reverse coded) to form an overall Index of Observed Partner Support ($\alpha = .77$).

Speech quality. Immediately following the speech task, the support provider (who watched the speech on a video monitor with the experimenter) was asked to rate how well his or her partner performed the speech task on a scale from 1 (*very poorly*) to 7 (*very well*). At the end of the study, the experimenter also rated the quality of the speech on a scale from 1 (*very poor*) to 7 (*excellent*). These two ratings were highly correlated ($r = .72$, $p < .001$) and were therefore standardized and averaged to form an overall rating of speech performance ($\alpha = .84$).⁴ (A correlation matrix of major study variables appears in Appendix B.)

Results

Preliminary Analyses

To rule out the possibility that any attachment differences in responses to support were a function of differing levels of distress concerning the speech task, we examined whether secure and insecure support recipients differed in the degree to which they felt stressed about the upcoming speech task. Results indicated no significant associations between attachment style and prespeech stress ratings. On average, participants rated the task as moderately stressful ($M = 4.2$, $SD = 1.4$, on a 7-point scale). Because we obtained stress ratings after the first note was delivered, we also examined whether the support manipulation had any impact on perceived stressfulness of the task. There was no significant main effect of support condition, and there were no Attachment \times Support Condition interactions.

Next, we examined whether attachment style was associated with relationship quality. Consistent with past research, there was a significant negative association between relationship quality and attachment-related anxiety ($\beta = -.22$, $p < .05$) and avoidance ($\beta = -.22$, $p = .05$). The Anxiety \times Avoidance interaction was not significant ($\beta = -.03$). Overall, insecure individuals rated their relationships as less satisfying than secure individuals. Therefore, to rule out the possibility that any attachment style differences in perceptions of support are a function of relationship satisfaction, we entered relationship satisfaction as a covariate in all subsequent analyses.

Perception of the Standardized Notes

Did secure and insecure participants differ in their appraisal of the same notes received from their partners? To address this question, we conducted hierarchical regression analyses predicting pre- and postspeech note appraisals. In each analysis, we entered anxiety, avoidance, support condition (coded 0 = low support, 1 = high support), and relationship quality on Step 1, the two-way interactions on Step 2 (Anxiety \times Avoidance, Anxiety \times Support Condition, and Avoidance \times Support Condition), and the three-way interaction on Step 3 (Anxiety \times Avoidance \times Support Condition). To follow-up on any significant interactions, we computed simple effects within support condition and plotted the predicted means at one standard deviation above and below the mean on anxiety and avoidance (Aiken & West, 1991). These means provide information on each of the four attachment profiles: (a) secure individuals are represented by the predicted mean com-

puted at one standard deviation below the mean on both anxiety and avoidance, (b) fearful individuals are represented at one standard deviation above the mean on both anxiety and avoidance, (c) preoccupied individuals are represented at one standard deviation above the mean on anxiety and below the mean on avoidance, (d) and dismissing individuals are represented at one standard deviation below the mean on anxiety and above the mean on avoidance.

Finally, we computed effect size estimates (squared semipartial correlations, sr^2) for all primary hypothesis tests. Values of squared semipartial correlations represent the percentage of variance in the dependent variable uniquely explained by each predictor variable (controlling for all other predictors in the equation). This effect size estimate is equivalent to eta squared in analysis of variance models.

Prespeech note. The regression model for the Prespeech Positive Appraisal Index revealed a strong main effect of note condition ($\beta = .66$, $p < .001$, $sr^2 = .43$) but no significant main effects or interactions involving attachment style. Regardless of attachment style, participants who received the supportive note rated it as much more helpful and supportive than those who received the relatively unsupportive note rated theirs.

The regression model for the Negative Appraisal Index revealed a significant main effect of note condition ($\beta = -.46$, $p < .001$, $sr^2 = .21$) and a significant main effect of avoidance ($\beta = .21$, $p = .05$, $sr^2 = .03$). These effects were qualified by a marginally significant Avoidance \times Support Condition interaction ($\beta = -.25$, $p = .09$, $sr^2 = .02$). Simple effects analyses revealed a strong and significant effect of avoidance in the low-support condition ($\beta_{\text{low}} = .41$, $p = .01$, $sr^2 = .06$), but no such effect in the high-support condition ($\beta_{\text{high}} = .06$, $p = .67$, $sr^2 = .00$). As shown in Figure 1, in the low-support condition, individuals who were high in avoidance (dismissing and fearful) made more negative appraisals of the prespeech note than did those who were low in avoidance (secure and preoccupied). There were no discernable effects of attachment in the high-support condition.

For descriptive purposes, we examined the individual components of the Prespeech Negative Appraisal Index to identify the particular thoughts and feelings that most differentiated the responses of high- and low-avoidant participants. Relative to those low in avoidance, highly avoidant individuals were more likely to report that their partner's low-support note was upsetting ($\beta = .48$, $p < .001$), was disappointing ($\beta = .34$, $p < .05$), made them feel angry ($\beta = .36$, $p < .05$), and was purposely intended to make them feel bad ($\beta = .37$, $p < .01$).

³ The interrater reliability coefficients reported throughout this article are ICCs. The specific type of ICC we computed is equivalent to Cronbach's alpha and is the appropriate estimate of interrater reliability whenever scores on continuous variables are combined/averaged across raters and in which all raters provided scores for all cases (McGraw & Wong, 1996).

⁴ The experimenter rating of speech quality was added to the study after it was already underway and is, therefore, missing for the first 16 participants in the study. (Because we did not videotape the speech task, we were unable to go back and rate these first 16 speeches.) However, partner ratings of speech quality were gathered for *all* participants. Hence, for 16 participants, the Speech Rating Index is composed of only the partner's evaluation, and for 76 participants the Speech Rating Index is composed of both the partner's and the experimenter's evaluation.

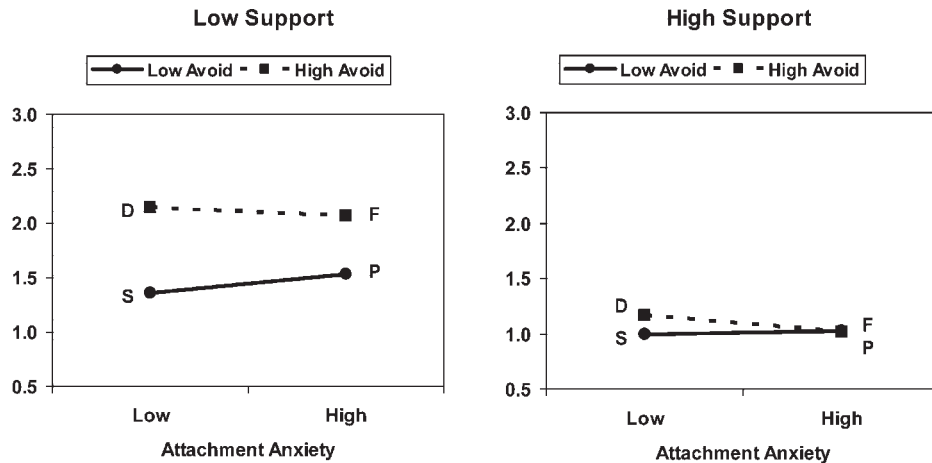


Figure 1. Negative appraisal of prespeech note by attachment style and support condition. Predicted means are plotted at one standard deviation above and below the mean on anxiety and avoidance. Avoid = avoidance; S = secure, P = preoccupied, D = dismissing, F = fearful.

Postspeech note. The regression model for the Postspeech Positive Appraisal Index revealed a strong main effect of note condition ($\beta = .67, p < .001, sr^2 = .44$) but no significant main effects or interactions involving attachment style. Regardless of attachment style, in comparison with participants who received the relatively unsupportive note, participants who received the supportive note rated it as much more encouraging and supportive.

The regression model for the Negative Appraisal Index revealed significant effects of note condition ($\beta = -.56, p < .001, sr^2 = .31$) and anxiety ($\beta = .20, p < .05, sr^2 = .03$). These effects were qualified by a significant Anxiety \times Support Condition interaction ($\beta = -.28, p < .05, sr^2 = .03$). Simple effects analyses revealed a strong and significant effect of anxiety in the low-support condition ($\beta_{low} = .40, p < .01, sr^2 = .06$), but no such effect in the high-support condition ($\beta_{high} = .00, p = .99, sr^2 = .00$). As shown in Figure 2, in the low-support condition, individuals who were high in anxiety (preoccupied and fearful) made more negative

appraisals than did those who were low in anxiety (secure and dismissing). There were no discernable effects of attachment in the high-support condition.

Once again, for descriptive purposes, we examined the individual components of the Postspeech Negative Appraisal Index to identify the particular thoughts and feelings that most differentiated the responses of high- and low-anxious participants. Relative to those low in anxiety, highly anxious individuals were more likely to report that their partner's low-support note was upsetting ($\beta = .53, p < .01$), was disappointing ($\beta = .37, p < .01$), made them feel angry ($\beta = .43, p < .01$), and was inconsiderate ($\beta = .25, p < .05$).

In summary, the note perception findings revealed no attachment style differences in perceptions for those who received the high-support notes. However, a different picture emerged for those who received the low-support notes. Although secure and insecure support recipients agreed that these notes were less supportive than

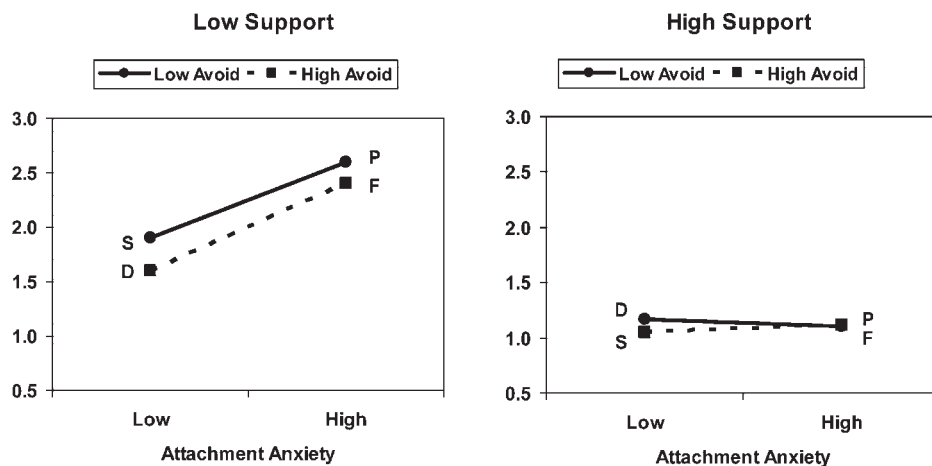


Figure 2. Negative appraisal of postspeech note by attachment style and support condition. Predicted means are plotted at one standard deviation above and below the mean on anxiety and avoidance. Avoid = avoidance; S = secure, P = preoccupied, D = dismissing, F = fearful.

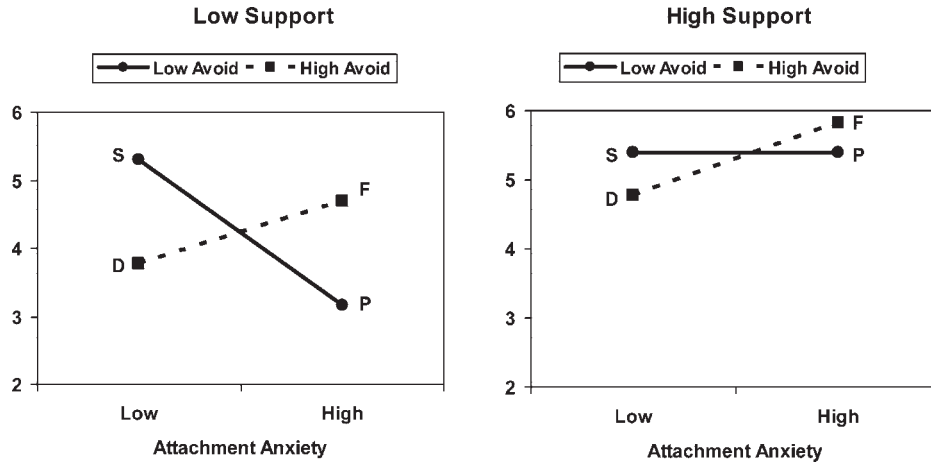


Figure 3. Perceptions of partner behavioral support by attachment style and support condition. Predicted means are plotted at one standard deviation above and below the mean on anxiety and avoidance. Avoid = avoidance; S = secure, P = preoccupied, D = dismissing, F = fearful.

the high-support notes (as implied by their lower ratings on the Positive Appraisal Index), only insecure individuals viewed them as having greater negative impact and greater hurtful intent (as implied by the Negative Appraisal Index).

Perception of the Prior Interaction

Did secure and insecure participants differ in their perceptions of their partner's support behavior during the spontaneous interaction? Recall that this interaction took place before the note manipulation but that perceptions of the interaction were assessed following the notes and the speech task. However, given that participants were randomly assigned to note conditions, the quality of their prior interaction should be unrelated to their note condition.

A hierarchical regression analysis predicting perceptions of partner support during the behavioral interaction revealed a significant main effect of support condition ($\beta = .33, p < .01, sr^2 = .11$) and a significant Anxiety \times Avoidance interaction ($\beta = .32, p < .01, sr^2 = .09$). These effects were qualified by a marginally significant Anxiety \times Avoidance \times Support Condition interaction ($\beta = -.35, p = .07, sr^2 = .03$). To follow-up on the three-way interaction, we computed the simple two-way interactions (Anxiety \times Avoidance) within the high- and low-support conditions.

There were no significant simple effects of anxiety or avoidance in the high-support condition. As shown in Figure 3, when support recipients received two highly supportive notes, secure and insecure individuals rated their partner's prior behavior as equally supportive. However, tests of simple effects revealed a strong and significant Anxiety \times Avoidance interaction in the low-support condition ($\beta_{low} = .59, p < .01, sr^2 = .10$). As shown in Figure 3, when support recipients received two low-support notes, insecure individuals (those high in either anxiety or avoidance) rated their partner's prior behavior as less supportive than secure individuals (those low in anxiety and avoidance). Among insecure individuals, those who matched the preoccupied (high anxiety, low avoidance) and dismissing (low anxiety, high avoidance) profiles rated their partner's prior behavior as least supportive.

Another way to understand this interaction is to compare the effect of the note manipulation on support perceptions for individuals with different attachment styles. To address this question, we computed the simple slope of support condition (coded 0 = low support, 1 = high support) predicting perceptions of support at one standard deviation above and below the mean on anxiety and avoidance (representing each of the four attachment prototypes).⁵ As shown in Figure 4, secure individuals rated their partners as equally supportive regardless of whether they subsequently received two supportive or two unsupportive notes ($\beta_{secure} = .05, p = .76, sr^2 = .00$). However, a very different picture emerged for insecure participants; those who received two relatively unsupportive notes rated their partners' prior behavior as less supportive than those who received two highly supportive notes ($\beta_{preoc} = .80, p < .01, sr^2 = .10$; $\beta_{fearful} = .35, p < .05, sr^2 = .04$; $\beta_{dismiss} = .36, p = .25, sr^2 = .01$). These findings indicate that the intervening note experience colored the perceptions of insecure individuals but had no such effect on secure individuals.

Objective Ratings of the Interaction

The previous analysis suggests that insecure participants either misremembered or reconstructed their prior interaction (as more negative) after receiving two relatively unsupportive notes. However, it is possible that the partners of insecure participants actually were less supportive during the spontaneous interaction. Of course,

⁵ To compute these simple slopes, we regressed support perceptions on support condition (0 = low support, 1 = high support) at four combinations of high–low values on anxiety and avoidance defined in terms of one standard deviation above and below the mean on each dimension (Aiken & West, 1991). For example, we computed the simple slope of note condition at one standard deviation below the mean on both anxiety and avoidance, which represents the simple slope for individuals who matched the secure profile. Likewise, we computed the simple slope at one standard deviation above the mean on anxiety and one standard deviation below the mean on avoidance, which represents the simple slope for individuals who matched the preoccupied profile.

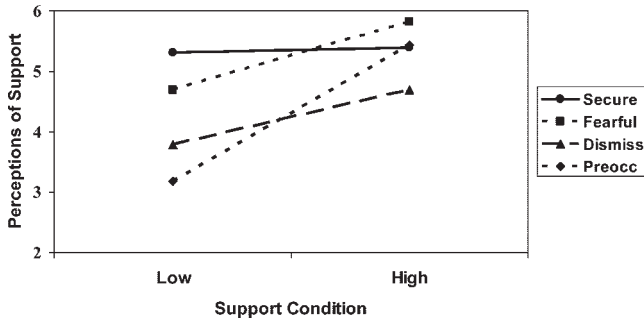


Figure 4. Simple slopes relating support condition to perceptions of partner behavioral support for different attachment profiles. Preocc = preoccupied; Dismiss = dismissing.

participants were randomly assigned to the note conditions, so there is no reason to believe that insecure adults who received the low-support notes had partners who were less supportive than insecure adults who received the high-support notes. Nevertheless, on the basis of chance alone, this remains a possibility. Fortunately, we had objective observers' ratings of the partner's behavior during the videotaped interactions.

A hierarchical regression analysis predicting observer ratings of support (controlling for relationship satisfaction) revealed no significant (or marginally significant) main effect of support condition and no two-way or three-way interactions involving attachment style and support condition. Thus, there was no evidence that participants in the low-support condition had partners who were any less supportive than participants in the high-support condition.

There was, however, a significant Anxiety \times Avoidance interaction ($\beta = .24, p < .05, sr^2 = .05$), independent of support condition. The pattern of predicted means revealed that secure individuals (those low in anxiety and avoidance) had partners who were rated as more supportive than were those of individuals who matched the various insecure profiles. Thus, there is some evidence that secure individuals obtained (or elicited) more support than insecure individuals during their spontaneous interaction.

However, importantly, this effect was independent of experimental condition (as would be expected on the basis of random assignment). Finally, it is interesting that there was also a significant main effect of relationship satisfaction indicating that participants who were involved in more satisfying relationships had partners who were judged to be more supportive during the interaction ($\beta = .27, p < .01, sr^2 = .06$).

Speech Performance

In the final analysis, we explored whether the note manipulation had any effect on speech performance and whether this effect was moderated by attachment style. The regression analysis revealed no significant main effects of support condition or attachment style but did show a marginally significant Anxiety \times Avoidance \times Support Condition interaction ($\beta = -.28, p = .06, sr^2 = .04$). To follow-up on this three-way interaction, we computed the simple two-way interactions (Anxiety \times Avoidance) within the high- and low-support conditions. These analyses revealed a significant Anxiety \times Avoidance interaction in the low-support condition ($\beta = .31, p < .05, sr^2 = .05$) but not in the high-support condition ($\beta = -.10, p = .55, sr^2 = .00$). As shown in Figure 5, secure and insecure participants performed equally well when they received a supportive prespeech note. However, insecure participants who received an unsupportive prespeech note performed worse than secure participants who received the same note. Among the insecure individuals, those who matched the dismissing profile (high avoidance and low anxiety) performed most poorly after receiving a relatively unsupportive note. These findings suggest that the speech performance of insecure participants was significantly harmed by their receipt of an unsupportive note prior to delivering their speech, but the same note had no negative impact on the performance of secure participants. In fact, secure participants tended to perform better when they received an unsupportive note than when they received a supportive note, but the opposite was true for insecure participants.

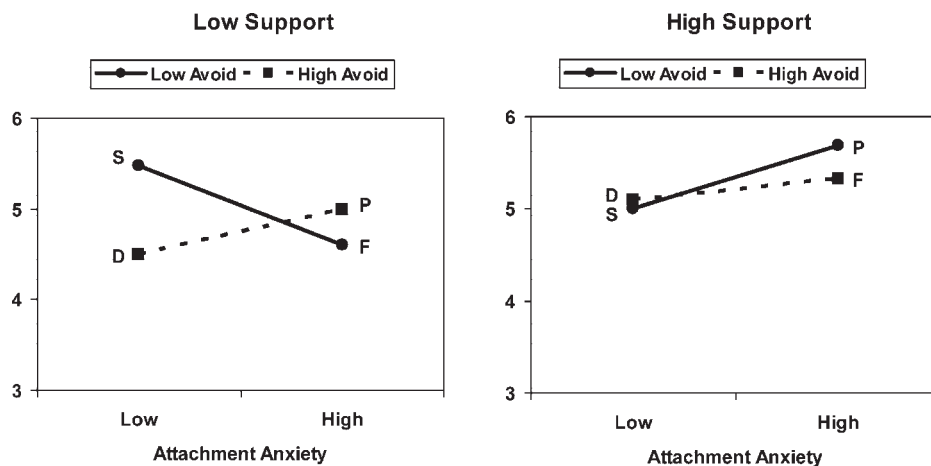


Figure 5. Speech performance by attachment style and support condition. Predicted means are plotted at one standard deviation above and below the mean on anxiety and avoidance. Avoid = avoidance; S = secure, P = preoccupied, D = dismissing, F = fearful.

Discussion

Study 1 provides clear evidence that secure and insecure perceivers differed in their responses to the same support messages. However, these effects were only evident when the support messages were low in support. Relative to secure individuals, avoidant support recipients (fearful and dismissing) perceived the low-support *prespeech* note as more inconsiderate and upsetting, and they were more likely to believe that their partner purposely intended to hurt them, and anxious support recipients (fearful and preoccupied) perceived the *postspeech* note as more inconsiderate and upsetting. These findings suggest that the unsupportive messages may have activated the latent doubts of insecure perceivers, leading them to construe these messages more pessimistically than did perceivers who held more secure working models. Secure perceivers, who have more confident expectations about the responsiveness of others, appear to have given their partner the benefit of the doubt by minimizing the degree to which they appraised the low-support notes as harmful and as having been negatively motivated. Of course, we cannot determine whether insecure perceivers were being overly pessimistic about the low-support messages or whether secure perceivers were being overly optimistic about them. That is, it is not clear which group of perceivers was more “accurate” in any absolute sense because we have no objective standard of correctness for support appraisals. We can only conclude that, relative to secure individuals, insecure individuals perceived the low-support notes in less favorable terms.

Although we found clear differences in responses to the unsupportive notes, there were no discernable attachment differences in responses to the highly supportive notes, perhaps because these notes were so clearly supportive that they left little room for subjective construal. The high-support *prespeech* note communicated a clear sense of confidence in the speech-giver’s ability to perform the speech well, and the *postspeech* note communicated a clear message of pride in the speech-giver’s performance. In contrast, the low-support notes were specifically designed to be much more ambiguous. The *prespeech* note (which warned the speech giver to “try not to mess up”) could have been construed either as a benevolent attempt to be humorous or as an insensitive remark; the *postspeech* note contained a mixture of positive and negative feedback. Thus, the results from Study 1 indicate that chronic working models of attachment may color perceptions only when a partner’s behavior is somewhat ambiguous and more open to interpretation.

Whereas there is evidence that attachment models were linked to systematic biases in perceptions of support, both secure and insecure support recipients were sensitive to the objective content of the notes; both viewed the high-support notes as substantially more helpful and supportive than the low-support notes. Thus, note perceptions for both groups were, at least to some extent, rooted in reality. Nevertheless, although both secure and insecure support recipients found the low-support notes less helpful, insecure individuals felt more distressed by these notes and were more willing to consider the possibility that their partner intended to harm them.

The doubts reflected in the note appraisals of insecure support recipients, though not wildly exaggerated, had some striking negative consequences for their construal of a prior interaction. Insecure individuals (especially preoccupied individuals) who received

less supportive notes perceived their partner’s behavior during a prior interaction as less supportive than insecure people who received two highly supportive notes and secure people who received either high- or low-support notes. Recall that this interaction actually occurred prior to the support manipulation and should therefore have been unrelated to the note condition (which was randomly assigned). In fact, when we coded the videotapes we found that insecure participants in the low-support condition had partners who were no less supportive than insecure participants in the high-support condition. Thus, insecure participants demonstrated a *retrospective contamination*—they either misremembered or reconstructed their partner’s behavior in more negative terms after receiving two relatively unsupportive notes in the intervening time period. Furthermore, we can be confident that this finding does not reflect a general memory or construal bias because insecure individuals who received the supportive notes rated their partner’s behavior as equally supportive as their secure counterparts. Moreover, we found that the support manipulation was a strong predictor of support perceptions for insecure participants but had no effect on the support perceptions of secure participants. These findings provide clear evidence that insecure participants, but not secure participants, allowed the intervening note experience to spill over and color their perceptions of a prior interaction.

How can we explain these findings? One possibility is that, because insecure participants have more uncertain expectations about the responsiveness of others, they may have more labile perceptions of support in which they easily shift their appraisals in line with recent experience. It is also possible that insecure perceivers, who reported being more distressed by the low-support notes (more upset, disappointed, and angry), used their negative mood as information (Clore & Tamir, 2002) when remembering or reconstructing their prior interaction. Finally, these findings may reflect a more general affect regulation deficit whereby insecure individuals have difficulty constraining their emotional experiences from one interaction to another. Indeed, Mikulincer and Orbach (1995) have shown that anxious-ambivalent individuals are less able to contain the spread of negative affect when recalling past experiences. This may explain why preoccupied support recipients in this study rated their partner’s prior behavior as especially unsupportive after receiving two low-support notes.

Finally, Study 1 revealed that the quality of the partner’s support had different consequences for the performance of secure and insecure individuals. Secure and insecure speech givers performed equally when they received a supportive *prespeech* note, but insecure participants performed significantly worse than secure participants when they received an unsupportive *prespeech* note. Of course, in the absence of a no-support control group, it is not clear whether the unsupportive message harmed their performance (relative to what it would have been without any support) or whether the highly supportive message boosted their performance. Nevertheless, we have no reason to expect insecure adults to be less skilled at public speaking. Indeed, secure and insecure participants in this study did not differ in their level of *prespeech* anxiety (reported previously), nor did they differ in their amount of public speaking experience, in how important it was for them to perform well at the speech task, or in their predictions about how well they would perform (not reported). Thus, we speculate that the unsupportive note may have interfered in some way with insecure speech givers’ ability or motivation to perform the speech task. For

example, because avoidant support recipients appraised the unsupportive prespeech note more negatively, they may have been ruminating about their partner's message, which interfered with their ability to adequately prepare their speech. In addition, because they knew that their partner would be observing their speech, the unsupportive note may have made insecure individuals more apprehensive about being evaluated by their partner or perhaps less motivated to perform well in front of their partner.

Regardless of whether the note boosted or harmed the performance of insecure speech givers, these data clearly indicate that the quality of support received was more consequential for insecure than secure individuals. Future studies are needed to further investigate these performance differences and the mechanisms responsible for them. For example, the effects of support on performance may depend in part on whether support was actually wanted or needed (Nadler, 1997), and this may differ systematically with attachment style. Consistent with this idea, I. G. Sarason and Sarason (1986) found that a supportive message delivered by the experimenter lowered cognitive interference and boosted performance on a cognitive task (relative to a no-support control group), but only for participants who were chronically low in perceived available support (and presumably in greater need of support).

Finally, with regard to the speech task, it is important to acknowledge that the people who rated the quality of the speech (the experimenter and the support recipient's partner) were aware of the note manipulation. Thus, it is possible that this knowledge inadvertently influenced ratings of the speech. However, there was no overall main effect of note condition on speech quality, suggesting that these ratings were not systematically influenced by the note condition. Moreover, given that the experimenter was not aware of the speech giver's attachment style, and the support-provider was not aware of the purpose of the study or its hypotheses, it is unlikely that experimenter and/or rater bias can explain the Anxiety \times Avoidance \times Support Condition interaction. Nevertheless, we consider these findings exploratory until they are replicated in future studies.

Study 2

Study 1 provides clear evidence that secure and insecure individuals differed in their responses to the same notes received from their partner. By manipulating the content of the notes, we were able to provide an objective benchmark against which to compare the subjective construals of secure and insecure perceivers. Nevertheless, the notes we prepared for Study 1 were relatively simple and may have seemed somewhat unusual to recipients because they were not matched to the unique communication style of each couple. Genuine notes are likely to be much more diverse in content, somewhat more ambiguous overall, and of course, more likely to reflect each couple's unique style of communication. Thus, in Study 2, we wanted to be sure that the effects of attachment style on note perceptions would generalize to authentic notes written by partners. To accomplish this goal, we exposed couples to the same stress paradigm used in Study 1, but in this case, we allowed partners to write genuine notes. We then controlled for the objective features of these notes by having them coded by independent raters.

Several other methodological changes were introduced in Study 2. First, we added a 1-week delay between our attachment style measure and our laboratory support task. We added this delay

because it was possible that in Study 1 working models of attachment shaped perceptions because they were measured (and primed) just prior to the support interaction. Thus, we wanted to be sure that attachment models would be automatically activated by our stress paradigm (without being primed) in the same way that they would be in natural stress-support contexts. Second, we used more extensive measures of relationship quality to examine the degree to which working models of attachment shape perceptions independently of relationship-specific beliefs and expectations. Specifically, we measured satisfaction and trust in the partner's love and commitment. We also measured relationship-specific expectations of social support to demonstrate that chronic working models of attachment are not redundant with perceived social support, which has already been shown in prior research to influence support perceptions (e.g., B. R. Pierce et al., 1992). Finally, we supplemented our dependent measures to differentiate the *content* of the notes (in terms of emotional, instrumental, and negative support, which could be similarly rated by recipients and independent observers) from the *perceived supportiveness* of the notes (subjective appraisals of the note and attributions regarding their partner's good and bad intentions).

Overall, we hypothesized that secure individuals (those lower in attachment-related anxiety and avoidance) would rate their partner's note as more supportive relative to insecure individuals (those higher in either anxiety and/or avoidance). In addition, consistent with Study 1, we expected that these effects would be most evident when the partner's support message was relatively low in support (as judged by independent raters). Finally, although we expected that support recipients' perceptions of the notes would be biased by their attachment models, we also expected that their perceptions would be rooted in reality. That is, we expected to find a significant degree of convergence between support recipients' perceptions and ratings made by independent raters.

Method

Overview

This study involved two phases. In Phase 1, participants completed measures of attachment style and relationship quality. One week later, they returned to the laboratory to participate in a paradigm similar to the one used in Study 1. One member of the couple (the support recipient) was asked to give a speech, whereas the other member of the couple (the caregiver) was given an opportunity to write a note to the speech giver. However, unlike Study 1, these notes were genuine and freely generated by the caregiver. The supportiveness of these notes was then rated by the support recipient and by three independent raters. The data for this study come from a larger investigation of caregiving processes in romantic couples.⁶

⁶ The data for this study were part of a larger project on social support and caregiving processes in close relationships (see B. C. Feeney & Collins, 2001). However, the research questions addressed in the current article are entirely distinct from those investigated in prior articles. Our prior article focused on the predictors of *caregiving behavior* for participants in the *support-provider role*, whereas the current investigation focuses on the predictors of *perceived social support* for participants in the *support recipient role*. Thus, there is no overlap in hypotheses or research findings.

Participants

One hundred fifty-three couples participated in both phases of this study. One member of each couple was enrolled in an introductory psychology course and was asked to bring his or her romantic partner to the study. The recruited participant was typically designated as the support recipient, and his or her romantic partner was designated as the caregiver. Of these 153 couples, 86 women (56%) and 67 men (44%) were assigned to the support recipient role. The participant of interest was the person in the role of the support recipient.⁷

The mean age of support recipients was 18.9 years, and the mean age of caregivers was 19.4 years. Couples had been romantically involved for an average of 14.9 months (range: 2–91 months), and all were heterosexual. The majority of couples indicated that they were involved in dating relationships (95%), and a small percentage indicated that they were either married or engaged to be married (5%). Couple members received either course credit for their participation or \$10 and an opportunity to win a \$100 prize in a drawing.

Phase 1: Procedure and Materials

During Phase 1, couple members completed questionnaires in separate rooms. These questionnaires assessed a variety of personality and relationship variables. For the current investigation, we focus only on the measures of attachment style and relationship quality.

Attachment style. Respondents completed Brennan et al.'s (1998) Experiences in Close Relationships Scale. This 36-item measure contains two subscales (18 items each). The Avoidance subscale ($\alpha = .92$) measures the extent to which a person is comfortable with closeness and intimacy as well as the degree to which a person feels that others can be relied on to be available when needed. High scores reflect discomfort with closeness and a tendency to avoid intimate relationships. The Anxiety subscale ($\alpha = .92$) measures the extent to which a person is worried about being rejected, abandoned, or unloved. High scores reflect a sense of low self-worth and anxiety about being rejected by others. Participants were asked to respond to each item (on a 5-point scale) in terms of their general orientation toward close relationships. Consistent with past research, the avoidance and anxiety dimensions were not significantly correlated with each other ($r = .01$).

Relationship satisfaction. Respondents completed a six-item measure of relationship satisfaction ($\alpha = .91$) adapted from prior research (Collins & Read, 1990; Van Lange et al., 1997). These items assessed the degree to which respondents felt happy and satisfied with their relationship (e.g., "all things considered, how happy are you in your relationship?," "all things considered, how satisfied do you feel with your relationship?," "how does your relationship compare to your ideal?"). Each item was answered on a 9-point scale.

Relationship trust and felt security. Respondents completed a modified 18-item version of Rempel, Holmes, and Zanna's (1985) Trust Scale ($\alpha = .92$). This scale measures respondents' confidence in their partner's continuing love, commitment, and responsiveness (e.g., "I am confident that my partner will always love me," "though times may change and the future is uncertain, I know my partner will always be there for me"). Participants rated each item on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Relationship-specific perceived support. Respondents completed a 10-item measure of perceived social support from their romantic partner. Six of these items were taken from the Social Support subscale of the Quality of Relationships Inventory (G. R. Pierce, Sarason, & Sarason, 1991). The Quality of Relationships Inventory Social Support subscale measures the degree to which individuals perceive that they can rely on their partner for help and support when needed (e.g., "to what extent can you count on your partner for help with a problem?" "to what extent can you count on your partner to give you honest feedback, even when you might not want to hear it?"). Ratings were made on a scale from 1 (*not at all*) to 5 (*very much*). We added 4 additional items to assess the degree to which individuals perceived that their partner was a good caregiver (e.g., "overall, my partner

takes good care of me," "my partner is responsive to my needs"). Ratings were made on a scale from 1 (*disagree strongly*) to 5 (*agree strongly*). The 10 items were standardized and averaged to form an Index of Relationship-Specific Perceived Support ($\alpha = .88$).

Phase 2: Procedure and Materials

Approximately 1 week later, couples returned to the laboratory and were told that each person had been randomly assigned to participate in one individual activity, after which they would participate in a few joint activities. The person assigned to the role of the support recipient was told that he or she had been selected to participate in an individual activity that involved giving a speech (which would be videotaped and rated by a group of his or her peers). The person assigned to the role of the caregiver was told that he or she had been selected to participate in a cognitive task that involved the completion of some puzzles (e.g., word searches, mazes). The experimenter then escorted the support recipient to a "speech preparation" room and gave him or her some questionnaires to assess his or her thoughts and feelings about the upcoming speech task.

The experimenter then returned to the caregiver and explained that most people like to use the extra time (before their puzzle task) to send a note to their partner (as the partner prepares for the speech task). Caregivers were shown a stack of note cards and writing materials and were told that they could write anything they wanted. They were asked to place their note in a sealed envelope so that it would be private. The experimenter then left the room for several minutes.

Once the note was completed, the experimenter delivered it to the support recipient, who was given time to read it and to continue preparing for the speech. At the end of the 10-min preparation period, the support recipient was given a questionnaire that included several questions concerning the upcoming speech task and a note evaluation form (described later).

Prespeech anxiety. Support recipients were asked to rate how nervous they were about the upcoming speech task on a scale from 1 (*not at all nervous*) to 7 (*extremely nervous*).

Note evaluation form. Support recipients rated the content of the note (in terms of emotional, instrumental, and negative support) and completed a measure of perceived social support, which assessed their subjective appraisal of the note in terms of its emotional impact on them and their perceptions of their partner's good and bad intentions. The subjective appraisal items were similar to those used in Study 1, but the content items were new to this study.

To assess note content, we asked support recipients to rate the degree to which their partner's note contained three types of support: (a) emotional support ("overall, how much emotional support did your partner provide in his or her note? By emotional support, we mean affection, compassion, understanding, reassurance, compliments, etc."), (b) instrumental support ("overall, how much actual help or assistance with the speech task itself did your partner provide in his or her note? By help, we mean advice about how to perform the speech task, suggestions about what to say, etc."), and (c) negative support ("overall, how negative, critical, or unsupportive was your partner's note?"). Items were rated on 5-point scales.

Finally, to assess the supportive impact of the note, we asked support recipients to respond to a series of items that focused on their subjective feelings about the note and attributions about their partner's intentions. This measure was an expanded version of the one used in Study 1. Items were rated on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

⁷ An additional 6 couples participated in both phases of this study, but the caregivers chose not to write a note to their partner during the laboratory phase of the study. These couples were, necessarily, excluded from the present sample because they had missing values on all dependent variables of interest to the current investigation.

Principal-components analysis revealed two factors. The first factor (10 items) reflected positive appraisals of the note (e.g., my partner's note "makes me feel better," "lets me know he or she cares about me," "is responsive to my needs," "was intended to make me feel good"), and the second factor (9 items) reflected negative appraisals (e.g., my partner's note "is inconsiderate," "is disappointing," "makes me angry," "is selfish," "was intended to make me feel bad"). On the basis of these factors, we computed a Positive Appraisal Index ($\alpha = .93$) and a Negative Appraisal Index ($\alpha = .88$).

Once the support recipient completed the questionnaires, the experimenter ended the study. Unlike Study 1, the support recipient was not actually required to give the speech. Couples were then carefully debriefed and asked for permission to keep the caregiver's note so that it could be anonymously rated for content.

Independent ratings of note support. Each note was rated by three trained raters who were unaware of the study hypotheses and participants' attachment characteristics. First, raters made the same three content ratings (assessing emotional, instrumental, and negative support) using the exact scales and definitions used by support recipients. Second, although it was not appropriate for raters to rate the subjective appraisal items used by support recipients, they were asked to make a single overall rating of the subjective supportiveness of the note. All ratings were made on 5-point scales. To assess interrater reliability, ICCs were computed, and the average of the three ratings was used in data analysis. ICCs indicated very good convergence among coders (.88 for emotional support, .89 for instrumental support, .90 for negative support, and .90 for overall support).

Results

Preliminary Analyses

First, we examined the association between support recipients' attachment ratings and their degree of nervousness concerning the upcoming speech task. A regression analysis revealed a significant main effect of both anxiety ($\beta = .20, p < .01$) and avoidance ($\beta = -.21, p < .01$). The Anxiety \times Avoidance interaction was not significant ($\beta = .08, p = .30$). On the basis of the predicted means from the regression equation, we found that preoccupied individuals reported the most distress ($M = 5.3$), secure and fearful individuals reported moderate distress ($M_s = 4.6$), and dismissing individuals reported the least distress ($M = 3.9$). Although pre-speech distress was associated with attachment style, it was not significantly associated with any of the dependent variables and, therefore, was not included in subsequent analyses.⁸

Next, we examined the association between support recipients' attachment style and measures of relationship quality. Regression analyses revealed (a) a main effect of avoidance predicting satisfaction ($\beta = -.39, p < .001$), (b) a main effect of avoidance ($\beta = -.46, p < .001$) and anxiety ($\beta = -.33, p < .001$) predicting trust, and (c) a main effect of avoidance ($\beta = -.36, p < .001$) and anxiety ($\beta = -.17, p < .05$) predicting perceived support. None of the Anxiety \times Avoidance interactions was significant. Avoidance was associated with lower levels of satisfaction, and both avoidance and anxiety were associated with lower levels of trust and perceived partner support. Because these relationship variables were correlated with some of the dependent variables, we controlled for relationship quality (satisfaction, trust, and perceived social support) in all subsequent analyses.

Data Analytic Strategy

To determine whether secure and insecure participants differed in their construal of the messages received from their partners, we

conducted hierarchical regression analyses predicting support recipients' perceptions of their partners' note. On Step 1, we entered objective note ratings (made by independent raters). In each analysis, we matched the independent note rating to the specific dependent variable being predicted (e.g., when predicting support recipients' perceptions of emotional support, we entered independent ratings of emotional support). On Step 2, we entered the relationship quality variables. On Step 3 we entered anxiety and avoidance, and on Step 4 we entered the Anxiety \times Avoidance interaction term. If working models of attachment bias perceptions of social support, then anxiety and avoidance at Steps 3 and/or 4 should explain significant unique variance in note perceptions after controlling for objective features of the notes and relationship-specific expectations. Standardized regression coefficients (betas) from these analyses are shown in Table 1 (each column represents a separate analysis, one for each dependent variable). To illustrate significant main effects and interactions, we plotted predicted means at one standard deviation above and below the mean on anxiety and avoidance. Finally, effect size estimates (squared semipartial correlations) were computed for all primary hypothesis tests.

Perceptions of Note Content

Instrumental support. As shown in Table 1, objective ratings of instrumental support were a significant predictor of support recipient ratings (Step 1), indicating a modest level of convergence between support recipients and independent raters ($sr^2 = .05$). Relationship-specific expectations (Step 2) and attachment style (Steps 3 & 4) did not predict any additional variance in perceptions of instrumental support.

Emotional support. As shown in Table 1, objective ratings of emotional support were a significant predictor of support recipient ratings (Step 1), indicating a moderate level of convergence between support recipients and independent raters ($sr^2 = .15$). Relationship-specific expectations (Step 2) were not generally related to perceptions of emotional support content, with the exception of a marginally significant effect of perceived support ($sr^2 = .02$); individuals who perceived their partners to be more supportive tended to rate the notes as more emotionally supportive.

After controlling for objective ratings and relationship-specific expectations, there were significant negative effects of anxiety ($sr^2 = .05$) and avoidance ($sr^2 = .03$) and a significant Anxiety \times Avoidance interaction ($sr^2 = .02$). Simple slopes analysis revealed that the negative association between anxiety and emotional support became more pronounced as avoidance increased. Thus, as shown in Figure 6, individuals who were high in anxiety and avoidance (those who matched the fearful profile) reported the lowest levels of emotional support, and those who were low in anxiety and avoidance (those who matched the secure profile) reported the highest levels of emotional support. Individuals who matched the preoccupied and dismissing profiles fell in between these two extremes.

⁸ In addition to these preliminary analyses, we reran all of our primary analyses using pre-speech distress as a control variable. Neither the magnitude nor the significance of the attachment findings were altered by the inclusion of this variable in the regression equation.

Table 1
Hierarchical Regression Analyses Predicting Support Recipients' Perceptions of Their Partner's Note

Predictor variable	Instrumental support	Emotional support	Negative support	Positive appraisal	Negative appraisal
Step 1					
Independent raters	.23**	.38***	.45***	.41***	-.25**
Step 2					
Satisfaction	.12	-.01	.16	-.06	.23*
Trust	-.09	.03	.04	-.06	.08
Perceived support	.14	.17†	-.29**	.36***	-.47***
Step 3					
Anxiety	.06	-.24**	.20*	-.21*	.33***
Avoidance	-.13	-.19*	.15†	-.12	.18*
Step 4					
Anxiety × Avoidance	-.10	-.16*	.11	-.17*	.17*

Note. *N* = 153. Tabled values are standardized regression coefficients (β s). Coefficients are shown for the point at which they entered the regression equation.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Negative support. As shown in Table 1, objective ratings of negative support were a significant predictor of support recipient ratings (Step 1), indicating strong convergence between support recipients and independent raters ($sr^2 = .20$). At Step 2, there was a significant effect of perceived partner support ($sr^2 = .05$); individuals who perceived their partners to be more supportive, in general, rated the notes as having contained less negative content.

After controlling for objective ratings and relationship-specific expectations, there was a significant positive main effect of anxiety ($sr^2 = .03$), a marginally significant positive main effect of avoidance ($sr^2 = .02$), and no interaction. As shown in Figure 7, individuals who were high in both anxiety and avoidance (fearful) reported the highest levels of negative support, whereas those low in both anxiety and avoidance (secure) reported the lowest levels. Individuals who matched the preoccupied and dismissing profiles fell in between these two extremes.

In summary, perceptions of note content were both rooted in objective features of the support messages and colored by attachment-related working models. Consistent with our hypotheses, relative to those with more insecure working models, support recipients with more secure working models (those low in both

anxiety and avoidance) perceived their partner's note as containing more supportive content.

Perceived Social Support

Positive appraisal. As shown in Table 1, objective ratings of overall support were a significant predictor of support recipients' positive appraisals of the note ($sr^2 = .05$).⁹ At Step 2, there was a significant effect of perceived partner support ($sr^2 = .07$); individuals who perceived their partners to be more supportive, in general, felt more subjectively supported by their partner's note.

After controlling for objective ratings and relationship-specific expectations, there was a significant negative effect of anxiety ($sr^2 = .04$) and a significant Anxiety × Avoidance interaction ($sr^2 = .03$). Simple slopes analysis revealed that the negative association between anxiety and support appraisals became more pronounced as avoidance increased. Thus, as shown in Figure 8, individuals who matched the fearful profile (high anxiety and high avoidance) felt substantially less supported by their partner's note than did those who matched the secure, dismissing, and preoccupied profiles.

For descriptive purposes, we examined the individual components of the Positive Appraisal Index to identify the particular thoughts and feelings that most differentiated the responses of high- and low-anxious participants. Relative to those low in anxiety, highly anxious individuals were less likely to report that their partner's note made them feel better ($\beta = -.23, p < .00$), was kind and thoughtful ($\beta = -.22, p = .01$), made them feel more comfortable about giving their speech ($\beta = -.20, p < .05$), and let them know that their partner was confident in their abilities ($\beta = -.22, p = .01$).

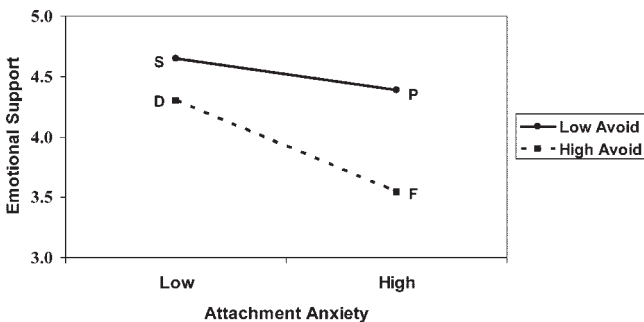


Figure 6. Perceived emotional support by attachment style. Predicted means are plotted at one standard deviation above and below the mean on anxiety and avoidance. Avoid = avoidance; S = secure, P = preoccupied, D = dismissing, F = fearful.

⁹ Because the independent raters did not rate perceived social support with the same items as the support recipients (because it did not make sense to have independent coders assess the subjective impact of the note on the support recipient), we used their ratings of overall support in these analyses.

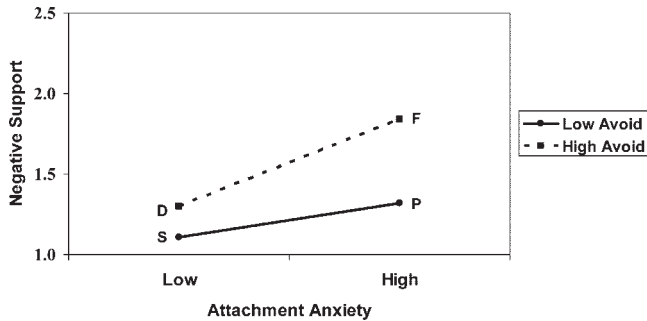


Figure 7. Perceived negative support by attachment style. Predicted means are plotted at one standard deviation above and below the mean on anxiety and avoidance. Avoid = avoidance; S = secure, P = preoccupied, D = dismissing, F = fearful.

Negative appraisal. As shown in Table 1, objective ratings of overall support were a significant predictor of support recipients' negative appraisals of the note ($sr^2 = .06$). At Step 2, there was a strong and significant effect of perceived partner support ($sr^2 = .12$); individuals who perceived their partners to be more supportive, in general, were much less likely to draw negative inferences about their partner's note.

After controlling for objective ratings and relationship-specific expectations, there were significant positive main effects of anxiety ($sr^2 = .09$) and avoidance ($sr^2 = .02$) and a significant Anxiety \times Avoidance interaction ($sr^2 = .03$). Simple slopes analysis indicated that the positive association between anxiety and negative appraisals increased as avoidance increased. As shown in Figure 9, individuals who matched the fearful profile (high anxiety and high avoidance) reported the most negative appraisals, whereas those who matched the secure and dismissing profiles reported the least negative appraisals. Preoccupied individuals (high anxiety and low avoidance) fell in between these two extremes.

Once again, for descriptive purposes, we examined the individual components of the Negative Appraisal Index to identify the particular thoughts and feelings that most differentiated secure and insecure participants. Relative to those low in anxiety, highly anxious individuals were more likely to report that their partner's note was frustrating ($\beta = .38, p < .001$), disappointing ($\beta = .31,$

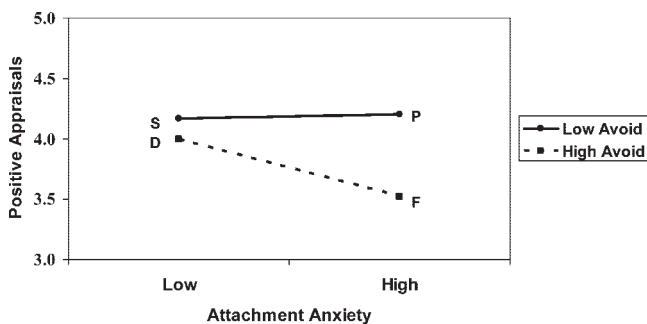


Figure 8. Positive note appraisal by attachment style. Predicted means are plotted at one standard deviation above and below the mean on anxiety and avoidance. Avoid = avoidance; S = secure, P = preoccupied, D = dismissing, F = fearful.

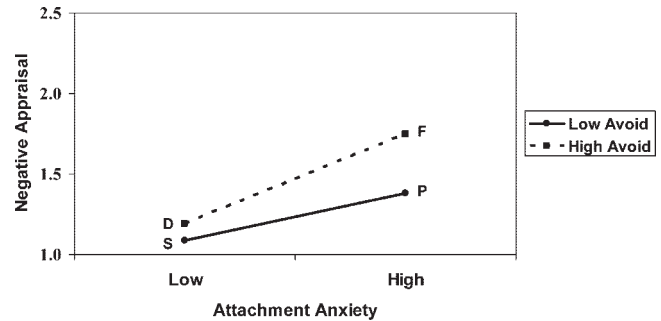


Figure 9. Negative note appraisal by attachment style. Predicted means are plotted at one standard deviation above and below the mean on anxiety and avoidance. Avoid = avoidance; S = secure, P = preoccupied, D = dismissing, F = fearful.

$p < .001$), upsetting ($\beta = .30, p < .01$), intended to make them feel bad ($\beta = .30, p = .001$), rude and insensitive ($\beta = .26, p < .01$), and made them feel angry ($\beta = .21, p < .05$). Relative to those low in avoidance, highly avoidant individuals were more likely to report that their partner's note was intended to make them feel bad ($\beta = .26, p < .01$), was frustrating ($\beta = .19, p < .05$), and was upsetting ($\beta = .17, p < .05$).

In summary, secure and dismissing support recipients experienced the notes as relatively helpful and supportive and were least likely to feel distressed by them. Fearful support recipients experienced the notes as least helpful and were most likely to feel distressed about them and to infer hurtful and selfish motivation. Preoccupied individuals fell in between these two extremes; although they felt relatively well supported by the notes (as indicated by the Positive Appraisal Index), they were also more likely (than secure and dismissing individuals) to draw negative inferences about them and to feel emotionally distressed in response to them.

Were the Effects of Attachment Style Moderated by Support Quality?

The results presented thus far show clear evidence that working models of attachment were associated with support perceptions after the objective content of the notes was statistically controlled. Another important question concerns the degree to which these effects are moderated by support quality. Recall that the results from Study 1 revealed that attachment style differences in support perceptions occurred only when the support message was manipulated to be relatively unsupportive and ambiguous, not when it was highly supportive. Would the same be true for the authentic notes? Although we did not control the content of the notes in Study 2, we did rate them in quality, which enabled us to explore whether the effects of attachment style on support perceptions differed across levels of support quality (as judged by our independent raters).

To address this question, we repeated the basic regression analyses reported previously, with some additional interaction terms added to the equation. Specifically, we added two-way (Anxiety \times Support Quality and Avoidance \times Support Quality) and three-way (Anxiety \times Avoidance \times Support Quality) interaction terms involving the note ratings and each of the attachment variables (while controlling for relationship satisfaction, trust, and perceived

partner support). These new interaction terms tested whether the effect of attachment style on note perceptions varied across levels of support quality.

Results revealed no significant interactions predicting instrumental support, but they did reveal significant three-way interactions predicting emotional support ($\beta = .20, p < .05, sr^2 = .03$), negative support ($\beta = .31, p < .001, sr^2 = .08$), positive appraisals ($\beta = .21, p < .01, sr^2 = .04$), and negative appraisals ($\beta = -.21, p < .01, sr^2 = .04$). To explore these interactions, we computed the simple main effects of anxiety and avoidance and the simple Anxiety \times Avoidance interactions at high, medium, and low levels of support quality for each dependent variable (Aiken & West, 1991). The beta coefficients corresponding to these simple effects are summarized in Table 2.

As can be seen in this table, the effects of attachment style on perceptions of support were strongest when the notes were rated as relatively low in support and weakest when they were rated as relatively high in support. In fact, consistent with Study 1, the effects of attachment style were no longer evident when the support note was very high in objective support. It is noteworthy, however, that the effects of attachment style were still clearly present, but weaker in strength, when the message was judged to be moderately supportive.

Discussion

The purpose of Study 2 was to conduct a conceptual replication of the note perception findings of Study 1. Consistent with Study 1, secure and insecure individuals differed in their tendency to perceive their partner's note as supportive. After controlling for objective features of the notes, support recipients who were higher in attachment-related anxiety and avoidance evaluated the notes less favorably compared with those with more secure attachment models. Among those with insecure attachment profiles, fearful individuals (those high in anxiety and avoidance) evidenced the most negative perceptions overall. These effects occurred across measures of note content (emotional support and negative support) and measures of the subjective impact of the note (positive and

negative appraisal). The only dependent variable that failed to show attachment effects was instrumental support, which most likely is due to low variability on this dimension (only a handful of partners offered explicit task assistance; most partners provided encouragement and other forms of emotional support). Finally, consistent with Study 1, attachment style differences in note perceptions were most evident when the support message was low or moderate in support but not when the support message was high in support (as judged by independent raters).

Importantly, these findings emerged even after controlling for relationship satisfaction, trust, and relationship-specific perceived support. As such, these data provide a stringent test of the effects of attachment style, and they indicate that observed differences in support perceptions cannot be fully explained by differences in the nature and quality of one's current relationship. This is especially important given that secure and insecure couples did indeed differ in the quality of their relationships. At the same time, it is noteworthy that relationship-specific expectations (especially perceived partner support) were also unique predictors of note perceptions. Overall, individuals who perceived their partner to be more supportive, in general, appraised the notes as more supportive than would be expected on the basis of their objective content. As we discuss later, these findings demonstrate that both chronic and relationship-specific models of attachment are likely to be activated in the context of stressful life events and to play a role in shaping how individuals perceive their partner's support efforts.

Although perceptions of social support were biased by attachment models and relationship-specific expectations, there was also a significant degree of convergence between support recipient perceptions and ratings made by independent observers. These findings provide further evidence that support perceptions were shaped by bottom-up, data-driven processes (driven by objective note content) as well as by top-down, theory driven processes (influenced by prior expectations). Of course, it is important to acknowledge that independent raters do not have privileged access to "reality" and cannot be considered a purely objective standard against which to compare subjective construals (Collins & Feeney,

Table 2
Summary of Simple Main Effects and Interactions at High, Medium, and Low Levels of Support Quality

Predictor variable	Emotional support	Negative support	Positive appraisal	Negative appraisal
Low support quality				
Anxiety	-.34***	.29**	-.22*	.43***
Avoidance	-.33***	.30**	-.17	.23*
Anxiety \times Avoidance	-.31**	.52**	-.40***	.41***
Medium support quality				
Anxiety	-.19*	.18*	-.22**	.33***
Avoidance	-.16†	.14†	-.14†	.19*
Anxiety \times Avoidance	-.11	.14*	-.17*	.17*
High support quality				
Anxiety	-.04	.06	-.17	.04
Avoidance	.02	-.02	-.02	.15
Anxiety \times Avoidance	.08	-.24*	.09	-.09

Note. $N = 153$. Tabled values are standardized regression coefficients (β s). Simple effects were computed at 1 *SD* below the mean (low), at the mean (medium), and one *SD* above the mean (high) on support quality.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

2000). Nevertheless, they provide a reasonable benchmark against which to validate support perceptions and to explore systematic differences between secure and insecure individuals.

In light of the methodological differences between Study 1 and Study 2, the findings from Study 2 are noteworthy for several reasons. First, because we allowed partners to write authentic notes, we can be sure that the findings from Study 1 generalize to more natural support communications between couple members. Second, because we measured attachment style 1 week prior to the stress-support task, we can be confident that the findings from Study 1 are not limited to situations in which working models of attachment have been recently primed. Finally, because we measured attachment style with a different adult attachment scale, these data increase our confidence that the findings from Study 1 are consistent across different attachment measures.

General Discussion

Considered together, these studies provide compelling evidence that chronic working models of attachment are linked to systematic differences in perceptions of social support. Relative to secure adults, insecure adults appear to be predisposed to perceive their partners' messages as less helpful and less well-intended. However, both studies reveal that this effect only occurs when the support message is somewhat ambiguous and more open to subjective construal. Thus, insecure working models appear to be a cognitive liability primarily when ambiguous or potentially negative events (such as low-support notes) activate doubts or vulnerabilities, which then distort perceptions and interfere with one's ability to engage in motivated performance activities (as indicated by the speech performance findings of Study 1). Unfortunately, support attempts that occur in natural settings are likely to be ambiguous because support providers often lack the appropriate skills, resources, and motivation needed to provide clear and effective support (Collins & Feeney, 2000; Feeney & Collins, 2001, 2003). Thus, insecure individuals may often be faced with support messages that activate their vulnerabilities and place them at risk for unfavorable outcomes. These findings are compatible with contemporary research and theory in social and personality psychology (e.g., Mischel & Shoda, 1999), which emphasizes the critical importance of Person \times Situation interactions in understanding social and personal outcomes.

The current investigation extends prior questionnaire studies that indicate that, relative to secure adults, both insecure-anxious and insecure-avoidant adults report less available support and less satisfaction with the support they receive (e.g., Bartels & Frazier, 1994; Bartholomew et al., 1997; Blain et al., 1993; Davis et al., 1998; Florian et al., 1995; Ognibene & Collins, 1998). By examining support perceptions in the context of specific episodes in which support was either manipulated (Study 1) or rated by independent observers (Study 2), the current investigation rules out some alternative explanations that have been problematic in prior research. In addition, by controlling for relationship-specific expectations in both studies, we can be sure that differences in support perceptions did not simply reflect attachment differences in the nature and quality of participants' current relationship. As such, these data provide the strongest evidence to date that attachment style differences in support experiences are due, at least in part, to subjective perceptions and not just to differences in objec-

tive support environments. The current investigation also contributes to the broader social support literature and is compatible with other studies showing that features of support recipients play a role in shaping subjective perceptions of support (e.g., Coriell & Cohen, 1995; Cutrona et al., 1997; Lakey & Cassady, 1990; Lakey et al., 1992; G. R. Pierce et al., 1992; B. R. Sarason et al., 1991).

More broadly, these data are consistent with a fundamental assumption of adult attachment theory, which argues that general working models of attachment will shape how individuals perceive their social world. Compared with those with more insecure working models, secure individuals appear to be predisposed to interpret their social interactions in more generous ways. Although the current study examined these processes in the context of stress-support interactions, we believe that the biases observed in this context reflect a broader set of cognitive processes through which working models of attachment shape social information processing. Indeed, there is a growing body of literature showing that secure and insecure individuals differ in a variety of social cognitive outcomes, including attributions (Collins, 1996; Collins, Ford, Guichard, & Allard, 2003), cognitive flexibility and openness (Green-Hennessy & Reis, 1998; Mikulincer & Arad, 1999), accessibility of positive and negative relational schemas (Baldwin et al., 1993), and memory processes (Miller & Noiro, 1999). However, unlike the current investigation, these prior studies have relied on vignette or social cognitive methodologies (e.g., response latency paradigms) in which individuals responded to hypothetical scenarios or semantic stimuli that were not tied to actual social interactions. To our knowledge, the current findings are the first to provide clear evidence of biased perceptions in the context of actual interactions between romantic partners.

Although our findings are consistent with the hypothesis that working models of attachment color how individuals construe their social interactions, it is important to acknowledge that we did not manipulate attachment style in either study. As such, we cannot draw unqualified conclusions about the causal impact of attachment style on support perceptions. It is possible that some other variable that is correlated with attachment style is the true causal mechanism. Ideally, we would want to replicate these findings using priming or other techniques for manipulating attachment security (e.g., Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Mikulincer et al., 2001; T. Pierce & Lydon, 1998) and examining its causal role in shaping support perceptions.

A number of theoretical questions also need to be addressed in future research. First, what are the specific cognitive mechanisms that lead to biased perceptions and what aspects of working models are most central to these effects? Are these mechanisms the same for insecure-anxious and insecure-avoidant individuals? On the basis of theory and prior research, we hypothesized that both types of insecurity (anxiety and avoidance) would be linked to negative perceptions of partner support. However, we do not mean to suggest that there are no important differences between the support perceptions of insecure-avoidant and insecure-anxious individuals. For example, it is likely that different aspects of working models are relevant for different types of insecurity. Attachment-related anxiety, which is linked to negative models of the self, may affect support perceptions by leading one to doubt the partner's unconditional regard and good intentions toward the self. Attachment-related avoidance, which is linked to negative models

of others, may affect support perceptions by leading one to doubt the responsiveness and good will of others.

Second, it is also important to further investigate the role of general and relationship-specific models of attachment. In the current studies, our goal was to explore how general working models of attachment (which, at least to some extent, predate the current relationship) enhance or inhibit adaptive social support perceptions, independent of any specific relationship experience. However, attachment researchers have become increasingly interested in the unique roles of general and relationship-specific attachment representations in guiding social cognition and social interaction (Baldwin et al., 1996; Collins & Read, 1994; Collins & Allard, 2001). A similar distinction has been made in the social support literature (G. R. Pierce et al., 1991, 1992). In Study 2, we found that relationship-specific expectations of support and chronic attachment style predicted unique variance in support appraisals. To the extent that relationship-specific expectations of support reflect one important component of relationship-specific attachment models (as we believe they do), the current data provide preliminary evidence for their unique role in relational cognition. In future research, it will be important to explore how general and specific models of attachment work together to shape support perceptions. For example, if an insecure individual is currently involved with a very responsive and trustworthy partner (resulting in a positive relationship-specific model), can the negative perceptual bias be eliminated or attenuated? Will chronic (general) working models become less influential over time? We are currently exploring these questions in a daily diary study of support and caregiving in romantic couples (Collins & Feeney, 2002).

Third, although the current study focused on the social cognitive aspects of social support, we do not want to minimize the importance of behavior and dyadic processes. As both studies illustrate, support perceptions for both secure and insecure adults were tied to their partner's actual behavior as manipulated (Study 1) or judged by independent raters (Study 2). Thus, the quality of support provided by one's partner does indeed matter, and we do not want to overstate the case for subjective construal processes (see also Burlinson & Samter, 1985; Cutrona & Suhr, 1992, 1994; Winstead, Derlega, Lewis, Sanchez-Hucles, & Clark, 1992). The current findings suggest that insecure individuals may experience low social support not only because they tend to see the world through a pessimistic lens but also because they have less supportive social environments (for a variety of reasons that may be both within and outside their control). For example, in Study 1, insecure participants did indeed have partners who expressed less social support during their spontaneous interaction. Nevertheless, they only experienced their interaction as less supportive if they subsequently received unsupportive messages. Likewise, in a field study of couples making the transition to parenthood, Simpson et al. (2003) found that anxious wives had husbands who provided less prenatal support (according to their husbands' report of his own behavior). However, anxious wives rated their husbands as less supportive even after controlling for their husband's report. Thus, although there was a kernel of truth in their support perceptions, anxious individuals were even more pessimistic than would be expected on the basis of their support environments. In future studies it will be important to continue investigating the role of

top-down and bottom-up processes in understanding the support experiences of secure and insecure adults.

Finally, in future studies, it will be important to investigate short-term and long-term consequences of social support perceptions. If we had given support recipients an opportunity to respond to their partner's notes, it is likely that these responses would have been systematically linked to support perceptions. We might speculate, for example, that insecure individuals in Study 1 who received a low-support message (and who attributed more negative intent to their partner) would be inclined to respond with hostility or expressions of emotional distress. Although we did not investigate behavioral responses in Study 1, we did find that insecure individuals who received a low-support message rated a prior interaction as having been less supportive, suggesting that they allowed the low-support message to affect their thoughts and feelings about their partner's behavior in another context. It is also important to study the implications of biased perceptions for individual well-being and for stress and coping processes. The performance findings from Study 1 suggest that attachment style may be an important moderator variable when exploring the impact of helpful and unhelpful support messages on personal and interpersonal outcomes, and this remains an important topic for future research.

In conclusion, this study contributes to our understanding of the microdynamics of social support by highlighting one possible mechanism—biased support perceptions—through which secure and insecure individuals differ in their social support experiences. Relative to insecure individuals, secure individuals appear to be predisposed to make more generous support appraisals, which may enable them to benefit more fully from the good will of others. Results from this study may help explain why secure individuals tend to cope more effectively with stressful life events and are more likely to develop satisfying intimate relationships in adulthood.

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Appendix A

Intercorrelations Among Major Study Variables (Study 1)

Variable	Support condition ^a	1	2	3	4	5	6	7	8
1. Anxiety	.031								
2. Avoidance	.033	.456							
3. Prespeech positive	.656	-.013	-.002						
4. Prespeech negative	-.445	.079	.185	-.637					
5. Postspeech positive	.672	-.009	.078	.803	-.585				
6. Postspeech negative	-.557	.168	.026	-.554	.696	-.777			
7. Speech quality	.049	.041	-.027	.044	-.008	.002	.021		
8. Perceived behavioral support ^b	.327	-.089	-.042	.519	-.382	.555	-.388	.158	—

Note. $n = 95$, unless otherwise noted.

^a Coded 0 = low support, 1 = high support. ^b $n = 73$ for this row.

Appendix B

Intercorrelations Among Major Study Variables (Study 2)

Variable	Anxiety	1	2	3	4	5	6	7
1. Avoidance	.010							
2. Instrumental support	.067	-.124						
3. Emotional support	-.207	-.180	.264					
4. Negative support	.211	.128	-.187	-.659				
5. Positive appraisal	-.170	-.129	.378	.762	-.730			
6. Negative appraisal	.274	.127	-.257	-.617	.696	-.719		
7. Independent ratings of overall support	.076	.038	.279	.361	-.349	.414	-.247	—

Note. $N = 153$.

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