

## **STABILITY AND CHANGE IN ADULT ATTACHMENT STYLES: ASSOCIATIONS WITH PERSONAL VULNERABILITIES, LIFE EVENTS, AND GLOBAL CONSTRUALS OF SELF AND OTHERS**

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The current study examined the predictors of stability and change in adult attachment styles in a community sample ( $N = 442$ ) of women who underwent an abortion. Across a two-year time period, 46% of our participants changed their attachment style, suggesting that these styles may be relatively flexible. Among those women who changed their attachment style, stable vulnerability factors (a history of depression and/or abuse) were related to increases in insecurity over

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time, whereas changes in global construals of self and others (e.g., increases in self-esteem and perceptions of social support) were related to increases in security over time. Relationship-related life events (e.g., divorce, the death of someone close) were not strongly related to attachment style stability or change. Finally, changes in attachment style across time were accompanied by corresponding changes in overall mental health. These findings suggest that although attachment styles are moderately stable over time, meaningful change in these styles can be linked to a change in understanding of personal and interpersonal experiences, and to dispositional risk factors. Results also highlight the importance of differentiating the factors that predict increased security over time from those that predict increased insecurity over time.

According to Bowlby (1969/1982; 1973), an attachment system evolved in humans to help maintain the proximity of infants to their caretakers under conditions of threat. Once the attachment system has been activated by a perceived threat, individuals with different "attachment styles" attempt to regulate affect and to cope with distress in ways that reflect the patterns that have been learned or reinforced throughout their relationship histories. Specifically, individual differences in the strategies employed to deal with distress are likely to reflect internal working models of the self (as worthy or love) and of others (as likely to be dependable or trustworthy). A fundamental tenet of attachment theory is that these mental models guide cognitive, affective, and behavioral response patterns in attachment-relevant contexts and are, therefore, self-perpetuating (Collins & Read, 1994; Hazan & Shaver, 1994). Thus, mental models are the mechanisms by which the continuity of attachment style is thought to be maintained over time and into adulthood.

In 1991, Bartholomew and Horowitz proposed a model of adult attachment that includes four attachment styles, rather than the three (i.e., secure, anxious-ambivalent, avoidant) originally described by Hazan and Shaver (1987). The Bartholomew and Horowitz model posited that there are two distinct types of avoidant attachment: *Fearful* individuals (who have negative models of both self and others) are hypothesized to avoid close relationships because they fear rejection whereas *dismissing* individuals (who have a positive model of self but a negative model of others) are hypothesized to stress the importance of independence and self-reliance over close relationships. *Secure* individuals (who have positive models of both self and others) are hypothesized to experience a general comfort with closeness and trust in others and *preoccupied* individuals (who have a negative self model but a positive model of others) are hypothesized to have an intense desire for emotional intimacy cou-

pled with a heightened concern about being rejected. Prior research has provided support for the validity of Bartholomew and Horowitz's model of attachment and their corresponding measure of attachment styles (e.g., Griffin & Bartholomew, 1994a, 1994b; Scharfe & Bartholomew, 1994).

### STABILITY AND CHANGE IN ATTACHMENT STYLES

Most attachment researchers, while acknowledging that attachment styles can change under certain circumstances, have tended to focus on their stability. Moreover, many discussions of attachment processes describe attachment style as a relatively stable trait or disposition. Recent research, however, has challenged these assumptions. These studies demonstrate that many individuals—in childhood and adulthood—change their attachment style across relatively short periods of time. In the infant attachment literature, there have been reports that although children evidence substantial stability in their attachment style, change is also common and is typically linked to changes in maternal and family circumstances (e.g., Lamb, Thompson, Gardner, Charnov, & Estes, 1984; Vaughn, Egeland, Stroufe, & Waters, 1979). Studies of adults typically find that roughly 30% of adults will change their self-reported attachment style if re-assessed at a later point in time (e.g., Baldwin & Fehr, 1995; Davila, Burge, & Hammen, 1997; Hazan, Hutt, & Markus, 1991; Keelan, Dion & Dion, 1994; Kirkpatrick & Hazan, 1994; Ruvolo, Fabian, & Ruvolo, 2001; Scharfe & Bartholomew, 1994; Shaver & Brennan, 1992). In addition, in at least some cases (e.g., Collins & Read, 1990; Feeney & Noller, 1992), test-retest correlations of various attachment measures have been found to be only moderate (roughly .50).

As this brief review makes clear, a substantial number of people can be expected to change their self-reported attachment style across relatively short time periods. Of course, unreliability of measurement can be expected to contribute at least in part to this apparent instability (Scharfe & Bartholomew, 1994), but personal and contextual factors also can be expected to contribute to meaningful change in attachment styles. Certainly it is unlikely that attachment styles would remain completely impervious to the ongoing relational experiences of individuals throughout the lifespan. Indeed, Bowlby (1973, 1969/1982) argued explicitly that in order for working models to remain functional, they must be able to incorporate new information about self and others in response to changing life circumstances. Thus, while stability in working models is central to understanding continuity in personality development, attachment theorists acknowledge that working models of attachment must remain flexible and open to change (Collins & Read, 1994; Kobak &

Hazan, 1991). The challenge, then, for attachment scholars is to identify the personal and interpersonal factors that predict meaningful change in attachment styles or patterns over time.

Despite the fact that it is plausible to argue that attachment styles can change, only a few researchers have sought to systematically examine the factors that might lead to or accompany such change. The majority of these studies have focused on alterations in an individual's relationship status, most commonly by assessing the incidence of break-ups, the initiation of new romantic relationships, or marriage (e.g., Baldwin & Fehr, 1995; Davila, Karney & Bradbury, 1999; Feeney & Noller, 1992; Kirkpatrick & Hazan, 1994). A few studies have attempted to examine the impact of other life events or stressors (e.g., Davila et al., 1997, Scharfe & Bartholomew, 1994). The results of these studies have been inconsistent, but generally, they suggest that relationship-related or other life events are not strongly predictive of attachment style change (see Kirkpatrick & Hazan, 1994; Ruvolo et al., 2001 for exceptions). In two recent studies, Davila and her colleagues (Davila et al., 1997; 1999) have argued that stable vulnerability factors (e.g., a family or personal history of psychopathology, personality disturbance, lack of an intact family of origin) are related to the likelihood that attachment styles will change across time. These authors suggest that some individuals may be especially prone to changes in attachment style because of adverse experiences or influences early in life, and that attachment insecurity is itself a predictor of instability. Finally, Davila et al. (1999) found that spouses' marital satisfaction and attachment representations (as operationalized by Collins & Read's, 1990, dimensions of attachment scale) were reciprocally related, suggesting that attachment representations and some aspects of marital functioning influence one another in a reciprocal fashion.

### THE CURRENT STUDY

The primary aim of this study was to examine the stability of attachment styles and to identify the factors that are associated with meaningful attachment style change, including some that have not been examined previously (e.g., a wide range of specific positive and negative life events and global concepts of self and others). In examining change in attachment style, we also wanted to explore the factors that lead to increased security over time from those that lead to increased *insecurity*. Finally, we sought to examine the positive and negative mental health correlates of change in attachment styles. The scant prior research that has examined the issue of attachment stability has focused mainly on negative health outcomes. To achieve these goals, we examined change in attachment security and insecurity across a two-year period among a sample

of women, all of whom had undergone an abortion. The use of this unique community sample allowed us to act on the suggestion made by some scholars (Davila et al., 1997; Scharfe & Bartholomew, 1994) that it would be beneficial to examine the prevalence of attachment stability/instability among a group of individuals facing a common stressor. To our knowledge, no prior study has been able to examine this issue.

#### FACTORS RELATED TO STABILITY AND CHANGE IN ATTACHMENT STYLES

*Stable Vulnerability Factors.* Davila and her colleagues have suggested that stable vulnerability factors (e.g., personal or family history of psychopathology, personality disturbance) are related to changes in attachment representations (Davila et al., 1997; Davila et al., 1999) and that stably secure individuals will have lower scores on measures of these variables than will those who are stably insecure and those who show any type of attachment instability (Davila et al., 1997). These hypotheses have never been tested in the context of the four-category model, nor have they been tested with respect to vulnerability factors other than the set used in both of Davila's studies. Accordingly, in this study, we examined the effect of a lifetime history of depression and a history of abuse on attachment style stability. Given that sexual abuse and incest have been found to be related to insecure attachment (Alexander, 1993; Mickelson, Kessler, & Shaver, 1997) and given Davila's argument that insecure attachment is related to attachment instability (Davila et al., 1997), one could hypothesize that women who remained insecure and those who changed their attachment style across the two-year time period would be more likely to report a history of abuse than women who remained secure. A similar prediction could be made concerning a history of depression. However, we reasoned that women who had experienced depression or abuse might not be equally likely to demonstrate both types of attachment instability. By their very nature, abuse and depression may make it more likely that affected individuals will easily shift toward more negative mental models, unlike vulnerability factors such as a history of personality disturbance, which might lead to a more generalized tendency to exhibit incoherent mental models that fluctuate in either a positive or negative direction. This would suggest that, in contrast to Davila's predictions, stably insecure individuals and those who become insecure over time would be more likely to report a history of depression or abuse than those who are stably secure or become secure.

*Specific Relationship Related Life Events.* Scharfe and Bartholomew (1994) conducted the only study that has examined the relationships between a variety of specific life events and attachment style stability. The

current study seeks to improve on theirs in two major ways. First, Scharfe and Bartholomew specifically chose a sample of research participants who were immersed in a relatively stable social environment and thus, not surprisingly, these individuals reported experiencing a relatively low number of major life events (e.g., break-ups, marriage, or divorce). Consequently, their study may not have provided a strong test of the effect of life events on attachment style change. In the current study, we examined the impact of relationship-related life events among a group of women who were simultaneously experiencing a stressor (abortion) that often entails subsequent alterations or disruptions in social relationships. Because of this, we expected our participants to report experiencing a relatively high number of relationship-related life events that may logically be expected to effect attachment style.

Second, in examining the effect of life events on attachment style change, Scharfe and Bartholomew tabulated the overall number of events individuals experienced (see also Davila et al., 1997), rather than examining the unique effect of specific events. Thus, research aimed at testing the impact of life events has heretofore examined a very limited sample of such events. In the current study, we examine the unique impact of a series of positive and negative relationship-related events (e.g., marriage, divorce, death, someone close moving away, giving birth) in order to provide a clearer picture of whether some events have a stronger impact on change in attachment style than others.

*Changes in Underlying Perceptions of Self and Others.* It is also possible that changes in attachment security and insecurity are associated less with discreet life events than with gradual shifts in an individual's underlying sense of self-worth or ongoing interpersonal relationships. Based on this rationale, we examined changes over time in specific concepts of self and relationship experiences that should be related to individuals' working models of attachment. Specifically, we assessed changes in global self-esteem, perceived social support, and perceived social conflict. These variables are likely to be effected by a wide variety of life events and social experiences and reflect one's summary evaluation of oneself and the quality of one's current close relationships. For example, many theorists argue that perceptions of social support represent one's overarching sense of the positivity or negativity of one's social relations with others (e.g., Davis, Morris, & Kraus, 1998; Sarason, Pierce, & Sarason, 1990) and research has shown that assessments of support and conflict are rooted in social reality (e.g., Collins & Feeney, 2000). Thus, changes in perceived social support should be associated with changes in mental models and in attachment styles. Furthermore, to the extent that changes in attachment style are indeed accompanied by changes in general perceptions of self (self-esteem) and experiences in social rela-

tionships (social support, social conflict), such findings would increase our confidence that changes in attachment style reflect meaningful shifts in attachment representations and not simply measurement artifact. Accordingly, we expected to find that individuals who became more secure over time would report increases in self-esteem and perceived social support and decreases in perceived social conflict, whereas those who became more insecure over time were expected to show the opposite trend. Stably secure and insecure individuals were not expected to show changes in these variables.

### MENTAL HEALTH

A special benefit associated with the use of our particular community sample was that we had access to measures of our participants' mental health at both points in time when attachment style was assessed. Numerous researchers have argued that in general, personality variables are important predictors of well-being and overall psychological health (e.g., Costa, McCrae & Zonderman, 1987; Diener, Sandvik, Pavot, & Fujita, 1992; Suh, Diener, & Fujita, 1996). More specifically, within the field of attachment, studies have documented that, overall, secure individuals appear to be more well-adjusted and less prone to experiencing psychological problems than insecure individuals (e.g., Cooper, Shaver, & Collins, 1998; Davila et al., 1997; Hazan & Shaver, 1990; Mickelson et al., 1997). In this study, we were able to examine changes over time in both the positive (e.g., well-being) and negative (e.g., psychological distress) mental health correlates of attachment styles. Prior cross-sectional studies have focused solely on the negative mental health correlates of attachment style and have not assessed changes in mental health over time. We expected to find that individuals who became more secure across time would experience a general increase in psychological health (increased well-being and decreased distress), whereas those who became more insecure over time were expected to show the opposite trend. Stably secure and insecure individuals were expected to show unchanging levels of mental health.

### METHOD

#### PARTICIPANTS

The sample consisted of 442 women participating in a larger study of women's adjustment to abortion (see Cozzarelli, Sumer & Major, 1998; Major, Zubek, Cooper, Cozzarelli, & Richards 1997; Major, Richards, Cooper, Cozzarelli, & Zubek, 1998). Participants were recruited at one of

three women's clinics in Buffalo, New York, between February and September of 1993. Women were approached randomly and asked to participate. Of the eligible women who were asked to participate, 85% ( $N = 882$ ) agreed. Follow-up interviews occurred within approximately one month ( $N = 615$ ) and two years after the abortion ( $N = 442$ ). This study is based on the 442 women (50% of the original sample) who participated at all time points.<sup>1</sup> Comparisons between the 442 women retained at the two-year follow-up and the 440 women lost to attrition yielded no significant differences on any demographic variable (e.g., race, age, religion) or psychological characteristic (e.g., attachment style, personality, self-efficacy for coping, personal conflict over abortion).

The mean age at the time of the abortion for the final sample was 24.1 years (range = 15 to 40). The majority of women were single (75.2%), 65% were white and 32% were African-American; 36.5% were Catholic, 40.6% were Protestant, and 14% reported no religious affiliation. Most of the women in our sample had either graduated from high school (30.7%) or completed some college (48.7%).

#### PROCEDURE

After arriving at the clinic to obtain an abortion, a researcher randomly approached each woman individually to solicit her participation in the study. Women were told that our study was being conducted, with the clinic's endorsement, to learn about women's responses to having an abortion. They were assured that their responses and identifying information would be kept confidential, and that refusal to participate would not affect their treatment at the clinic in any way. Those women who agreed to participate were given a pre-procedure questionnaire that they completed either individually or in small groups prior to the abortion. This questionnaire assessed demographic characteristics (age, race, religion, marital status, education) as well as a variety of variables thought to predict post-abortion adjustment (e.g., religiosity, attitudes toward abortion, perceived stigma associated with abortion, etc.). Usually within an hour after completing the initial measures, women met with a physician for the abortion. Women completed follow-up questionnaires approximately one month after their abortions and were

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1. The sample showed little indication of selection or retention bias. A comparison of the demographic characteristics of the women who initially agreed to participate vs. those who declined indicated that the two groups were similar on all variables except age. Women who agreed to participate were younger ( $M = 23.68$ ) than those who declined ( $M = 25.92$ ),  $F(1, 1042) = 21.26, p < .001$ .



paid \$20 for their participation. Those who returned to the clinic for a post-abortion physical check-up (27%) were met by a trained interviewer who administered the questionnaire. Women who did not return to the clinic for their follow-up visit either met with an interviewer at another site (e.g., the University Psychological Services Center) to complete the questionnaire (1%) or returned the questionnaire by mail (72%). Two years after their abortion, women completed another set of questionnaires and were paid \$50 for their participation. These questionnaires were completed in person at a neutral site (58%) or by mail (42%). With the exception of history of abuse, all of the variables of interest to the current study were assessed at the one-month and two-year follow-up sessions. For the purposes of the current paper, we will refer to these as the Time 1 and Time 2 assessments.

## MEASURES

**History of Abuse.** Women's history of abuse was assessed prior to the abortion with a single item (1 = "no," 2 = "yes") asking the participant whether she "considers herself to have been abused as a child, either physically, sexually, emotionally, or verbally".

### **Variables Assessed at the One-Month Follow-Up**

*History of Depression.* Lifetime history of depression (before the pregnancy and abortion) was assessed with either an interviewer-administered or written version of the Diagnostic Interview Schedule (DIS; Robins, Helzer, Croughan, & Ratcliff, 1981), given at the one-month follow-up.<sup>2</sup> The DIS is a lengthy and comprehensive assessment of the extent to which the respondent has ever experienced the typical symptoms of depression (e.g., lost appetite, suicidal thoughts, crying) and/or sought help for these symptoms. Responses on this measure were used to yield a diagnosis of whether or not the woman had a history of clinical levels of depression prior to her pregnancy (1 = no, 2 = yes). The DIS is widely used and has been shown to be a valid assessment instrument (e.g., Hendricks, 1984; Robins, Helzer, Ratcliff, & Seyfried, 1983).

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2. Women with whom a personal interview could be arranged were administered the DIS by a trained interviewer in a face-to-face interview. The remaining women completed a self-administered version of the DIS, created for this study, and returned it with their follow-up questionnaire by mail. A random subsample of 35 women completed both the face-to-face interview and the self-administered questionnaire, usually within one week. The depression diagnosis was concordant across the interview and self-administered measures in 32 of the 35 cases ( $r$  between versions = .91).

**Variables Assessed at the One Month and Two-year Follow-Ups**

*Attachment Style.* We used Bartholomew and Horowitz's (1991) Relationship Questionnaire (RQ) to assess attachment styles.<sup>3</sup> The RQ consists of four short paragraphs, each describing one of the four attachment styles (secure, fearful, preoccupied and dismissing). Respondents were first asked to rate the extent to which each prototype described them and their typical style in emotionally close relationships on a scale from 1 (not at all like me) to 7 (very much like me). They were then asked to endorse the prototype that described them best. This latter endorsement was used to assign women to attachment categories. Forty-one women neglected to complete the prototype endorsement item at Time 1 (this was probably due to confusion resulting from the formatting of our questionnaire) and 2 had missing data on this item at Time 2. A total of 399 women provided usable attachment self-categorizations at both time periods.

*Global Social Support.* Social support was assessed with a 24-item scale by Russell and Cutrona (1984) designed to assess the extent to which the respondent believes that other people are generally supportive. Sample items include "There are people I can depend on to help me if I really need it" and "There is no-one I can turn to for guidance in times of stress." Women rated the extent to which they agreed with each item, on scales from 1 (strongly disagree) to 4 (strongly agree). Coefficient alpha for this scale was .93 at Time 1 and .92 at Time 2. The correlation between the Time 1 and Time 2 assessments was  $r(428) = .49, p < .001$ .

*Global Social Conflict.* The measure of social conflict was developed for this study and was adapted from a measure by Pierce, Sarason, and Sarason (1991). Participants responded to 14 items designed to assess the extent to which they experience conflict or difficulties in their relationships with others. Sample items include "I can trust the people I am in relationships with not to hurt my feelings" and "There is at least one person who is very critical of me." Women rated the extent to which they agreed with each item, on scales from 1 (strongly disagree) to 4 (strongly agree). The coefficient alpha for this scale was .93 at Time 1 and .94 at Time 2. The correlation between the two assessments was  $r(430) = .48, p < .001$ .

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3. More extensive measures of adult attachment style are now available (see Brennan, Clark, & Shaver, 1998). However, these measures were not available at the time this study was designed and implemented. Moreover, the Bartholomew and Horowitz (1991) measure has been widely used in the adult attachment literature and has been validated in numerous studies.

*Self-Esteem.* Self-esteem was assessed with Rosenberg's (1965) 10-item Self-Esteem Inventory, a well-validated, frequently used measure of trait self-esteem. Women indicated the extent of their agreement with each item on scales ranging from 1 (strongly disagree) to 5 (strongly agree). Coefficient alpha for this scale was .89 at Time 1 and .90 at Time 2. The correlation between the two assessments was  $r(433) = .59, p < .001$ .

*Psychological Distress.* Psychological distress was assessed with 42 items from the SCL-90-R (Derogatis, 1983). These items comprised the Depression (14 items), Anxiety (10 items), Hostility (6 items), and Somatization (12 items) subscales. One month postabortion, women used 5-point scales to rate the extent to which they were bothered by each complaint since having their abortion (0 = not at all; 4 = a great deal). (Two years postabortion, they indicated the extent to which they had been bothered by each complaint in "the past two weeks"). At the first assessment, correlations among the four subscales ranged from .53 to .82, with an average correlation of .68. A higher order factor analysis revealed that the four subscales loaded on a single factor. (The factor loadings were .92, .91, .81, and .68 for Anxiety, Depression, Hostility and Somatization, respectively). Thus, we created a composite measure of psychological distress by averaging scores on the four subscales. Coefficient alpha for the composite distress measure was .90 at Time 1 and .89 at Time 2. The correlation between the two assessments was  $r(436) = .46, p < .001$ .

*Positive Well-Being.* Positive well-being was assessed with an 18-item index developed by Ryff (1989), who has provided extensive evidence of the scale's reliability and validity (e.g., Schmutte & Ryff, 1997; Ryff, 1989). The measure consists of six 3-item subscales, each assessing an aspect of well-being: Autonomy, Environmental Mastery, Personal Growth, Positive Relations With Others, Purpose in Life, and Self-Acceptance. Respondents used 6-point agree-disagree scales to indicate how they "usually" feel and behave. Sample items include: "When I look at the story of my life, I am pleased with how things have turned out" and "I live my life one day at a time and don't really think about the future" (reverse scored). Given that we were most interested in overall well-being, we combined scores on the six subscales and created one well-being index. Coefficient alpha for this index was .85 at Time 1 and .86 at Time 2. The correlation between the two assessments was  $r(433) = .58, p < .001$ .

#### **Variables Assessed Only at the Two-Year Follow-Up**

*Relationship-Related Life Events.* Women were asked to indicate whether they had experienced each of 11 relationship-related life

TABLE 1. Cross-Tabulation of Attachment Style Categorization at Time 1 and Time 2

| Time 1      | Time 2 |         |             |            | Total |
|-------------|--------|---------|-------------|------------|-------|
|             | Secure | Fearful | Preoccupied | Dismissing |       |
| Secure      | 105    | 20      | 16          | 18         | 159   |
| Fearful     | 37     | 65      | 10          | 20         | 132   |
| Preoccupied | 7      | 11      | 13          | 3          | 34    |
| Dismissing  | 29     | 12      | 2           | 31         | 74    |
| Total       | 178    | 108     | 41          | 72         | 399   |

Note. Kappa = .33.

events in the past two years, using a yes/no response format.<sup>4</sup> The events were: "An improved relationship with the man you got pregnant with," "A worsened relationship with the man you got pregnant with," "Marriage," "Divorce," "Someone close to you moved away," "Someone close to you died," "You broke up with someone you loved," "You were the victim of a rape or assault," "You became involved in a serious romantic relationship with someone new," "You had a miscarriage or still birth," and "You gave birth to a child". We also computed a count of the total number of events each woman had experienced, as well as separate counts of the positive (e.g., marriage, new relationship, gave birth) and negative (e.g., divorce, death, break-up) events.

## RESULTS

### ATTACHMENT STABILITY

We categorized participants' attachment style at both points in time based on the style they selected as being most characteristics of themselves. Using this procedure, at the initial assessment, 159 (40%) of women were classified as secure, 134 (33%) were classified as fearful, 34 (8%) were classified as preoccupied and 74 (18%) were classified as dismissing. The percentages of women in each of the attachment categories two years later were remarkably similar. At that assessment,

4. We also asked women whether they had experienced a series of stressors that were not relationship-focused (e.g., your financial situation worsened, you had a serious illness or disability, you have had reproductive problems). These items were unrelated to change in attachment styles.

194 (44%) of women were secure, 124 (28%) of women were fearful, 41 (9%) of women were preoccupied, and 81 (18%) of women were dismissing. At both of these time points, the distributions of women across the four attachment categories were remarkably similar to the distributions that have been obtained in prior studies using the same attachment measure (e.g., Cozzarelli et al., 1998; Scharfe & Bartholomew, 1994).

Cross-tabulations of the Time 1 and Time 2 attachment style classifications (among women who provided data at both time points) are presented in Table 1. Two years later, 54% of the women endorsed the same attachment style that they had selected as being most self-descriptive at Time 1. Secures were the most likely to demonstrate stability in attachment style (66%). The percentages of women in the three insecure groups who demonstrated stability were relatively similar (49% of fearful, 38% of preoccupied, and 42% of dismissing). Women who went from being secure at Time 1 to insecure at Time 2 were evenly distributed among the three insecure styles at the later assessment. Among women who were originally classified as fearful or dismissing at Time 1, a surprisingly large number classified themselves as secure at Time 2 (28% of fearful and 39% of dismissing). Substantial numbers of women who were originally classified as preoccupied were considered secure (21%) or fearful (32%) at Time 2. The chi square for this analysis was significant,  $\chi^2(9) = 114.61, p < .001$ . An additional way to evaluate the proportion of agreement between Time 1 and Time 2 attachment classifications (while adjusting for chance) is provided by the statistic kappa (Cohen, 1960). The value of kappa for the current sample was .33, which according to the guidelines provided by Cicchetti and Sparrow (1981) represents a relatively poor rate of agreement in categorizations over time.

To further explore attachment stability, we also computed correlations between participants' Time 1 and Time 2 ratings on the four continuous measures of attachment style. Across the two-year period, these correlations were  $r_{\text{secure}}(428) = .36, p < .001$ ,  $r_{\text{fearful}}(428) = .45, p < .001$ ,  $r_{\text{preoccupied}}(429) = .36, p < .001$ , and  $r_{\text{dismissing}}(427) = .36, p < .001$ . These test-retest correlations indicate a modest level of stability over the two-year period.

#### VARIABLES ASSOCIATED WITH CHANGE IN ATTACHMENT STYLES

To test hypotheses about the correlates of stability and change in attachment style, we created a new variable that clustered our participants into one of four groups based on their Time 1 and Time 2 attachment classifi-

TABLE 2. Personal Vulnerability Factors by Attachment Style Stability

| Vulnerability Factor  | Attachment Stability Category |                    |                    |                   |
|-----------------------|-------------------------------|--------------------|--------------------|-------------------|
|                       | Remained Insecure             | Secure to Insecure | Insecure to Secure | Remained Secure   |
| History of depression | .342 <sub>a</sub>             | .362 <sub>a</sub>  | .194 <sub>b</sub>  | .146 <sub>b</sub> |
| History of abuse      | .315 <sub>a</sub>             | .217 <sub>a</sub>  | .150 <sub>b</sub>  | .189 <sub>b</sub> |

*Note.* Vulnerability factors were coded 0 if absent and 1 if present so that tabled values represent the proportion of participants in each group who experienced that vulnerability factor. For history of depression, means with subscript "a" are significantly different from those with subscript "b" at  $p < .05$ . For history of abuse, means with subscripts "a" and "b" are different at  $p < .056$ .

cations: (a) *stably secure* (women who were categorized as secure at both time points,  $n = 105$  or 26.3% of the sample), (b) *stably insecure* (women who endorsed an insecure style at both time points,  $n = 167$  or 41.9%),<sup>5</sup> (c) *change to secure* (women who endorsed an insecure style at Time 1, but classified themselves as secure at Time 2,  $n = 73$  or 18.3%), and (d) *change to insecure* (women who were classified as secure at Time 1, but insecure at Time 2,  $n = 54$  or 13.5%). Throughout the remainder of this paper, this 4-level variable will be referred to as the measure of *attachment stability*.<sup>6</sup>

### Stable Vulnerability Factors

We conducted one-way analyses of variance (ANOVAs) with planned comparisons to test our hypotheses that women who remained or became insecure would be more likely to have experienced a history of depression and/or abuse than women who remained or became secure (see Table 2).<sup>7</sup> As expected, attachment stability was significantly related to a history of abuse,  $F(3, 335) = 2.86, p < .05$ . A planned comparison revealed that participants who remained or became insecure were more

5. Some of the women in this category placed themselves in the same insecure attachment category at both time points, whereas others switched among the various insecure styles. Secondary analyses revealed that these two types of stable insecure individuals did not differ from each other in any systematic way.

6. Our decision to focus on change in security/insecurity (rather than change in attachment dimensions) was guided by our research goals. Specifically, our four-level attachment stability variable enabled us to identify qualitative differences between respondents who changed their attachment style (or remained stable) and to identify differences between people who moved from security to insecurity (or vice versa).

7. Although the use of dichotomous dependent variables violates the assumption of normality underlying the general linear model, analysis of variance (ANOVA) is robust to such violations when sample size is relatively large (as in the present study) and when the expected frequency of each event (or non-event) equals or exceeds a value of five (Howell, 1997).

TABLE 3. Mean Occurrence of Specific Life Events Reported for Each Attachment Stability Category

| Event in Past Two Years            | Attachment Stability Category |                    |                    |                  |
|------------------------------------|-------------------------------|--------------------|--------------------|------------------|
|                                    | Remained Insecure             | Secure to Insecure | Insecure to Secure | Remained Secure  |
| <b>Positive Events</b>             |                               |                    |                    |                  |
| Relationship with partner improved | .36                           | .42                | .40                | .44              |
| Started new romantic relationship  | .37                           | .43                | .41                | .43              |
| Married                            | .07 <sub>a</sub>              | .15                | .11                | .18 <sub>b</sub> |
| Gave birth                         | .20                           | .22                | .22                | .14              |
| <b>Negative Events</b>             |                               |                    |                    |                  |
| Relationship with partner worsened | .34                           | .39                | .33                | .40              |
| Broke up with a romantic partner   | .40                           | .50 <sub>a</sub>   | .26 <sub>b</sub>   | .35              |
| Divorced                           | .03                           | .02                | .03                | .05              |
| Miscarried                         | .07                           | .07                | .15 <sub>a</sub>   | .03 <sub>b</sub> |
| Experienced rape or assault        | .04 <sub>a</sub>              | .11 <sub>b</sub>   | .03                | .03 <sub>a</sub> |
| Someone close moved away           | .24                           | .22                | .16                | .15              |
| Someone close died                 | .31                           | .26                | .36                | .29              |

*Note.* Events were coded 0 for “no” and 1 for “yes.” Within rows[comma here] means with subscript “a” differ significantly from means with subscript “b” at  $p < .05$ .

likely to report a history of abuse than women who either became or remained secure,  $t(335) = 1.92, p = .056$ . Attachment stability was also significantly related to a history of depression,  $F(3, 350) = 5.32, p < .001$ . As expected, women who either became or stayed insecure were more likely to have had a history of depression than those who either became or remained secure,  $t(350) = 3.60, p < .001$ .

#### Relationship-Related Life Events

As we expected, a substantial number of the women in our sample reported experiencing major positive and negative relationship-related life events. One hundred and seventy-five women (40%) reported that their relationship with their partner in conception improved, 50 (11.5%) got married, 177 (40.2%) experienced a new romantic relationship, and 87 (19.7%) gave birth to a child. 159 (36.1%) reported that their relationship with their partner in conception worsened, 12 (2.8%) got divorced, 160 (37%) broke up with someone they loved, 85 (19.3%) said that someone close moved away, 134 (30.4%) said that someone close to them died, 22 (5%) were the victim of rape or assault, and 37 (8.4%) had a miscarriage or stillbirth. On average, women experienced 2.48 events overall (out of a possible 11;  $SD = 1.42$ , range = 0–7).

Because we were interested in whether or not each individual life event was related to attachment style stability, we conducted separate

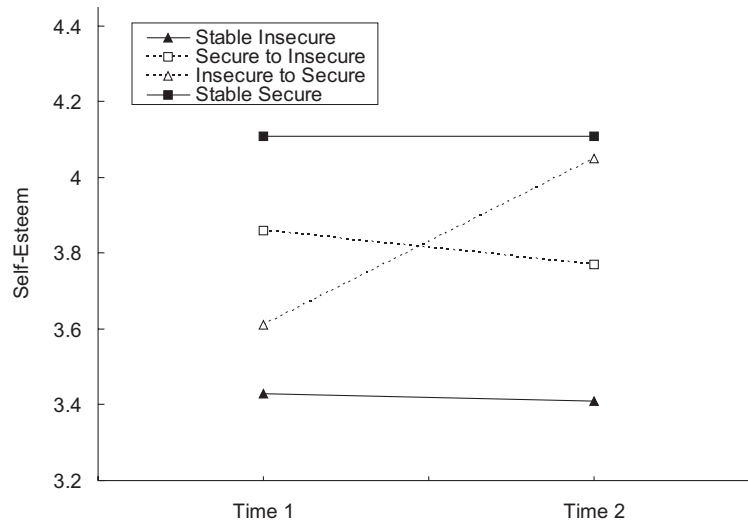


FIGURE 1. Time 1 and Time 2 self-esteem scores by attachment change category.

ANOVAs for each event, with Neuman–Keuls tests used to probe for differences between means (see Table 3). Attachment style stability was significantly associated with whether women got married,  $F(3, 389) = 3.11, p < .05$ . Specifically, women who were stably secure were more likely to have gotten married than women who were stably insecure. Attachment stability was also significantly associated with whether women experienced a break-up in a love relationship,  $F(3, 387) = 2.78, p < .05$ , or miscarried,  $F(3, 394) = 3.11, p < .05$ , and was marginally associated with whether a woman was raped or assaulted,  $F(3, 395) = 2.25, p < .10$ . Specifically, the change to insecure group reported having experienced the break-up of a love relationship more often than the change to secure group. In addition, women who changed to secure had more miscarriages than those who were stably secure. Finally, women who changed to insecure indicated that they had been a victim of rape or assault more often than those who were stably secure or insecure. None of the remaining life events was significantly associated with attachment style stability.

### Global Perceptions of Self and Others

*Self-Esteem.* We predicted that women who became secure would report an increase in self-esteem between Time 1 and Time 2, whereas those who became insecure would report a decrease in self-esteem.



TABLE 4. Global Perceptions of Self and Others and Mental Health at Time 1 and Time 2 by Attachment Style Stability

| Outcome Variable              | Time 1              | Time 2              | F       |
|-------------------------------|---------------------|---------------------|---------|
| <b>Self-Esteem</b>            |                     |                     |         |
| Remained Insecure             | 3.43 <sub>a</sub>   | 3.41 <sub>a</sub>   | .10     |
| Secure to Insecure            | 3.86 <sub>b,c</sub> | 3.77 <sub>b</sub>   | .81     |
| Insecure to Secure            | 3.61 <sub>a,b</sub> | 4.05 <sub>c</sub>   | 18.92** |
| Remained Secure               | 4.11 <sub>c</sub>   | 4.11 <sub>c</sub>   | .00     |
| <b>Social Support</b>         |                     |                     |         |
| Remained Insecure             | 3.07 <sub>a</sub>   | 3.28 <sub>a</sub>   | 29.77** |
| Secure to Insecure            | 3.37 <sub>b</sub>   | 3.51 <sub>b</sub>   | 3.48+   |
| Insecure to Secure            | 3.22 <sub>c</sub>   | 3.61 <sub>b</sub>   | 52.40** |
| Remained Secure               | 3.48 <sub>b</sub>   | 3.61 <sub>b</sub>   | 13.20** |
| <b>Interpersonal Conflict</b> |                     |                     |         |
| Remained Insecure             | 2.62 <sub>a</sub>   | 2.51 <sub>a</sub>   | 3.94*   |
| Secure to Insecure            | 2.24 <sub>b</sub>   | 2.25 <sub>b</sub>   | .03     |
| Insecure to Secure            | 2.47 <sub>a</sub>   | 2.01 <sub>b,c</sub> | 21.98** |
| Remained Secure               | 2.03 <sub>c</sub>   | 1.85 <sub>c</sub>   | 5.73*   |
| <b>Distress</b>               |                     |                     |         |
| Remained Insecure             | .17 <sub>a</sub>    | .34 <sub>a</sub>    | 4.27*   |
| Secure to Insecure            | -.12 <sub>a,b</sub> | .08 <sub>b</sub>    | 3.78+   |
| Insecure to Secure            | .14 <sub>a</sub>    | -.25 <sub>c</sub>   | 13.82** |
| Remained Secure               | -.24 <sub>b</sub>   | -.35 <sub>c</sub>   | 3.06+   |
| <b>Positive Well-Being</b>    |                     |                     |         |
| Remained Insecure             | 4.33 <sub>a</sub>   | 4.30 <sub>a</sub>   | .44     |
| Secure to Insecure            | 4.74 <sub>b</sub>   | 4.61 <sub>b</sub>   | 2.13    |
| Insecure to Secure            | 4.52 <sub>b,c</sub> | 4.88 <sub>c</sub>   | 20.27** |
| Remained Secure               | 4.94 <sub>c</sub>   | 4.94 <sub>c</sub>   | 0.00    |

Note. *F* values refer to the significance of the simple effects test across time, within each attachment stability category; + $p < .10$ , \* $p < .05$ , \*\* $p < .001$ . Subscripts denote significant differences among means within Time 1 or Time 2 for each dependent variable; means with different subscripts are significantly different at  $p < .05$ .

Those with stable attachment styles were not expected to show changes in self-esteem over time. In order to test these hypotheses, a 4 (attachment stability)  $\times$  2 (time) mixed-design ANOVA was conducted on self-esteem scores (see Table 4). Probes of a significant main effect for attachment style stability, [ $F(3,394) = 20.65, p < .001$ ] indicated that across time, stably secure women ( $M = 4.11$ ) and those who became secure ( $M = 3.83$ ) were higher in self-esteem than stably insecure women ( $M = 3.42$ ). The main effect of time was just shy of being significant [ $F(1, 394) = 3.39, p = .06$ ], which indicated that self-esteem scores were somewhat higher

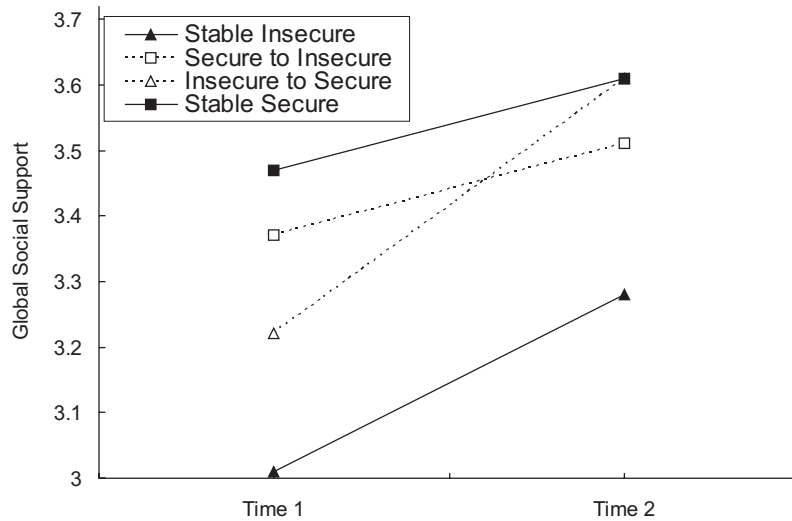


FIGURE 2. Time 1 and Time 2 social support scores by attachment change category.

at Time 2 ( $M = 3.89$ ) than they were at Time 1 ( $M = 3.75$ ). These main effects were qualified, however, by a significant attachment stability  $\times$  time interaction,  $F(3, 394) = 6.91, p < .001$  (see Figure 1). As expected, women who became secure experienced an increase in self-esteem across time (see Table 4 for all statistics associated with these probes). Also as expected, those who remained secure and those who remained insecure did not experience changes in self-esteem. Contrary to expectations, women who became insecure over time did not experience a significant decrease in self-esteem.

*Perceived Social Support.* We predicted that women who became secure would report an increase in global social support over time whereas those who became insecure would report a decrease in social support. Those with stable attachment styles were not expected to show changes in perceptions of global support across time. A 4 (attachment stability)  $\times$  2 (time) mixed-design ANOVA revealed a significant main effect for attachment style stability,  $F(3, 390) = 23.70, p < .001$ , (see Table 4). Across time, stably insecure women reported lower levels of global support ( $M = 3.17$ ) than women who were stably secure ( $M = 3.54$ ), those who became secure ( $M = 3.42$ ) and those who became insecure ( $M = 3.44$ ). In addition, a significant main effect for time [ $F(1, 390) = 72.95, p < .01$ ] revealed that women per-

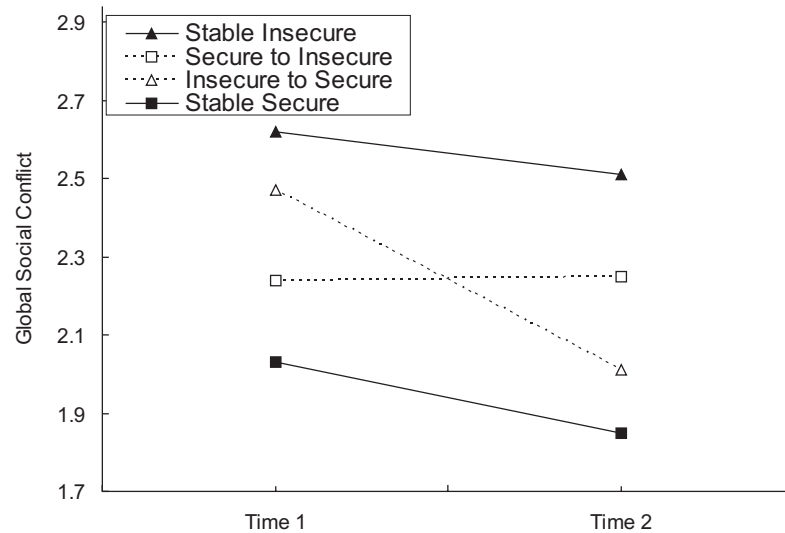


Figure 3. Time 1 and Time 2 social conflict scores by attachment change category.

ceived higher support at Time 2 ( $M = 3.50$ ) than they did at Time 1 ( $M = 3.29$ ). These main effects were qualified, however, by a significant attachment stability by time interaction,  $F(3, 390) = 5.06, p < .01$  (see Figure 2). Probes of the interaction (see Table 4) revealed that as we expected, women who became secure reported higher levels of social support at Time 2 as compared to Time 1. However, this increase in perceived support also occurred for the other three attachment stability categories. Specifically, women who remained secure, women who remained insecure and women who became insecure all perceived significantly or marginally more support at Time 2 as compared to Time 1. Nevertheless, inspection of Figure 2 clearly indicates that women who became secure experienced the sharpest increase in perceived support and women who became insecure experienced the weakest increase in support.

*Interpersonal Conflict.* We hypothesized that women who became secure would report a decrease in interpersonal conflict over time whereas those who became insecure would report an increase in conflict. Those with stable attachment styles were not expected to show changes in perceptions of conflict. A 4 (attachment stability)  $\times$  2 (time) mixed-design ANOVA revealed a significant main effect of attachment stability,  $F(3, 392) = 25.82, p < .001$  (see Table 4). Across time, women who were stably insecure ( $M = 2.64$ ) reported more conflict than women who were stably

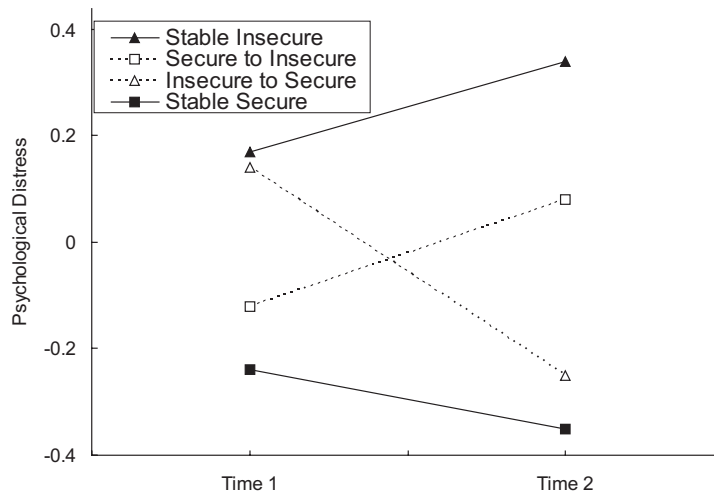


Figure 4. Time 1 and Time 2 distress scores by attachment change category.

secure ( $M = 1.94$ ), those who became secure ( $M = 2.24$ ) and those who became insecure ( $M = 2.24$ ). In addition, women who were stably secure reported significantly less conflict than women in the other three groups. A significant main effect for time [ $F(1, 192) = 20.48, p < .001$ ] revealed that women reported lower levels of social conflict at Time 2 ( $M = 2.16$ ) than at Time 1 ( $M = 2.34$ ). These main effects were qualified, however, by a significant attachment stability by time interaction,  $F(3, 392) = 5.28, p < .01$  (see Figure 3). As we expected, women who became secure reported decreasing conflict over time. Unexpectedly, the two stable attachment groups also reported reductions in conflict. Although we expected women who became insecure to experience increased conflict over time, this effect was not significant. Overall, inspection of Figure 3 suggests that women who became secure experienced the biggest decrement in social conflict over time and that women who became insecure experienced the smallest.

#### Relationship Between Attachment Style Stability and Mental Health

*Distress.* We predicted that women who became secure would show decreasing levels of distress between Time 1 and Time 2 whereas those

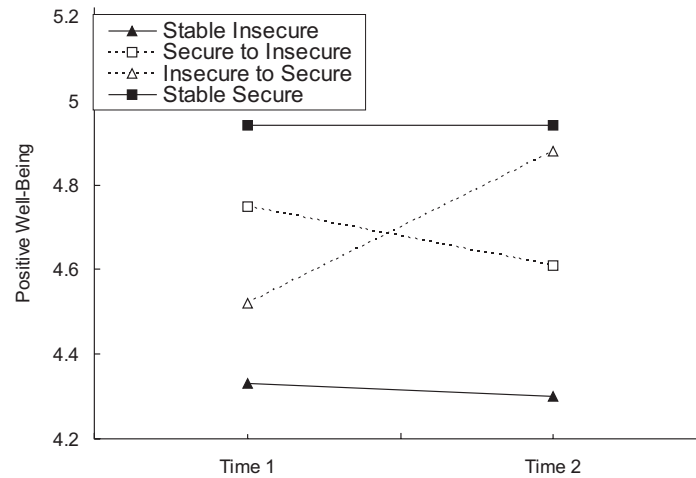


Figure 5. Time 1 and Time 2 well-being scores by attachment change category.

who became insecure would experience an increase in distress. Women with stable attachment styles were not expected to show changes in distress over time. In order to test these hypotheses, a 4 (attachment stability)  $\times$  2 (time) ANOVA was conducted on distress scores (see Table 4). Probes of a significant main effect for attachment style stability [ $F(3, 395) = 13.48, p < .001$ ] revealed that across time, women who were stably insecure ( $M = .26$ ) were more distressed than women who were stably secure ( $M = -.30$ ). The main effect for time was not significant [ $F(1, 395) = .39, p > .05$ ], however, there was a significant attachment stability by time interaction,  $F(3, 395) = 8.01, p < .001$  (see Figure 4). As we expected, probes of the interaction revealed that women who became secure reported significantly less distress at Time 2 than they did at Time 1 and that women who became insecure reported (marginally) more distress at the latter point in time. In addition, women who were stably insecure also reported increased distress over time and women who were stably secure reported marginally less distress over time.

*Well-Being.* We predicted that women who became secure would report an increase in well-being between Time 1 and Time 2, whereas those who became insecure would report a decrease in well-being. No

change in well-being was predicted for those women who remained either secure or insecure. A 4 (attachment stability)  $\times$  2 (time) ANOVA was conducted in order to test these predictions (see Table 4). Probes of a significant main effect for attachment style stability [ $F(3, 394) = 29.69, p < .001$ ] revealed that across time, women who were stably insecure ( $M = 4.32$ ) reported lower levels of well-being than those who were stably secure ( $M = 4.94$ ), those who became secure ( $M = 4.70$ ) and those who became insecure ( $M = 4.68$ ). In addition, those who became secure reported significantly lower levels of well-being than those who were stably secure. The main effect for time was not significant [ $F(1, 394) = 2.12, p > .05$ ], however, there was a significant time by attachment stability interaction,  $F(3, 394) = 9.04, p < .001$  (see Figure 5). As expected, probes of this interaction revealed that women who became secure reported significantly higher levels of well-being at Time 2 than at Time 1 and that women who were stably secure and stably insecure did not experience a change in well-being over time. Although women who became insecure reported slightly lower well-being at Time 2 than Time 1, this effect was not significant.<sup>8</sup>

## DISCUSSION

### DEGREE OF ATTACHMENT STABILITY AND CHANGE

One of the primary goals of this research was to examine the stability of Bartholomew and Horowitz's four-category measure of attachment styles. Of the participants in our study, 54% endorsed the same categorical attachment style over a two-year period. This rate of stability is somewhat lower than that reported in most other studies of attachment style stability, although the kappa coefficient indexing two-year stability (.37) obtained by Davila et al. (1997) was quite similar to the kappa we obtained here. Unfortunately, given that the majority of studies assessing attachment style stability have utilized Hazan and Shaver's

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8. Psychological distress and well-being were significantly correlated at both Time 1 [ $r(434) = -.47, p < .001$ ] and Time 2 [ $r(439) = -.50, p < .001$ ]. Similarly, the correlations among social support, social conflict, and self-esteem at Times 1 and 2 ranged from  $-.52$  to  $.63$ . Thus, we also conducted two MANOVAs, one on the set of construal variables and second on the pair mental health variables, with attachment stability and time as the independent variables. The MANOVA on the mental health variables yielded a significant multivariate main effect of attachment stability [ $F(6, 788) = 14.26, p < .001$ ] and a significant multivariate interaction,  $F(6, 788) = 6.17, p < .001$ . The MANOVA on the construal variables yielded significant multivariate main effects of attachment stability [ $F(9, 1164) = 9.85, p < .001$ ] and time [ $F(3, 386) = 25.77, p < .001$ ] as well as a significant stability by time interaction,  $F(9, 1164) = 3.35, p < .001$ . For both analyses, the pattern of significant univariate effects was identical to the results of the ANOVAs that we present in the body of the paper.

three-category measure, it is difficult to make direct comparisons between the stability levels they report and those documented in the current study. The only other studies to use the self-report version of the four-category measure found that approximately 59% of participants endorsed the same attachment style across an eight month time period (Scharfe & Bartholomew, 1994) and that 68% did so after a five-month period (Ruvolo et al., 2001).

That these authors found slightly greater stability in their study than we did is not surprising given that their time frames were shorter than ours. In addition, Scharfe and Bartholomew specifically selected their research participants because they were thought to be in relatively stable social environments. In contrast, our participants had just experienced an event that many women find quite stressful and that often entails some social disruptions. These results suggest that adult attachment styles may be more susceptible to fluctuations in times of stress. However, it is also important to acknowledge that some of this apparent instability may reflect measurement error. Nevertheless (as we discuss subsequently), because shifts in attachment security/insecurity were associated with predictable changes in global construals of self and others (self-esteem, social support, and social conflict), we can be more confident that these shifts reflect valid and meaningful change in attachment styles over time. Finally, the relatively low levels of attachment stability that we obtained in this study might be at least partially due to the fact that women were in different relationships at the two times we assessed their attachment style. It is quite possible that some individuals will have different attachment styles in different relationships (see Cozzarelli, Hoekstra & Bylsma, 2000, for a discussion of this point).

#### FACTORS RELATED TO ATTACHMENT STABILITY AND CHANGE

*Relationship-Related Life Events.* As we had anticipated, the women in our sample experienced a wide variety of life events. About one third of our sample experienced significant improvement (or deterioration) in their relationship with the man who got them pregnant, broke up with someone they loved, experienced a new love relationship, or experienced the death of someone close to them. Of 11 life events, four were related to attachment style stability and the pattern of results that we obtained in most of these cases was consistent with both attachment theory and prior research (e.g., Kirkpatrick & Hazan, 1994; Ruvolo et al., 2001). Specifically, women who were stably secure were more likely than those who were stably insecure to have gotten married. The change to insecure

group was: (a) more likely to have experienced the breakup of a relationship than those who became secure and (b) marginally more likely to have been the victim of rape or assault than those who were stably secure or insecure. Unexpectedly, women who became secure were more likely to have experienced a miscarriage than women who were stably secure. This set of results suggests that some life events, perhaps those with an especially powerful emotional impact, can be related to meaningful changes in attachment style as would be expected on the basis of Bowlby's (1973) theory.

A fair number of the life events we assessed in this study were not related to attachment stability. One possible explanation for this fact is that some of these events were experienced by very small numbers of women and thus we would have needed a larger sample to detect the influence of these events on attachment stability/instability. Second, attachment style change may depend on how an individual construes or is impacted by particular life events, rather than on the simple presence/absence of the events in question. For example, although the deterioration or breakup of one's romantic relationship may be distressing for some individuals, there are many individuals for whom this would not be the case, including those whose mental models were confirmed by the experience (e.g., those who were insecure to begin with) and those who construed the break-up as an end to a bad relationship and/or an opportunity to forge new attachments.

It is also possible that the relatively lengthy time frame used in this and most other studies of attachment stability is not optimal for demonstrating the effects of life events on attachment style change. Suh, Diener, and Fujita (1996) found that life events had a significant impact on life satisfaction and positive/negative affect for only about three months (with the possible exception of events like divorce which may require a longer adjustment period). Following this logic, it is possible that in our study, life events that were indeed impactful had already ceased to affect our participants' attachment styles by the time of the two-year follow-up. Overall, conclusively answering the question of whether relationship-related life events affect attachment stability will likely require repeated assessments of both life events and attachment styles at relatively short intervals (less than three months) as well as an assessment of the subjective impact of each event on the person involved.

*Changes in Global Perceptions of Self and Others.* We had predicted that individuals who became secure over time would report increases in self-esteem and perceived social support and decreases in perceived social conflict between the Time 1 and Time 2 assessments. In contrast, those who became insecure over time were expected to show the opposite trend. Not surprisingly, there were main effects of attachment stabil-



ity on all of these variables. Overall, stably insecure women had lower self-esteem, perceived less support, and greater conflict than stably secure women. We also discovered a main effect for time on both social support and social conflict. For all attachment groups, perceived social support increased over time and perceived conflict decreased. It is likely that these effects reflect the influence of the abortion that all of these women had just experienced. Strains in social relationships generated around the time of the abortion may have eased with time and psychological distance from the event.

A striking feature of the results we obtained for the esteem, support, and conflict variables is the relative similarity of the slopes of the lines representing the scores of those who remained secure, remained insecure, and became insecure, and the markedly different slopes shown by the lines representing those who became secure (see Figures 1, 2 and 3) on all of these variables. Specifically, only women who became secure over time demonstrated significant increases in self-esteem (the other three lines were essentially flat). These women also showed greater improvements in their perceptions of support and greater decreases in social conflict compared to women in the other three groups. Thus, women who became secure showed changes on variables relevant to their mental models that were in line with our expectations but women who became insecure generally did not. Nevertheless, the responses on these variables of the women who became insecure reflect the least adaptive pattern of any group. Specifically, most women experienced a normative increase in support and a decrease in social conflict after the abortion, but women who became insecure experienced only small and marginally significant improvements in social support and no reductions in social conflict. Thus, relative to all other groups of women, women who became insecure failed to experience normative improvements in social relationships following the abortion.

*Vulnerability Factors.* As predicted, personal vulnerability factors were linked both the stability of insecure attachment and to changes toward insecurity. Women who became insecure (and those who remained so) were more likely to have been abused or to have had a history of depression than those who became or remained secure. Overall, our pattern of results suggests an intriguing asymmetry between the factors that predict increases in insecurity and those that predict increases in security. Changes in the direction of security were generally related to both underlying vulnerabilities and to alterations in global perceptions of self and others, whereas changes toward insecurity seemed to be related more narrowly to vulnerability issues. This pattern of results is consistent with newly emerging findings in research on emotionality and affect. For example, in a study of the impact of genetics and the envi-

ronment on the personality characteristics of twins, Tellegen et al. (1988) found that positive emotionality is particularly responsive to and reflective of the surrounding social climate (including the environment in which a person was raised), but that negative emotionality is not. In discussing these and other similar findings, Diener & Lucas (1999) suggest that overall, positive affect may be more responsive to situational factors and environmental reinforcements than negative affect. By analogy, these findings raise the intriguing possibility that changes toward security (and associated positive affect) may be generally reflective of environmental influences but that increased insecurity may be more often based on temperament or developmentally early vulnerability factors.

Our findings regarding the impact of vulnerability factors are not entirely consistent with those of Davila and her colleagues. In particular, in their 1997 study, these authors found that vulnerability factors were related to instability, *per se*, and not to attachment style change in any particular direction. One explanation for this might be that not all developmentally early vulnerability factors work in the same way or via the same mediators. Davila argued that these vulnerability factors produce incoherent or disorganized mental models that would be susceptible to fluctuations over time. However, it seems likely that whereas some developmentally early experiences would simply create incoherence and instability, others might also result in negative mental models being more easily primed. Thus, for example, the person who was abused as a child might not simply be prone to disorganized thinking about attachment, but may be especially ready to see others in a negative light. Similarly, depression has been linked with the tendency to see the self and the world generally in a negative or pessimistic fashion (e.g. Alloy et al., 1999, Seligman, 1991). Thus, those with a history of depression may be more likely to revert to these negative characterizations than they would be to shift toward seeing things more positively. In our view, future research will be needed to more completely map out the effects of various vulnerability factors and to explore the potentially different predictors of increased security and increased insecurity in attachment styles.

#### MENTAL HEALTH

Changes in attachment style across time were also accompanied by corresponding changes in mental health. This is an important finding because although numerous studies have documented the relationship between attachment styles and mental health at a single point in time, prior research on adult attachment has not shown that changes in these variables occur in tandem, as attachment theorists would expect. In this study, women who became secure over time became less distressed and

scored higher in positive well-being, whereas those who became insecure became marginally more distressed. Interestingly, women who remained insecure also became more distressed over time, whereas those who were stably secure became marginally less distressed. These latter effects likely reflect the fact that overall, the secure attachment style is associated with more constructive and adaptive responses to conflict and stress (such as might be generated in the context of an abortion) than the insecure styles.

Generally, secure individuals are likely to acknowledge distress and to deal with it in ways that elicit constructive or supportive responses from others (e.g., Kobak & Sceery, 1988; Pistole, 1989; Simpson & Rholes, 1994; Simpson, Rholes, & Nelligan, 1992) and they do not generally engage in avoidance or distancing as coping strategies (e.g., Mikulincer, Florian, & Weller, 1993). In contrast, insecure individuals have been found to utilize avoidance or disengagement as a coping strategy (e.g., Mikulincer et al., 1993), to dwell on their distress (Kobak & Sceery, 1988; Mikulincer, Florian & Tolmacz, 1990), and to either refrain from or be ineffectual in attempting to elicit support from others (e.g., Collins & Feeney, 2000; Fraley & Shaver, 1998; Mikulincer et al., 1993; Simpson & Rholes, 1994). Research on coping with abortion has shown that a coping strategy of avoidance/denial is related to poorer post-abortion adjustment, whereas acceptance of the event and support seeking have positive effects (Major, Richards, Cooper, Cozzarelli, & Zubek, 1998). However, because the attachment and mental health variables were assessed at the same times in this study, these conclusions regarding the temporal sequencing of events must be regarded as speculative.

The finding that attachment styles and mental health variables change together in predictable ways might suggest to some that attachment measures are simply alternate indicators of mental health or overall well-being. Contrary to this argument, however, the modest size of the correlations that have been found between attachment and a variety of mental health variables in this and other studies suggests that although these constructs are related, they are not redundant. (In the current study, these correlations ranged from .04 to .44, with an average of .27). In addition, a growing number of studies have documented that the relationships between attachment variables and self-report and behavioral indicators of overall functioning are mediated by a variety of processes (e.g., Cooper, et al., 1998; Cozzarelli et al., 1998) and that each attachment style is related to a unique constellation of overall adjustment variables (e.g., Cooper et al., 1998; Mickelson et al., 1997; Shaver & Hazan, 1993). Thus, although attachment patterns and overall well-being are clearly related, as would be expected, this relationship is not one of simple redundancy.

### MEANING AND DURATION OF CHANGE IN ATTACHMENT STYLES

The results of this study are consistent with the idea that attachment styles are not inflexible but rather, that they are susceptible to fluctuation over time. An intriguing question raised by this finding concerns the meaning of these changes and their temporal duration. One possibility is that although attachment styles may shift in some individuals in response to current circumstances, such change may not be enduring. For example, individuals may have a "baseline" attachment style that reflects how they typically feel about themselves and others, but they may also have more temporary or "working" attachment styles that are primed by particular life's circumstances such as stress, disruptions in important relationships, or improved feelings about the self or others (Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Davila et al., 1999). If the conditions that elicit these working styles cease to exist, the individual might then return to his or her baseline style. If this analysis is correct, then across time, individuals might show a fair amount of variation in the attachment style they endorse as being the most self-descriptive, but there should also be an observable tendency to endorse a baseline style in the absence of impactful, proximal circumstances. Of course, it is also possible that given repeated or enduring contact with events or persons that disconfirm an individual's working models, one's baseline attachment style might also eventually change.

### CONCLUSIONS

The results of the current study make some important contributions to the attachment literature. First, although attachment styles demonstrate some degree of stability across time, our results suggest that these styles are also susceptible to change, as attachment theorists would suggest. In addition, our results highlighted the fact that a multitude of factors are likely to be related to meaningful changes in attachment styles, including vulnerability factors such as an individual's history of abuse or psychological problems, some life events, and global perceptions of the self and one's ongoing relational experiences. This study was also the first to demonstrate that different factors may predict movements toward security over time versus movements toward increased insecurity. Finally, prior studies on adult attachment had not demonstrated that mental health and attachment variables changed together in predictable ways across time.

Although this study made use of an interesting and unique community sample of women undergoing abortion, future research will be

needed in order to determine whether our results can be generalized to other groups of individuals, particularly those who are not experiencing a stressor and men. In addition, given the nature of our data, causal direction could not be firmly determined in this study. Future research will be needed to further solidify any tentative causal conclusions we have drawn and to examine the moderators and mediators of the relationships we obtained. Such research would also benefit from the use of research designs that include repeated assessments of attachment styles and the factors thought to predict changes in these styles, separated by short time intervals. Designs of this type would also be capable of distinguishing the factors that promote short-term change in attachment styles from those that contribute to relatively enduring shifts. If, as Bowlby (1969/1982) suggested, working models of attachment remain open to change in response to personal and interpersonal circumstances, we should be able to predict meaningful change in attachment style across time and across relationships.

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