# Attachment style and long-term singlehood

DORY A. SCHACHNER,[a] PHILLIP R. SHAVER,[b] AND OMRI GILLATH[c]
[a]*California State University, Chico;* [b]*University of California, Davis;*
[c]*University of Kansas*

## Abstract

This study examined how long-term single people satisfy their attachment and sexual needs. A community sample of single and coupled adults ($N = 142$) located in the United States completed measures of attachment style, attachment figures, loneliness, depression, anxiety, quality of relationships with parents, and sexual behavior. In a structured interview, they answered questions about their childhoods and managing attachment, support, and sexual needs. Quality of childhood relationships with parents as well as use of attachment-related words was coded. Single participants were as likely as coupled ones to exhibit attachment security and rely on attachment figures, although compared to coupled participants, they reported higher levels of loneliness, depression, anxiety, sexual dissatisfaction, and troubled childhood relationships with parents.

Attachment theory (Bowlby, 1969/1982, Cassidy & Shaver, 1999; Mikulincer & Shaver, 2007) explains how a person's primary orientation to close relationships arises in the years from infancy through adolescence and what kinds of attachment orientations, or attachment styles, result from particular kinds of experiences in close relationships. Researchers originally proposed the theory to explain various aspects and outcomes of human infants' emotional attachments to their primary caregivers, but in the 1980s extended it to the realm of adolescent and adult relationships (see Mikulincer & Shaver's, 2007, extensive review). The large literature on adult attachment focuses mostly on people in couple relationships, such as romantic relationships and marriages. Relatively little research focuses on adults who, for long periods, are not part of

a long-term couple. Such adults are the topic of DePaulo's (2006) recent book, which argues that a single life can be just as fulfilling as the coupled or married life expected of adults in American society. We conducted the present study to learn more about attachment issues in the lives of a sample of long-term single adults. The study was largely exploratory, given the sparse literature on the topic.

Numerous studies, beginning with Hazan and Shaver (1987), indicate that as people pass through adolescence and enter early adulthood, many transfer their primary sense of attachment from parents to romantic or marital partners (e.g., Fraley & Davis, 1997; Hazan & Zeifman, 1999; Simpson, Collins, Tran, & Haydon, 2007; Trinke & Bartholomew, 1997). But not everyone does this (and many who do later find themselves alone after a romantic relationship breakup, a divorce, or the loss of a partner to death). What role does attachment style play in these kinds of situations?

*Brief overview of research on "romantic" attachment*

Research on adult attachment (e.g., Bartholomew & Horowitz, 1991; Brennan, Clark, & Shaver,

1998) indicates that individual differences in attachment style form two dimensions of attachment insecurity: attachment *anxiety* (i.e., anxiety about rejection or abandonment) and *avoidance* (i.e., avoidance of intimacy or interdependence). *Securely* attached people score low on both dimensions. Individual differences in anxiety and avoidance predict differences in the ways people experience romantic and sexual relationships. Relatively secure individuals, for example, tend to have long, stable, and satisfying relationships characterized by high investment, trust, and friendship (e.g., Collins & Read, 1990; Simpson, 1990). They find it easy to provide responsive care to their relationship partners (Collins, Guichard, Ford, & Feeney, 2006) and are relatively comfortable with intimacy, including sexual intimacy (e.g., Schachner & Shaver, 2004; Tracy, Shaver, Albino, & Cooper, 2003).

Attachment anxiety is associated with worrying about one's attractiveness and lovability, an extension of anxious individuals' general concern with rejection and abandonment (Tracy et al., 2003). In a study of mate poaching (i.e., appropriating someone else's mate or having one's own partner lured away; Schmitt & Buss, 2001), anxiously attached people believed that their partners are open to poaching by someone else (Schachner & Shaver, 2002).

According to Tracy and colleagues (2003), avoidant attachment "interferes with intimate, relaxed sexuality because sex inherently calls for physical closeness and psychological intimacy, a major source of discomfort for avoidant individuals" (p. 141). Avoidant adults express dislike for much of sexuality, especially its affectionate and intimate aspects (Hazan, Zeifman, & Middleton, 1994; Schachner & Shaver, 2004), yet they also adopt more accepting attitudes toward casual sex and tend to have more "one-night stand" sexual encounters than secure or anxious people (Brennan & Shaver, 1995; Feeney, Noller, & Patty, 1993; Fraley, Davis, & Shaver, 1998).

*Adult attachment theory applied to single adults*

There are at least three ways to think about how long-term single adults might be charac-

terized in terms of attachment. Single adults might be more avoidant than partnered or married adults (i.e., they might score higher than this group on the avoidance dimension of attachment style). Avoidant individuals favor independence and self-reliance, and researchers have identified many of the cognitive strategies used to maintain a sense of separateness and autonomy (e.g., cultivating more than one sexual partner at a time, suppressing feelings of love and commitment). Alternatively, single adults might be attachment-anxious people who have been rejected by relationship partners who would not accept their anxiety, clinginess, and intrusiveness. Finally, in line with DePaulo's (2006) argument, single adults might rely on attachment figures in more or less the same way that partnered or married adults do, but their attachment figures might be people other than a marital or romantic partner (e.g., parents, close friends, siblings). In other words, long-term singles might, on average, be just as secure as long-term coupled adults.

To explore these different possibilities, we conducted a study in two parts. Coupled and uncoupled (i.e., long-term single) adults first completed a packet of questionnaires at home and then later trained research assistants interviewed them about how they dealt with attachment, sexual, and support needs and issues. The questionnaires determined each participant's attachment style, attachment figures, and the recalled quality of their relationships with their parents (which might have influenced both their attachment style and their decision to remain single). We also inquired about the quality of their lives in general—for example, their characteristic affective tone and degree of loneliness. The subsequent interview provided additional details in the participants' own words.

Based on previous research, we predicted that attachment-related issues would be experienced and handled by single adults (compared with roughly matched married adults) in one or both of the following ways: (a) Single adults might exhibit less secure patterns of attachment than partnered adults. (b) Single adults might rely on attachment figures in more or less the same way that partnered

adults do, but their attachment figures might be people other than a romantic or marital partner (e.g., parents, close friends, siblings). In addition, we explored the possibility that adults who remain single might have had more troubled childhoods or troubled relationships with one or both parents, which resulted in an insecure attachment style and a negative view of long-term romantic relationships. We also examined the affective states of the singled and coupled participants in the study.

## Method

### Description of participants

The sample consisted of 142 people, 61 men and 81 women, 73 coupled and 69 single, aged 25–55 ($M = 40$) years, located in the Sacramento area of California in the United States. Eighty-two percent described themselves as heterosexual (the others as bisexual or exclusively homosexual). Regarding ethnicity, 63% were Caucasian, 8% Hispanic, 3% Asian American, 3% African American, and the rest "other" (of mixed ethnic background or from a smaller minority ethnic group such as Native American). To locate an appropriate sample of single participants, we advertised our study in local newspapers. For the purposes of this study, we defined "single" as "not in a committed relationship for the past three or more years and not likely to become committed in the near future (within the next year or so)." The single participants nominated the coupled participants, as a way of roughly matching on demographics. We paid all participants US$50.00 for completing the study.

### Part 1—Questionnaires

For the first part of the study, individuals who responded to the solicitation ads received, via mail, an envelope containing a packet of questionnaires. The packet included the following measures in addition to several demographic questions: A adaptation of the Experiences in Close Relationships scales (ECR; Brennan et al., 1998), the WHOTO scale (Fraley & Davis, 1997; Hazan & Zeifman, 1999), the Parental Acceptance–Rejection Questionnaire

(PARQ; Rohner, 1986), the UCLA Loneliness Scale (Version 3; Russell, 1996), and the Brief Symptom Inventory (BSI; Derogatis, 1975). We discuss each measure in further detail below.

*An adaptation of the ECR.* The original ECR scales, which measured attachment-related anxiety and avoidance, contained 36 statements about feelings and experiences in romantic relationships. Participants in the present study received a revised version in which they rated statements about feelings and experiences in close relationships more generally (rather than romantic relationships specifically). They indicated their agreement or disagreement with each statement (e.g., a sample item from the anxiety subscale is "I worry about being abandoned" and a sample item from the avoidance subscale is "I feel comfortable depending on others" [reverse scored]) based on their general relationship experiences. The ECR assesses agreement with a 7-point scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). Scores of studies have used these scales, in both romantic and general forms, always with high reliability and construct validity (see Mikulincer & Shaver, 2007, chap. 4, for a recent review of measures and measurement issues). In the present study, we found alpha reliability coefficients of .91 for anxiety and .90 for avoidance.

*WHOTO scale.* The WHOTO scale identified people who served as attachment figures for a particular participant. (We defined attachment figures as people who provide a "safe haven" in times of stress and a "secure base" for exploration of challenging problems and activities; Bowlby, 1969/1982). The instructions read, "The statements below refer to the most important people in your life. Rather than using names, answer with a term that defines how each is related to you (mother, brother, romantic partner best friend)." Example statements include, "person(s) you most like to spend time with" and "person(s) you know will always be there for you, no matter what." The measure contains two statements for each of four aspects of an

attachment figure (proximity, separation anxiety, safe haven, and secure base). Numerous questionnaire studies and experiments have used this measure successfully (e.g., Mikulincer, Gillath, & Shaver, 2002; Trinke & Bartholomew, 1997; see Mikulincer & Shaver, 2007, for a review). It allows participants to name as many attachment figures as they choose, so it is not biased toward naming only one person or one kind of person, such as a romantic partner. The information obtained from the WHOTO scale allowed comparisons of number and kinds of attachment figures (e.g., boyfriend, wife, mother, brother, friend).

*PARQ.* The PARQ scales retrospectively assess participants' childhood attachments and relationships with parents. The PARQ mother and father scales contain 73 items each, describing how parents may or may not have acted toward their children. These items form five subscales: Warmth/Affection, Aggression/Hostility, Neglect/Indifference, Rejection, and Control. Participants indicated the extent to which each statement characterized their mother or father on a scale ranging from 1 (*almost always true*) to 4 (*almost never true*). Example items include "My father (mother) took an active interest in me" and "My father (mother) yelled at me when s/he was angry." In this study, alpha reliability coefficients for the scales ranged from .86 to .97 for mother and from .88 to .97 for father.

*UCLA Loneliness Scale.* The UCLA Loneliness Scale assesses participants' general loneliness using 20 items that ask how often they experienced certain feelings related to loneliness but without explicitly using the potentially stigmatizing word "loneliness." Example items include: "How often do you feel close to people?" and "How often do you feel isolated from others?" Participants answered each item on a scale ranging from 1 (*never*) to 4 (*always*). In the present study, the reliability coefficient for the 20-item scale was .94.

*BSI.* The BSI consists of 53 items measuring various negative psychological symptoms and emotional states. The items combine to form 10 scales, 2 of which we examined for the purposes of this study: the six-item depression subscale and the six-item general anxiety subscale. Participants answered each item by indicating how often a particular symptom or emotional state distressed them in the past week using a scale ranging from 0 (*not at all*) to 4 (*extremely*). Examples of items from the depression subscale include "thoughts of ending your life" and "feelings of worthlessness"; examples from the anxiety subscale include "feeling tense or keyed up" and "nervousness or shakiness inside." The reliability coefficients for these subscales reached .86 and .85, respectively.

## Part 2—Interview

We obtained additional information from each participant in an interview. The interview covered (a) some of the key issues addressed in the Adult Attachment Interview (see Hesse, 1999, for an overview), especially how a person conceptualizes and feels about his or her childhood relations with attachment figures (e.g., parents), (b) the participant's own ideas about why he or she is currently partnered or single, (c) how the participant typically handles threats and stresses (e.g., relying on a particular other person, relying on any of several supportive people, coping with the problem autonomously), (d) how the person deals with sexuality and sexual needs, and (e) what the person expects old age to be like with or without a particular committed partner. Some single people may expect old age to be pretty much like earlier phases of adulthood, or they may expect to be partnered by the time they reach old age, or they may expect to create a particular kind of support system. Partnered people, in contrast, may assume that their partner will be with them in old age or they may expect to rely on a broader support network if that person is no longer around.

Three trained interviewers (two advanced psychology students and one advanced sociology student) administered the interviews. All had previous interview experience and, in addition, had specific training with the interview schedule designed for this study. We

tape-recorded the interviews and transcribed them verbatim, as with the Adult Attachment Interview (Hesse, 1999; Main, Kaplan, & Cassidy, 1985). Two independent judges who were blind to participants' scores on the various measures coded the transcripts. We used only one of the coding scales, a single rating of quality of the interviewee's childhood relationships with parents, for the present report. The scale ranged from 1 (*very positive relationship with parents*) to 5 (*very negative relationship with parents*). The correlation between the two coders' ratings was .73, indicating adequate reliability. We averaged the two ratings for each participant and treated the mean score as an independent variable. We also took from the interview transcripts certain information about sexuality (e.g., whether or not the person masturbated or had multiple or casual sexual partners).

We further analyzed the transcribed interviews using the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001), a text-analysis program based on the assumption that using particular words, either spoken or written, reflects one's characteristic thoughts and emotions. Because the creators of the original LIWC dictionary did not design it specifically to include attachment-relevant words, we supplemented it with 19 words, 10 positive attachment-related words (affectionate, caring, cuddle, empathy, reliable, romantic, supportive, trusting, considerate, and optimistic), and 9 negative attachment-related words (distrust, frustrated, insecure, insensitive, unemotional, separation, lonely, alone,

and isolated). We derived the words largely from previous attachment studies (e.g., Mikulincer et al., 2002). The LIWC program counts every occurrence of a word in its dictionary and expresses this number as the ratio of that word to all words produced. We assigned each word to a particular category (e.g., positive or negative attachment-related words) and the use of that category as a whole can be determined.

## Results

Table 1 presents descriptive statistics for the main variables in the study, and Table 2 displays the zero-order correlations among the attachment scales (anxiety and avoidance) and negative affect variables (loneliness, depression, and anxiety), grouped by relationship status and gender. As Table 2 shows, we found many significant correlations (with the alpha level for significance being set at $p < .05$).

As also shown in Table 1, we compared the single and coupled participants in a series of independent sample $t$ tests. Single and coupled participants differed most notably in their levels of depression and general anxiety, with single people having significantly higher levels of both forms of negative affect. Despite the attempt to match demographic characteristics, at least roughly, between single and coupled participants, those who were single were significantly older than those who were coupled. A chi-square analysis revealed no significant difference in sexual orientation (heterosexual,

**Table 1.** *Means and standard deviations for attachment variables, loneliness, general anxiety, and depression, grouped by relationship status and compared via* t *test*

| Variable | M | | SD | | |
|---|---|---|---|---|---|
| | Single | Coupled | Single | Coupled | $t(140)$ |
| Age | 42.64 | 38.42 | 9.99 | 9.37 | $-2.57$** |
| Attachment anxiety | 3.23 | 2.93 | 1.06 | 1.23 | $-1.54$ |
| Attachment avoidance | 3.36 | 3.10 | 1.07 | 1.18 | $-1.39$ |
| Loneliness | 2.24 | 2.02 | 0.52 | 0.56 | $-2.39$ |
| General anxiety | 0.76 | 0.48 | 0.94 | 0.48 | $-2.29$** |
| Depression | 0.85 | 0.54 | 0.87 | 0.64 | $-2.44$** |

**$p < .01$.

**Table 2.** *Pearson correlations between attachment variables, loneliness, general anxiety, and depression, according to gender and relationship status*

| Variables | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Single (n = 69) | | | | | |
| Attachment anxiety | | .268 | .537** | .225 | .329 |
| Attachment avoidance | .182 | | .533** | .556** | .524** |
| Loneliness | .335 | .415* | | .271 | .639** |
| General anxiety | .409* | .305 | .393* | | .685** |
| Depression | .503** | .214 | .556** | .747** | |
| Coupled (n = 73) | | | | | |
| Attachment anxiety | | .354* | .574** | .391* | .625** |
| Attachment avoidance | .001 | | .700** | .397* | .561** |
| Loneliness | .331 | .518** | | .329* | .722** |
| General anxiety | .467** | .038 | .302 | | .423** |
| Depression | .350* | .002 | .498** | .645** | |

*Note.* Correlation coefficients for women are above the diagonal and for men, below the diagonal.
*$p < .05$. **$p < .01$.

homosexual, or bisexual) between single and coupled participants, even when we collapsed homosexual and bisexual participants into a single category ($n$s = 8 coupled and 12 single) and compared with heterosexual participants ($n$s = 61 coupled and 54 single).

### Relationship status, attachment, and negative affect

We further analyzed these data using a binary logistic regression analysis predicting relationship status (coupled vs. single, coded as *coupled* = 0 and *single* = 1) from gender and the two attachment dimensions as well as the interactions between gender and attachment. We treated these factors conceptually as independent variables—that is, as predictors, even though we cannot be certain that attachment style actually developed before a person's relationship status.

The main effects did not reach significance, but we found a two-way interaction between anxiety and gender, Wald $\chi^2(1) = 5.34$, odds ratio = 0.38, $p = .02$, such that only among men was there a significant association between being single and reporting higher attachment anxiety. The mean attachment anxiety scores for single and coupled women were almost identical: 3.17 and 3.14, but the means for single and coupled men differed: 3.29 and 2.62,

$t(62) = 2.92, p = .005$. This gender difference in anxiety among single people may be due to traditional gender roles, which promote the expectation that men will initiate relationships and thereby risk rejection.

In an additional set of regression analyses for continuous dependent variables, we predicted negative emotions (loneliness, depression, and general anxiety) from gender, relationship status, and the attachment dimensions—anxiety and avoidance.[1] (Recall that Table 2 shows the zero-order correlations.) For loneliness, the overall multiple $R$ (.70) was highly significant ($p < .001$), and we found significant main effects of gender (with men being lonelier; $\beta$, the standardized regression coefficient for gender, was $-.17, p < .01$); anxiety (with more anxiously attached people being lonelier, $\beta = .35, p < .001$); and avoidance (with more avoidantly attached people being lonelier, $\beta = .47, p < .001$); but not for relationship status ($\beta = .10, ns$). For depression, the overall $R$ (.55) was highly significant ($p < .001$), and we found significant

---

1. In these analyses, we considered gender, relationship status, and the attachment scores to be independent variables because the negative affect measures refer to current states, whereas the other variables are, or are likely to be (in the case of the attachment dimensions), longer lasting.

main effects of anxiety (with more anxiously attached people being more depressed, β = .40, $p < .001$) and avoidance (with more avoidantly attached people being more depressed, β = .26, $p = .001$). For general anxiety, the overall $R$ (.46) was highly significant ($p < .001$), and we found significant main effects of anxiety (with more anxiously attached people scoring higher on general anxiety, β = .25, $p = .002$) and avoidance (with more avoidantly attached people scoring higher on general anxiety, β = .29, $p < .001$). Overall, then, relationship status, while having a small association with negative emotional states, was not nearly as important as attachment insecurity in predicting negative affect.

### Relationship status and sexual needs

One of the interview questions asked participants about various ways in which they dealt with sexual needs and desires. In this sample, none of the coupled participants reported having multiple or casual sex partners, while 24 of the single participants did, a highly significant difference, $\chi^2(1) = 30.22$, $p < .001$. Single participants high on avoidant attachment were especially likely to engage in sex with casual partners, $F(1, 107) = 5.37$, $p = .02$, a finding consistent with the previous literature (e.g., Brennan & Shaver, 1995; Feeney et al., 1993; Gillath & Schachner, 2006). We also found a significant difference in reported masturbation, with single people ($n = 42$) being more likely to masturbate than coupled people ($n = 26$), $\chi^2(1) = 8.0$, $p = .005$. Regarding satisfaction with one's sex life, coupled participants expressed significantly more satisfaction than single participants, $F(1, 107) = 18.62$, $p < .001$. Overall, then, single people were more likely than coupled ones to engage in casual sex, to masturbate, and to be less satisfied with their sex lives.

### Quality of childhood relationships with parents

Another interview question asked about childhood relationships with parents, an issue also addressed through the PARQ mother and father subscales. Table 3 shows, separately for single and coupled individuals, correlations between the coders' ratings of childhood relationship quality and the PARQ subscales. Coders' assessment of negativity in relationships with parents (indicated by higher scores on the rating scale) was significantly correlated with the PARQ subscales measuring parental hostility, neglect, and rejection, regardless of parent (mother or father) and participant's relationship status. In contrast, the ratings were negatively correlated with the PARQ subscale measuring warmth, regardless of parent (mother or father) or participant's relationship status. The only PARQ subscale that was not significantly correlated with coders' overall ratings of child–parent relationships was the scale measuring parental control, which the coders did not specifically consider. Overall, we found a similar pattern of correlations for both single and coupled participants.

In a binary logistic regression analysis predicting relationship status from the coders' ratings of childhood relationship quality and the PARQ subscales (leaving out the control subscales), the overall analysis was significant, $\chi^2(9) = 17.5$, $p = .04$. The significant independent variables included mother's neglect/indifference, Wald $\chi^2(1) = 6.94$, odds ratio = 1.25, $p = .008$, and mother's warmth/affection, or lack thereof, Wald $\chi^2(1) = 3.92$, odds ratio = 1.09, $p = .05$. Father's neglect/indifference had a marginally significant effect, Wald $\chi^2(1) = 2.78$, odds ratio = 0.91, $p = .10$. Overall, the single participants seem to have had worse relationships with parents during childhood or at least seem to look back on them in that way, with the major issue being neglect, indifference, and lack of parental warmth and affection.

The correlations in Table 3 show that some of the parent variables were also associated with the attachment dimensions, as one would expect based on attachment theory, but various exploratory analyses did not suggest that the links between childhood relationships with parents and current relationship status (single vs. coupled) could be explained by the attachment variables as mediators. Thus, we found indications that childhood experiences with parents helped to explain both single status and attachment insecurities in adulthood, but

**Table 3.** *Pearson correlations between coder ratings of parental quality, the PARQ subscales, and the attachment dimensions, according to relationship status*

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coder ratings | | −.52** | .29* | .54** | .36** | −.03 | −.42** | .43** | .63** | .50** | .06 | −.10 | −.04 |
| Father warmth | −.65** | | −.63** | −.89** | −.67** | −.28* | .52** | −.39** | −.50** | −.35** | −.13 | .08 | .04 |
| Father hostility | .46** | −.52** | | .61** | .89** | .56** | −.11 | .23 | .21 | .21 | .02 | −.35** | −.19 |
| Father neglect | .71** | −.87** | .64** | | .69** | .22 | −.42** | .40** | .53** | .36** | .10 | −.15 | −.14 |
| Father rejection | .61** | −.64** | .87** | .76** | | .53** | −.15 | .29* | .24 | .32* | .08 | −.38** | −.20 |
| Father control | .13 | −.17 | .56** | .19 | .45** | | .14 | −.01 | −.06 | .07 | .20 | −.43** | −.12 |
| Mother warmth | −.70** | .52** | −.36** | −.58** | −.44** | −.06 | | −.63** | −.77** | −.66** | −.37** | −.02 | −.04 |
| Mother hostility | .45** | −.24* | .36** | .40** | .40** | .13 | −.55** | | .80** | .93** | .62** | −.13 | −.16 |
| Mother neglect | .56** | −.41** | .43** | .55** | .42** | .06 | −.83** | .72** | | .77** | .32** | −.11 | −.07 |
| Mother rejection | .53** | −.27* | .37** | .43** | .48** | .09 | −.63** | .91** | .75** | | .61** | −.19 | −.16 |
| Mother control | .03 | .23 | −.01 | −.15 | −.04 | .24* | −.05 | .40** | .08 | .28* | | −.13 | −.16 |
| Attachment anxiety | −.21 | .16 | −.33** | −.21 | −.44** | −.18 | .14 | −.18 | −.19 | −.26* | −.11 | | .24* |
| Attachment avoidance | −.18 | .26* | −.16 | −.26* | −.21 | .07 | .26* | −.17 | −.17 | −.21 | .09 | .19 | |

*Note.* Correlation coefficients for single participants are above the diagonal and for coupled participants, below the diagonal. PARQ = Parental Acceptance–Rejection Questionnaire.
*p < .05. **p < .01.

at least with the current sample size, it was not possible to view attachment insecurity as a mediator between childhood experiences and adult relationship status.

## How participants' attachment needs were typically met (WHOTO data)

As explained earlier, we used the WHOTO scale (as adapted by Fraley & Davis, 1997) to identify people in the participants' lives who served various attachment-figure functions: allowing close proximity and providing forms of support a person would miss if separation or loss occurred, providing a safe haven, and serving as a secure base. The scale contains two questions for each of these four aspects of an attachment figure (proximity, separation anxiety, safe haven, and secure base). For each of the eight questions, participants could name as many or as few attachment figures as they chose.

We coded open-ended responses to the WHOTO scale and reduced them to the following categories: mother, father, romantic partners, best friends, other friends, brothers, sisters, other relatives (i.e., aunt, uncle, niece, nephew, grandparents), and one's children. We then compared the single and coupled participants in chi-square analyses with respect to the number of times they mentioned someone in one of these categories when answering each of the four kinds of questions. Although we found a trend in the direction of coupled people having more attachment figures than single people ($Ms = 32.33$ and $29.19$, respectively), the difference was not significant.

For the proximity function (i.e., being a person to whom a participant liked to maintain proximity), of course, coupled participants ($n = 68$) more often mentioned romantic or marital partners than did single participants ($n = 15$), $\chi^2(1) = 74.49$, $p < .001$. Coupled participants also more often mentioned maintaining proximity to their children ($ns = 39$ and 25 for coupled and single people, respectively), $\chi^2(1) = 4.24$, $p < .05$, which might have occurred because more coupled than single participants had children (61% of coupled participants reported having at least one child compared to 42% of single participants).

Indeed, a chi-square analysis examining only participants who had at least one child revealed no significant difference between single and coupled people in the use of children as attachment figures, $\chi^2(1) = .18$, $p > .05$. Single participants, on the other hand, more often mentioned maintaining proximity to best friends ($n = 31$) than did coupled participants ($n = 20$), $\chi^2(1) = 4.74$, $p < .05$.

For the safe haven function of attachment figures (i.e., having a person on whom one can depend in times of need), again as expected, coupled participants ($n = 64$) more often mentioned romantic or marital partners than did single participants ($n = 12$), $\chi^2(1) = 70.43$, $p < .001$. As with the proximity function, coupled participants more often than single participants mentioned using their children as a safe haven ($ns = 26$ and 12 for coupled and single people, respectively), $\chi^2(1) = 6.01$, $p = .01$. A chi-square analysis including only those participants with at least one child again revealed no significant difference between single and coupled people in using one's children as a safe haven, $\chi^2(1) = 2.20$. The only significant finding for the separation anxiety reaction to being separated from an attachment figure was that, once again, coupled participants ($n = 64$) more often mentioned romantic or marital partners than did single participants ($n = 12$), $\chi^2(1) = 62.27$, $p < .001$.

For the fourth function, secure base (i.e., having a person with whom one feels comfortable, encouraged, and secure), coupled participants ($n = 64$) were again more likely than single participants ($n = 5$) to mention romantic or marital partners, $\chi^2(1) = 91.85$, $p < .001$. A marginally significant result indicated that single participants ($n = 27$) were more likely than coupled participants ($n = 18$) to report using a sister as a secure base, $\chi(1) = 3.43$, $p < .06$. A chi-square analysis including only those participants with at least one sister (50 of the coupled participants and 41 of the single participants) showed that, even excluding people who do not have sisters, single people are more likely to use a sister as a secure base, $\chi(1) = 5.48$, $p = .02$.

Overall, when we found significant differences between single and coupled individuals on the WHOTO subscales in all but two cases,

the coupled people mentioned using a particular person for attachment-related functions more than the single people did. In the two exceptional cases, single people used a best friend for proximity maintenance and a sister as a secure base more than coupled people did. (Not surprisingly, coupled people tended to treat their marital partner as a secure base.) This does not mean that single people had fewer people available to serve attachment functions. When it came to parents, other friends, and siblings (with the exception of the cases noted above), both single and coupled study participants relied on people in these categories as attachment figures at about the same rates.

### LIWC analyses of interview transcripts

As explained in the Method section, we examined the use of positive and negative attachment-related words during the interviews we conducted. In addition, we read through the interview transcripts to determine the context (positive or negative) of each word because participants could use a word such as "care" or "caring" to indicate either the presence or the absence of care. We analyzed the attachment-word-use data as a function of both relationship status and attachment dimensions.

We performed a series of $t$ tests to determine whether relationship status (coupled vs. single) was associated with using attachment-related words. Coupled participants were significantly more likely than single participants to use the word "supporting" ($t = 2.63$, $df = 105$, $p = .01$; $M$s = 15.44 coupled, 8.64 single), while single participants more often used the words "lonely" ($t = -2.79$, $df = 105$, $p = .006$; $M$s = 0.17 coupled, 0.77 single), "rejected" ($t = -2.12$, $df = 105$, $p = .037$; $M$s = 0.07 coupled, 0.42 single), "alone" ($t = -1.94$, $df = 105$, $p = .055$; $M$s = 2.72 coupled, 4.60 single), and "isolated" ($t = -2.38$, $df = 105$, $p = .019$, $M$s = 0.07 coupled, 0.67 single).

We also discovered associations between the attachment dimensions and word use. Avoidant attachment was positively correlated with using the word "distrust" ($r = .18$, $p < .05$). Further examination of the transcripts revealed that participants used this word most often in a negative context, as illustrated in this quo-

tation from a relatively avoidant participant's transcript:

> And I've dated a little bit since, but I've just had a hard time connecting with different people…. I've tended to stay very busy and I think it relates back to that whole [unclear comments], distrust. Now I have distrust.

Avoidance was negatively correlated with using the word "supporting" ($r = -.20$, $p < .05$), indicating that people scoring high on avoidance less often used that word (or related words, such as "supportive") in their interviews.

Attachment anxiety was correlated with using the words "cuddle" ($r = .24$, $p < .01$), "reliable" ($r = .20$, $p < .05$), "distrust" ($r = .20$, $p < .05$), and "insecure" ($r = .18$, $p < .05$). Closer examination of the transcripts revealed that with the exception of "reliable," participants tended to mention these words in negative contexts. The following quotation from an anxious participant's transcript illustrates the use of the word "insecure" in a negative context:

> First time in my life [I fell in love] and because I had always felt ugly and insecure, I was embarrassed, ashamed of myself…. So I fell in love and he told me he didn't… that he was a lawyer and he didn't drink, and didn't smoke pot, and didn't do drugs, because I don't and I said, "Great, great." Well it ends up that he was banned from practicing law in California. He drank every day, smoked pot, and did drugs.

Like avoidance, attachment anxiety was negatively correlated with using the word "supporting" and related words such as "supportive" ($r = -.26$, $p < .01$), indicating that anxious participants less often used such words in their interviews.

In summary, both single status and insecure attachment were associated with certain patterns of word use. These analyses supported the analyses of negative affective states, indicating that both single status and insecurity are associated with states such as loneliness. The

LIWC analyses also revealed the importance of trust.

## Discussion

We conducted this study to examine ways in which single adults deal with attachment-related issues in the absence of a long-term romantic or marital partner. We were especially interested in the attachment patterns of long-term single adults, and in the kinds of people they use as attachment figures or sexual partners in lieu of long-term exclusive relationship partners. Additionally, we examined the possibility that adults who remain single had more troubled childhood relationships with parents.

### Correlates and determinants of long-term singlehood

Based on the extensive attachment theory literature (see Mikulincer & Shaver, 2007, for a review), we suspected that insecure attachment patterns (particularly avoidant attachment) might be overrepresented among long-term single adults. In spite of our predictions, with one exception, we found no significant difference in the prevalence of insecure attachment between single and coupled participants. We did find an association between attachment anxiety and singlehood, but only among men, which may be due to traditional gender roles that promote expectations about initiating relationships and risking rejection.

Although single status showed little relation to attachment insecurity, long-term singlehood did seem to be associated with depression and general anxiety, suggesting—contrary to the tone of DePaulo's (2006) very positive picture of singlehood—that a single life may present considerable emotional challenges. Given that negative affective states such as loneliness are associated with health problems (e.g., Cacioppo, Hawkley, & Berntson, 2003), this may not be a trivial matter for single adults. Nonetheless, our findings also indicate that attachment insecurity is associated with negative affect (particularly loneliness). Our analysis of word use in the interviews (via LIWC) supported these results, indicating that both attachment insecurity and single sta-

tus were associated with negative affective states such as loneliness.

With respect to meeting sexual needs, single participants were more likely than coupled ones to engage in casual sex and to masturbate. They also tended to report lower levels of sexual satisfaction overall, indicating that the absence of a regular intimate partner results in some dissatisfaction in the sexual realm, regardless of alternatives such as casual partners and masturbation. This finding seems contrary to DePaulo's (2006) suggestion that a single life is just as fulfilling as a coupled life.

At the start of our study, we proposed that long-term singlehood, like insecure attachment, might be associated with troubled childhood relationships with parents. Our results supported this prediction in that single participants reported worse relationships with parents during childhood or at least seemed to look back on them as troubled, with neglect and indifference on the part of both mother and father being particularly prominent. Overall, we found indications that childhood experiences with parents help explain both single status and attachment insecurities in adulthood, although as described above, we did not find a strong association between singlehood and attachment.

One aim of our study was to examine long-term single peoples' use of attachment figures; considering that coupled people generally rely on their relationship partners to meet their various attachment needs (e.g., Fraley & Davis, 1997; Hazan & Zeifman, 1999; Simpson et. al., 2007; Trinke & Bartholomew, 1997), we wondered how people without regular romantic partners would meet these needs. In our sample, single participants reported more reliance on sisters and friends than did coupled participants (who tended to list their long-term relationship partners and their children as important attachment figures), but single participants did not report less use of attachment figures overall. In other words, single people configure their attachment hierarchies (Bowlby, 1969/1982) differently than coupled people, but they still have figures available to provide a safe haven and secure base, which supports one of DePaulo's (2006) contentions. We must note, however, that the WHOTO measure does not assess quality of attachment relationships or the

extent to which particular attachment figures actually satisfy attachment needs, so future studies need to address these issues.

Overall, the results paint an initial empirical picture of long-term singlehood as being fairly complex. On the one hand, long-term singlehood does not seem to be associated significantly with insecure attachment (at least when studied with our sample size), and our WHOTO analyses indicate that single people have just as many attachment figures available as do coupled people. Nonetheless, the long-term singles in our sample reported higher levels of depression, general anxiety, and sexual dissatisfaction compared to the coupled participants. While long-term singlehood may not be as damning as contemporary sociologists often claim (e.g., Waite & Gallagher, 2000), it is certainly not as straightforwardly fulfilling as DePaulo (2006) suggests. She claimed that any dissatisfaction single adults experienced was more the result of prejudice and discrimination in American society, but that seems unlikely to be the only, or even the most important, determinant of dissatisfaction.

Future studies should more directly examine the determinants of long-term singlehood because adult attachment measures did not indicate that a particular form of insecurity is largely responsible (although this might be due to the reluctance of extremely avoidant people to get involved in our study, which required self-selection rather than random sampling among all adults). The hints in the data that single people experienced more troubled childhood relationships with parents compared to coupled people suggest that some aspect of relationships with parents might be partially responsible for long-term singlehood later in life. If future research reveals additional details about the origins, problems, and prospects of single life, these insights should prove useful for clinical work with single adults and for those adults' own self-understanding.

*Limitations and future directions*

As with any study, particularly one as exploratory as ours, we need to discuss some of the limitations of our methods. Due to the lack of availability of an appropriate sampling frame, we recruited participants from the community via newspaper ads and e-mail notifications and they do not represent the general population. Similarly, some kinds of single people—for example, particularly avoidant ones—may have failed to respond to our advertisements because they did not wish to have their social lives studied. On a related note, despite our efforts to match the coupled participants with the single ones on characteristics such as age and education—using snowball sampling that began with the single participants—the latter group ended up being significantly older than the coupled sample. We do not know the reason for this, but future research should aim at larger and more perfectly matched samples.

Second, we based most of our analyses, with the exception of the LIWC word counts, on self-report measures rather than behavioral observations. All self-report data are subject to response bias, particularly self-report data on sensitive topics such as those examined in the present study (e.g., past relationships with parents and current sexual behavior). Participants may not have been entirely truthful, particularly during the face-to-face interviews. Countering this concern, however, is the fact that people obviously revealed both very personal and in some cases very painful experiences.

Third, most of our analyses were correlational in nature, and we collected all the data within a short time span. It would be worthwhile to study the same issues longitudinally to see whether there are causal connections between past relationships with parents, attachment style, loneliness, depression, and current relationship status. Similarly, we must keep in mind that our sample consisted solely of participants living in the United States; our results may not generalize to other cultural contexts. For example, long-term singlehood may be more socially acceptable in collectivistic cultures, which emphasize family and social relations over finding one long-term partner. Further research should include participants from non-Western cultures to examine the possibility that the extended social networks characteristic of these cultures help buffer the detrimental effects of long-term singlehood found in our study.

We intended our study mainly to open up a neglected domain for further study. We hope that our initial findings motivate other researchers to dig deeper into the issue of long-term singlehood.

## References

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, *61*, 226–244.

Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment* (2nd ed.). New York: Basic Books. (Original work published 1969).

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford Press.

Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin*, *21*, 267–283.

Cacioppo, J. T., Hawkley, L. C., & Berntson, G. G. (2003). The anatomy of loneliness. *Current Directions in Psychological Science*, *12*, 71–74.

Cassidy, J., & Shaver, P. R. (Eds.). (1999). *Handbook of attachment: Theory, research, and clinical applications*. New York: Guilford Press.

Collins, N. L., Guichard, A. C., Ford, M. B., & Feeney, B. C. (2006). Responding to need in intimate relationships: Normative processes and individual differences. In M. Mikulincer & G. S. Goodman (Eds.), *Dynamics of romantic love: Attachment, caregiving, and sex* (pp. 149–189). New York: Guilford Press.

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology*, *58*, 644–663.

DePaulo, B. (2006). *Singled out: How singles are stereotyped, stigmatized, and ignored, and still live happily ever after*. New York: St. Martin's Press.

Derogatis, L. R. (1975). *Brief Symptom Inventory*. Eden Prairie, MN: National Computer Systems.

Feeney, J. A., Noller, P., & Patty, J. (1993). Adolescents' interactions with the opposite sex: Influence of attachment style and gender. *Journal of Adolescence*, *16*, 169–186.

Fraley, R. C., & Davis, K. E. (1997). Attachment formation and transfer in young adults' close friendships and romantic relationships. *Personal Relationships*, *4*, 131–144.

Fraley, R. C., Davis, K. E., & Shaver, P. R. (1998). Dismissing-avoidance and the defensive organization of emotion, cognition, and behavior. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 249–279). New York: Guilford Press.

Gillath, O., & Schachner, D. A. (2006). Sex and love: Goals, motives, and strategies: How do sexuality and attachment interact? In M. Mikulincer & G. S. Goodman (Eds.), *Dynamics of romantic love: Attachment, caregiving, and sex* (pp. 337–355). New York: Guilford Press.

Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*, 511–524.

Hazan, C., & Zeifman, D. (1999). Pair bonds as attachments: Evaluating the evidence. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 336–354). New York: Guilford Press.

Hazan, C., Zeifman, D., & Middleton, K. (1994, July). *Adult romantic attachment, affection, and sex*. Paper presented at the 7th International Conference on Personal Relationships, Groninger, the Netherlands.

Hesse, E. (1999). The adult attachment interview: Historical and current perspectives. In J. Cassidy & P.R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 395–433). New York: Guilford Press.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, *50*, 66–104.

Mikulincer, M., Gillath, O., & Shaver, P. R. (2002). Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *Journal of Personality and Social Psychology*, *83*, 881–895.

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford Press.

Pennebaker, J. W., Francis, M. E., & Booth, R. J. (2001). *Linguistic Inquiry and Word Count: LIWC* (2nd ed.). Mahwah, NJ: Erlbaum.

Rohner, R. P. (1986). *New perspectives on family*. Thousand Oaks, CA: Sage.

Russell, D. (1996). The UCLA Loneliness Scale (version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, *66*, 20–40.

Schachner, D. A., & Shaver, P. R. (2002). Attachment style and human mate poaching. *New Review of Social Psychology*, *1*, 122–129.

Schachner, D. A., & Shaver, P. R. (2004). Attachment dimensions and sexual motives. *Personal Relationships*, *11*, 179–195.

Schmitt, D. P., & Buss, D. M. (2001). Human mate poaching: Tactics and temptations for infiltrating existing mateships. *Journal of Personality and Social Psychology*, *80*, 894–917.

Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, *59*, 971–980.

Simpson, J. A., Collins, W. A., Tran, S., & Haydon, K. C. (2007). Attachment and the experience and expression of emotions in romantic relationships: A developmental perspective. *Journal of Social and Personality Psychology*, *92*, 355–367.

Tracy, J. L., Shaver, P. R., Albino, A. W., & Cooper, M. L. (2003). Attachment styles and adolescent sexuality. In P. Florsheim (Ed.), *Adolescent romance and sexual behavior: Theory, research, and practical implications* (pp. 137–159). Mahwah, NJ: Erlbaum.

Trinke, S. J., & Bartholomew, K. (1997). Hierarchies of attachment relationships in young adulthood. *Journal of Social and Personal Relationships*, *14*, 603–625.

Waite, L. J., & Gallagher, M. (2000). *The case for marriage: Why married people are happier, healthier, and better off financially*. New York: Doubleday.