# Secure Base Behavior in Adulthood: Measurement, Links to Adult Attachment Representations, and Relations to Couples' Communication Skills and Self-reports

**Judith A. Crowell**
**Dominique Treboux**
**Yuan Gao**

*SUNY Stony Brook*

**Celene Fyffe**

*United States Air Force*

**Helen Pan**

*Grand Valley State University*

**Everett Waters**

*SUNY  Stony Brook*

## Abstract

*A central hypothesis of attachment theory is that infant-parent and adult-adult close relationships are similar in kind, that is, both are secure base relationships. A focus on the secure base phenomenon creates a framework from which to explore the function of the attachment system in adulthood. One hundred fifty-seven engaged couples were videotaped in an interaction task discussing a problem in the relationship, and were assessed using the Secure Base Scoring System (SBSS), a system for scoring adult behavior based on Ainsworth's analyses of infant secure base use and parental secure base support. Study I showed adult secure base behavior was significantly related to representations of attachment assessed with the Adult Attachment Interview (Main & Goldwyn, 1994), even accounting for the effects of partner behavior. In Study II, the interactions were independently scored with the Rapid Marital Interaction Coding System (RMICS) (Heyman & Vivian, 1993), a communication based scoring system. The SBSS was related to marital variables, and predicted relationship variables beyond the RMICS, especially for women. Results indicate that Ainsworth's description of the secure base phenomenon provides a cogent perspective on the secure base behavior of adults. The method may be useful in exploring hypotheses of attachment theory, and in supplementing intervention strategies with distressed couples.*

The secure base concept is central to Bowlby's interpretation of the notion that infant-mother and adult-adult close relationships are similar in kind (Freud, 1949/1953). In Bowlby's view, both infant-adult and adult-adult relationships are social systems in which confidence in a partner's availability and responsiveness organizes exploratory and contact seeking behavior, as well as a wide range of affective and cognitive activities, across time and context. Attachment theory is not a theory of relationships in general. Nor does it cover every facet of *Attachment representations*. Individual differences in early secure base behavior reflect an infant or any particular relationship. It highlights and explains the secure base facet of the closest relationships across the life span.

Infants' secure base use and parents' secure base support are readily observable as the infant and young child's need for supervision, protection, and support are ever present (Ainsworth & Bell, 1969; Ainsworth, Blehar, Waters, & Wall, 1978; Pederson & Moran, 1995a, 1995b; Waters & Deane, 1985; Waters & Gao, 1998). Traditional approaches to assessment of attachment in childhood depend heavily on observations of secure base behavior to understand children's attachment-related expectations and beliefs. With the

child's expectations of their own behavior and the tral to secure base relationships is played out cognitively and over wider expanses of time and location, and mental representations of secure base experience have become important targets of assessment. parent's likely behavior in various situations (Ainsworth et al. 1978; Bretherton, 1985). With repeated experiences with the caregiver, secure base behaviors and expectations of the young child become automatic, not requiring active or conscious reappraisal for each relevant occasion.

The child's expectations of self and other evolve into a working model or representation of the functioning and significance of close relationships. Such models organize a person's beliefs and expectations about how attachment relationships operate and what one gains from them, and guide action in attachment-related situations (Bowlby, 1969/1982; Bretherton, 1985; Main, Kaplan, & Cassidy, 1985). Although attachment representations are theoretically open to revision as a function of significant attachment-related experiences, they operate outside active awareness and in the context of caregiving interactions that are often stable and mutually reinforcing (Bowlby, 1969/1982; Sameroff & Chandler, 1975).

The working model concept plays an important role in views of attachment as a life span phenomenon, providing an understanding of developmental change in the expression of attachment and its continuing influence on secure base behavior (Ainsworth, 1989; Bretherton, 1985; Waters, Hamilton, & Weinfield, 2000; Waters, Kondo-Ikemura, Posada, & Richters, 1991; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000).

Recent work in adult attachment has focused on mental representations and on interview and self report methods rather than on secure base behavior per se (see Crowell, Fraley, & Shaver, 1999). This emphasis reflects the importance of attachment representations as organizers of adult's secure base use and support. Nonetheless, actual secure base use and support remain central to research in the Bowlby-Ainsworth tradition. Indeed, observational studies of secure base behavior in adult relationships are necessary to evaluate Bowlby's view of links to infant-caregiver relationships; that is, the idea that secure base experience in childhood leads to the development of representations that in turn guide secure base behavior later in life. Assessment

of secure base behavior also provides a means of evaluating the relevance of interview and self-report measures to the attachment construct. Finally, observational assessments of adult secure base behavior between partners can help clarify where attachment theory parallels other perspectives on close relationships and marriage, and where it offers new insights.

*Development of the measure*. Relatively few studies of attachment have utilized observations of adult couples' interactions (e.g., Cohn, Silver, Cowan, Cowan, & Pearson, 1992; Collins & Feeney, 2000; Kobak, 1991; Paley, Cox, & Burchinal, 1999; Riggs & Wampler, 1999; Simpson, Rholes, & Nelligan, 1992), and no approach has been widely adopted. Although the procedures capture behaviors considered important in attachment research (e.g., rejection vs. acceptance; sensitivity, and warmth), in general, they broadly assess emotion and communication skills, and/or have utilized small samples, couples in treatment, or dating college students. There has been little attempt to evaluate secure base behavior of adult partners in ways that articulate closely with the conceptual and methodological framework of infant attachment assessments. As a result, it has been difficult to integrate theory and data from infant and adult research into a truly seamless life span perspective.

Compared to infants, adult secure base behavior is relatively intermittent, can be subtle, involves many contexts, and is often verbal. These aspects make naturalistic observations difficult, and hence we adopted a standardized problem-solving interaction as a source of secure base behavior. Problem-solving interactions are well-established assessment techniques that capture critical behaviors common to engaged and married couples, and do so in a brief time period (Heyman et al., 2001). It was expected that the problem-solving situation would be sufficiently taxing to activate the attachment system, and therefore provide an opportunity to observe secure base behavior. Again in contrast to infant behavior, in which the infant uses but does not provide secure base support, adult secure base behavior is reciprocal (Ainsworth, 1985, 1989, 1991; Crowell & Treboux, 1995; Weiss, 1982).

The standardized task is one in which both partners raise concerns, and thus both partners are in the position of responding to the other. In addition, and very importantly, the task allows for ready

comparison with other methods of assessing couples' interactions (see Study 2).

We developed a measure of secure base behavior in adult partnerships that directly parallels the secure base behaviors of infants and parents identified by Ainsworth and colleagues (Ainsworth & Bell, 1969; Ainsworth et al., 1978). Drawing upon guidelines for assessing competence across ages (Waters & Sroufe, 1983), the system captures global aspects of secure base use and support and emphasizes the meaning of behavior, rather than focusing predominantly on content and specific behaviors commonly assessed in marital interaction research (Gottman, 1979; Heyman, Vivian, Weiss, Hubbard, & Ayerle, 1993; Weiss & Heyman, 1990). The scoring examines how well affect, cognition, and behavior are coordinated.

In the two studies presented below, we examined the possibility and value of assessing secure base behavior from adult partners' behaviors and conversation. In the first study, we describe the secure base scoring system, and how secure base use and support are related within individuals and within couples. We examine the construct validity of the secure base scoring with respect to adult attachment representations. In the second study, we use the secure base scoring system to clarify links between the secure base construct and key components of close adult relationships such as communication, conflict tactics, and feelings about the relationship. From the point of view of attachment theory, secure base behavior is a critical facet of close relationships that is related to but not wholly redundant with other relationship characteristics.

## Study I
### Introduction
Study I describes the scoring system, and the relations of secure base behaviors between partners, within individuals, and by gender. The relation between secure base behavior and an established measure of adult attachment representations is also examined. This association is important both theoretically and methodologically.

We used the Adult Attachment Interview (AAI) (George, Kaplan, & Main, 1985; Main & Goldwyn, 1994) as the assessment of adult attachment representations because of its clear developmental links to attachment behavior, its stability, and its discriminant validity (Crowell et al., 1996; Crowell,

Treboux, & Waters, in press; Hesse, 1999; Main et al., 1985; Sagi et al., 1994; van IJzendoorn, 1995; van IJzendoorn & Bakermans-Kranenburg, 1996; Waters et al., 2000). A solid link between men and women's AAI security and their secure base behavior with a partner would help establish the validity of the new measure, and inform us as to whether the adult relationship is qualitatively similar to the generalized representation of attachment that has its origins in childhood. In its turn, the link would add to the validity and understanding of the AAI, including possible differences between the Dismissing and Preoccupied classifications.

Another theoretical issue addressed in this study, is the question of a single organizing attachment system versus dual systems of caregiving and attachment. Several theorists (Aber, Belsky, Slade, & Crnic, 2000; Bowlby, 1969/1982; George & Solomon, 1999) have suggested the possibility of a separate system of caregiving related to, but not identical with, the attachment system, instead of a single system of attachment that organizes both secure base use and support across the life span. In infancy, the attachment system is uni-directional; that is, the infant uses the secure base support of the attachment figure and the attachment figure provides secure base support. Adult partnerships offer an opportunity to examine the relation between an individual's ability to use support and to provide support, because adult attachment relationships are reciprocal in nature (Ainsworth, 1985, 1991; Crowell & Treboux, 1995).

Working within the secure base framework, we developed the following hypotheses. First, we expected men and women to be similar in their secure base behavior, as the theory does not suggest gender differences within the attachment system. Second, we hypothesized that secure base use and support within individuals emerge from a single organizing attachment system, and hence would be highly correlated. Third, we anticipated that individuals classified as Secure with the AAI would be more effective in their secure base behavior with the partner than those classified as Insecure. We anticipated few, if any, differences among the Insecure classifications as they represent differences in strategy, and not differences in degree of security or effectiveness (Main, 1990). Fourth, we examined the relation of attachment security assessed with the AAI to secure base behaviors controlling for other elements of the relationship that may explain observed behavior,

such as the complementary behavior of the partner, recent history of discord in the relationship, and intelligence. Despite these potentially powerful influences on interactional behavior, we anticipated that representational security would significantly contribute to the prediction of secure base behavior, supporting the role of mental representations in the continuity of the attachment.

## Method

### Participants

Participants were 157 engaged couples recruited from newspaper advertisements and a wedding fair, and assessed three months prior to their wedding dates. Selection of engaged couples (versus dating couples) was dictated by the need to know that they were indeed in a close relationship, and that they would have some degree of comparability in the stage of the relationship and the issues faced by the participants. The mean age of the women was 23.5 years ($SD$ = 1.5) and of the men, 24.9 years ($SD$ = 2.3). None of them had been married before and none had children from this relationship or any prior relationship. The duration of the relationships ranged from .67 to 12.5 years (average 4.25 years, $SD$ = 2.1 years). On average, they had attended 14.8 years of school. The participants were mostly White (96% White, 1% African-American, 3% Hispanic). Seventy-five percent of participants had parents in intact marriages, and 25% were from families in which parents were divorced, widowed or separated.

Technical difficulties with either the audiotaped interviews or the videotaped interactions interfered with scoring eight couples, and five couples did not complete the two-part assessment. Therefore, videotaped interactions and Adult Attachment Interviews (AAIs) were obtained for 144 couples.

### Procedure

Participants attended two two-hour laboratory sessions. They were interviewed with the AAI, and completed questionnaires describing their relationships in the first session. They completed additional questionnaires in the second session and were videotaped in the couples' problem-solving interaction. The measures were administered to the husband and wife separately by two researchers.

### Measures

*The Adult Attachment Interview (AAI)*(George et al., 1985) was used to assess the adult's representation or state of mind regarding attachment. The interview asks about childhood attachment experiences with parents and the influence of those experiences on personality and development. The interview is scored from a transcript using scales that, in the coder's opinion, characterize the adult's experience with each of his/her parents: mother and father loving, rejecting, neglecting, involving, and pressuring (Main & Goldwyn, 1994). A second set of scales is used to assess state of mind and discourse style, e.g., coherence, idealization, active anger, derogation, and passivity. Validity and reliability of the interview are well demonstrated (Crowell et al., 1996; Crowell et al, 1999; Hesse, 1999; Sagi et al., 1994; van IJzendoorn, 1995).

Scale scores are used to assign the adult to one of three major classifications: *Secure/autonomous*, *Insecure-Dismissing* and *Insecure-Preoccupied* (Main & Goldwyn, 1994). Individuals classified as Secure believably and coherently describe diverse childhood experiences, value attachment relationships, and view attachment-related experiences as influential to development. Adults are classified as Insecure on the basis of incoherence in the interview, i.e., they fail to integrate memories of experience with their assessments of the meaning of experience. Adults classified as Insecure-Dismissing describe a history of rejection, but deny or devalue the impact of attachment relationships, may have difficulty with recall of events, and often idealize experiences. Adults classified as Insecure-Preoccupied describe involving, even role-reversing, relationships with parents, and display confusion about past experiences. Descriptions of relationships with their parents show active anger or passivity. Individuals may be classified as *Unresolved* regarding attachment-related traumas (loss or abuse) in addition to a major classification. The traumatic experience has not been reconciled, as evidenced by disorganized or disoriented language used to describe the experience. A transcript may be designated *Insecure-Can't Classify* if it contains strong elements not typically seen together in a transcript, e.g., high idealization of one parent and high active anger toward the other. Using discriminant function analysis to assess the relative contribution of each scale to security, Waters and colleagues (Waters, Treboux,

Fyffe, & Crowell, 2001) found that coherence was the best predictor of a continuous security score, $r = .96$, $p$ .001.

The interviews were audiotaped, transcribed, and scored from the transcriptions by two coders trained by Mary Main and Eric Hesse. Coders were blind to all other information regarding the participant. Coders achieved 74% agreement for four classifications (Secure, Dismissing, Preoccupied, Can't Classify) on 28% of the sample ($n = 84$), *kappa* $= .61$, $p$ .001 (agreement fo r three classifications was 80%). Inter-rater agreement was calculated separately for the Unresolved classification. Coders achieved 84% agreement on the Unresolved classification, $k = .60$, $p$ .001. Inter -rater agreement for coherence was $r$ (84) $= .66$, $p$ .001. Disagre e-ments between coders were settled by conference.

One hundred thirteen (39%) of participants were classified as Secure (women, $n = 56$, men, $n = 57$). Eighty-three participants (29%) were classified as Dismissing (women, $n = 32$, men, $n = 51$), 49 (17%) as Preoccupied (women, $n = 24$, men, $n = 25$), and four as Can't Classify (1.5%)(women, $n = 3$, men, $n = 1$). Of the participants classified as Un-resolved (13.5%), 29 were women and 10 were men.

There was modest concordance between partners for attachment status in this sample, 55% for three major classifications, similar to that found in other samples (van IJzendoorn & Bakermans-Kranenburg, 1996), with a correlation between the partners' coherence scores of $r = .22$, $p$ .001.

*The Family Behavior Survey* (FBS) (Posada & Waters, 1988) assesses dimensions of relationship functioning including the global variables of dis-cord and happiness or satisfaction commonly used in marital research (Touliatos, Perlmutter, & Straus, 1990). In Study I, we used the Discord and the Happiness Scales.

The *Discord* scale assesses how often in the past six months the participant disagreed with their part-ner on each of 18 topics (e.g., handling finances, career decisions, affection, jealousy, dealing with in-laws). Responses were recorded on a 5-point scale: never, 1-3 times, 4-6 times, 7-9 times, almost ever week and every week or more. The topics are similar to the discord items of the Dyadic Adjust-ment Scale (Spanier, 1976). Alpha reliability was .88. The *Happiness* scale consists of one item

asking respondents how happy they are in this rela-tionship. Responses range from *Extremely Unhappy* (score of 0) to *Perfectly Happy* (score of 6). The item is identical to the general happiness item in the Dyadic Adjustment Scale (Spanier, 1976).

*The Henmon-Nelson Test of Mental Ability* (Lamke & Nelson, 1973) is a timed, paper-and-pencil measure of general intellectual ability. It is an established measure, most recently standardized in 1973, that yields a single score (for reviews see Buros, 1965; Thorndike et al., 1991). This 90-item multiple-choice test includes vocabulary, patterns of number sequences, and analogies and can be ad-ministered in less than 20 minutes. Alpha reliabil-ities range from $r = .85$ to .95 (Thorndike et al., 1991). Henmon-Nelson scores correlate well with other group test assessments of intelligence, with grades and achievement tests (Sternberg, Conway, Ketron, & Bernstein, 1981; Thorndike, Cunning-ham, Thorndike, & Hagen, 1991), and the IQ score has been used to predict WAIS Full Scale IQ scores ($r = .81$)(Kling, Davis, & Knost, 1978). Subjects were allowed 15 minutes to work on the test and raw scores were used in the analyses. The range of items completed within the 15-minute time frame was 30 to 90, and the range of items correctly an-swered (raw scores) was 10 to 88, with a median of 49 items correct.

*Secure Base Scoring System (SBSS) for Adults* (Crowell et al., 1998). The couples were assessed using a standard couple observation procedure (Gottman, 1979; Gottman, Markman, & Notarius, 1977; Heyman, 2001). The Discord scale of the Family Behavior Survey (Posada & Waters, 1988) was used to select the topic of discussion. The re-searchers examined the independently generated scales and selected the topic with the highest fre-quency of conflict reported by both partners. The partners were asked to discuss this problem for 15 minutes and try to reach a resolution. The couples' interactions were videotaped and scored with the Secure Base Scoring System.

We hypothesized that the behavioral components of the secure base phenomenon in adult partner-ships are parallel or analogous to Ainsworth's de-scriptions of infant and parent behavior. In child-hood, secure base behaviors of the caregiver include active support for exploration in ordinary circum-stances as well as responsiveness in times of stress and danger (Ainsworth et al., 1978; Waters et al.,

1991). In complement to the caregiver's sensitivity, availability, cooperation, and responsiveness, the child signals his or her needs clearly and consistently, seeking proximity and contact with the caregiver. The child is comforted or reassured, re-establishes equilibrium, and returns to normal activity and exploration.

The scoring system translates these elements into adult behaviors. In the careseeking or secure base use role, an adult partner optimally signals his or her needs clearly and consistently, approaching the other partner directly for help or support. The support received is effectively used to re-establish emotional equilibrium and the adult returns to normal activity and exploration. In providing secure base support, the other partner is interested and open to detecting signals, recognizes that the partner has a need or is distressed, and correctly interprets the need. He or she gives an appropriate, cooperative response in a timely fashion that supports and protects the well being of the partner and the relationship as a whole.

Assessment of *Secure Base Use* involves scoring the individual on four theoretically developed 7-point sub-scales that guide the coder to a 7-point summary scale used in the analyses. Although the scales can be used in post-hoc analyses to clarify a result, the scales are initially used to focus attention on key components of the interaction.

The *initial signal* scale assesses the initial clarity of the concern expressed by a participant. It is analogous to the infant's signaling of distress or need, as is the maintenance scale described next. A high score is given to an individual who takes the initiative and is able to deliver the message directly and constructively, even if manifest distress is high, with congruence among verbal, behavioral, and emotional expressions. The *maintenance of the signal* scale is based on how actively and persistently the individual maintains a clear distress signal, and/or becomes increasingly clear and direct in expressing what he/she wants or needs, if necessary. The highest scores for signaling behaviors are given when the adult uses an attachment or secure base explanatory framework in their remarks, e. g., "Our relationship is supposed to help us each be better than we can be on our own," or "I feel like I can't trust you to be there for us when you spend the money in our savings account without talking to me first." The *approach* scale refers to a direct expres-

sion in behavior, words, and affect of the desire and need for the response of the partner (e.g., " It would help me if you would …"), as opposed to general expressions of distress or need (e.g., "I just need to sleep more."). It is analogous to the infant's approach and proximity seeking/contact with the attachment figure. Strong approach is scored when the secure base user clearly expects the partner ought to be fully and directly responsive to the concern. *The ability to be comforted* scale assesses whether the individual responds to the partner's support with diminished distress and relief in the partner's responsiveness and the resolution of the situation, or attempts to self-soothe if the partner is unresponsive. It is analogous to the infant's response to comfort and return to normal behavior. The *Summary of Secure Base Use* scale captures the observer's overall impression. A high score indicates that the subject conveys his/her distress or concern clearly and effectively both initially and throughout the discussion, approaches the partner with the clear expectation that he/she should/will help, and is able to make use of the partner's efforts to help. The average inter-item correlation among secure base use sub-scales was $r = .76$ for women and $r = .76$ for men. The secure base use sub-scales were highly correlated with the Summary of Secure Base Use scale, range from $r = .84$ to .90 for women, and $r = .80$ to .93 for men.

There are four theoretically developed 7-point *Secure Base Support* sub-scales that guide the coder to a 7-point summary scale used in the analyses. The *Interest in the partner* sub-scale assesses the individual's willingness and ability to be a "good listener" and a catalyst in encouraging the partner to express his/her feelings and thoughts. This behavior reflects a general attitude toward and regard for the partner, and is considered analogous to availability. The *recognition of distress or concern* scale assesses awareness of the partner's distress/needs/concern; i.e., sensitivity. The individual must "notice" that the partner is bothered by something when the partner expresses a concern. The *interpretation of distress* scale assesses the individual's "correctness" in understanding the partner's concern or signal, and their ability to focus on the key elements rather than superficial or tangential aspects. The *responsiveness to distress* scale includes: (a) willingness or desire to help the partner, and (b) effort and effectiveness in the attempt as shown in the individual's behavior, words, and affective tone,

and (c) willingness to use cooperative means instead of a controlling, demanding, or advising manner to solve the conflict. The *Summary of Secure Base Support* scale captures the overall secure base support of the caregiver. A high score indicates interest in the partner, sensitivity to the partner's distress, willingness and ability to understand the problem, and cooperative responsiveness. The average inter-item correlation among secure base use sub-scales was $r = .86$ for women and $r = .86$ for men. As with the secure base use sub-scales, the secure base support sub-scales were highly correlated with the Summary of Secure Base Support scale, range from $r = .86$ to .97 for women, and $r = .83$ to .97 for men.

When one partner raises a concern and seeks to use the other as a secure base, the other partner is automatically scored for secure base support. In 84% of the couples, the men and women took both roles, and shifted back and forth between secure base use and support in the course of the discussion. Thus there was no significant difference between men and women in the roles observed overall ($X^2$ (*df*, 2) = 3.97, *ns*). For those couples (16%, $n = 23$) who did not switch roles, women were more likely to be in the support seeking role ($X^2$ (*df*,1) = 3.89, *p* .05). Women sought secure base support in 62% of these unidirectional interactions and men provided support, and in the remaining 38% of the couples, men were the careseekers and women provided support.

Inter-rater agreement between two coders was calculated for 89 individuals (31% of the sample). Agreement for the secure base use summary scale was $r = .73$, $p < .001$; agreement for the secure base use sub-scales ranged from $r = .70$ to .79, average $r = .73$. Inter-rater agreement for the secure base support summary scale was $r = .80$, $p < .001$; agreement for the secure base support sub-scales ranged from $r = .55$ to .75, average $r = .69$. Disagreements between the coders were settled by conference with a third coder.

## Results

Analyses are presented in four sections. The first section compares men and women, and examines the relations between the secure base support and secure base use summary scales within couples. The second section examines the relations between the secure base support and secure base use summary scales within individuals. The third section explores associations between secure base behaviors and the AAI classifications. The last section examines the relative contributions of AAI coherence and partner behavior to secure base behavior in the interaction, controlling for partner behavior, IQ score, and history of discord reported by the individual in the past six months. All analyses were conducted separately for men and women.

*Descriptive Statistics.* T-tests were used to compare men and women on secure base behavior, coherence, and marital variables (See Table 1). Men and women did not differ in their ability to use or

**Table 1   Means, Standard Deviations, t-tests, and Correlations between Women and Men's Variables**

|  | Women | | Men | | | Partner-partner |
|---|---|---|---|---|---|---|
|  | $\underline{X}$ | $\underline{SD}$ | $\underline{X}$ | $\underline{SD}$ | *t-test* | *r* |
| Secure base use | 3.7 | (*1.6*) | 3.8 | (*1.7*) | -1.09 | .56*** |
| Secure base support | 3.8 | (*1.8*) | 3.8 | (*1.8*) | -.41 | .55*** |
| AAI Coherence | 4.7 | (*2.2*) | 4.2 | (*2.0*) | 2.16* | .22** |
| IQ score | 49.4 | (*13.4*) | 50.6 | (*15.5*) | -.89 | .28*** |
| Happiness | 4.8 | (*0.9*) | 4.7 | (*0.8*) | 1.14 | .39*** |
| Discord | 16.1 | (*10.6*) | 20.2 | (*13.8*) | -3.62*** | .32*** |

* $p < .05$; ** $p < .01$; *** $p < .001$; .

provide secure base support overall. Women scored higher on AAI coherence. They did not differ in their reports of relationship happiness, but men reported more frequent discord over the preceding six months. Men and women did not differ in IQ scores. Similarities between partners on each variable were examined using Pearson $r$ correlations. Partners were similar on all measured variables.

In addition, Pearson product moment correlations were used to examine relations between complementary secure base behaviors of partners. Men and women who were effective in secure base use had partners who were supportive (men's use with women's support, $r = .58, p$ .001; women's use with men's support, $r = .58, p$ .001).

*Relations between Secure Base Use and Support within Individuals.* We examined the relation between an individual's ability to use support and provide support using Pearson correlations, addressing the theoretical question of whether there is a single system of attachment organizing both secure base use and support across the life span.

Within individuals, secure base use and secure base support behaviors were highly correlated, women, $r = .86, p$ .001; men, $r = .88, p$ .001. Recognizing that in a dyadic interaction, some behaviors are due to the characteristics of the partner, we calculated partial correlations between secure base use and secure base support of individuals controlling for secure base use and support of the partner. The correlations within individuals were still very high, women, $r = .78, p$ .001; men, $r = .82, p$ .001.

*Relations between Secure Base Behaviors and AAI Classifications.* The third set of analyses addressed the following questions. Is a person who is secure with respect to attachment based on childhood experiences more able to use and provide secure base support with an adult partner than one who is insecure? Are there differences in secure base behavior among adults with insecure representations of attachment?

We conducted planned orthogonal comparisons of the attachment classifications with respect to secure base behavior using t-tests. The first comparison was between the Secure versus Insecure groups. Next, those classified as Unresolved were compared with the Other Insecure groups combined (Dismissing and Preoccupied). Lastly, individuals

**Table 2  Means and Standard Deviations of Secure Base Use and Support of AAI Classifications, and t-tests of Planned Orthogonal Contrasts between Classifications (Secure vs. Insecure, Unresolved vs. Other Insecure, Preoccupied vs. Dismissing)**

| Women | Secure base use | | t-value | Secure base support | | t-value |
|---|---|---|---|---|---|---|
| | Secure vs. Insecure | | | Secure vs. Insecure | | |
| | 4.3 (1.7) | 3.2 (1.4) | -4.26** | 4.4 (1.8) | 3.2 (1.7) | -3.47*** |
| | Unresolved vs. Other Ins. | | | Unresolved vs. Other Ins. | | |
| | 3.2 (1.4) | 3.3 (1.5) | -.16 | 3.4 (1.7) | 3.5 (1.7) | -.30 |
| | Preoccupied vs. Dismissing | | | Preoccupied vs. Dismissing | | |
| | 3.1 (1.5) | 3.2 (1.3) | -.33 | 3.5 (1.8) | 3.2 (1.6) | .88 |
| Men | Secure base use | | t-value | Secure base support | | t-value |
| | Secure vs. Insecure | | | Secure vs. Insecure | | |
| | 4.6 (1.5) | 3.5 (1.6) | -4.14*** | 4.6 (1.6) | 3.3 (1.8) | -4.19*** |
| | Unresolved vs. Other Ins. | | | Unresolved vs. Other Ins. | | |
| | 3.8 (1.5) | 3.4 (1.6) | .94 | 3.6 (2.0) | 3.3 (1.8) | .60 |
| | Preoccupied vs. Dismissing | | | Preoccupied vs. Dismissing | | |
| | 4.0 (1.6) | 3.2 (1.5) | 2.22* | 3.9 (1.8) | 3.0 (1.7) | 2.12* |

*$p$ .05, ** $p$ .01. *** $p$ .001

classified as Dismissing were compared with those classified as Preoccupied. Mean scores, standard deviations, and t-tests between classifications are presented in Table 2.

Secure men and women were more effective in secure base use and support than those classified as Insecure. Unresolved individuals did not differ from those classified as Other Insecure. Comparisons between the Dismissing and Preoccupied groups revealed no differences for women, but men classified as Preoccupied were more able to use and provide secure base support than those classified as Dismissing. Investigation of the secure base use sub-scales revealed that Preoccupied men were more effective than Dismissing men at signaling initially (Preoccupied $X = 4.7$, Dismissing $X = 3.3$, $t = 3.38$, $p$  .001) and over time (Preoccupied  $X = 5.0$, Dismissing $X = 3.7$, $t = 3.08$, $p$  .01). There were no differences in the quality of their approach behavior or their ability to be comforted. With respect to support, they demonstrated more interest (Preoccupied $X = 4.3$, Dismissing $X = 3.4$, $t = 2.14$, $p$  .05) and recognition when partners were upset (Preoccupied $X = 5.1$, Dismissing $X = 4.1$, $t = 2.06$, $p$  .05). They were also more responsive (Preoccupied $X = 3.7$, Dismissing $X = 2.8$, $t = 2.00$, $p$  .05).

The relation between the AAI coherence scores and secure base behavior was examining using Pearson $r$ correlations. Coherence was significantly related to secure base behavior for both women and men (women: use, $r = .43$, $p$  .001, support, $r = .41$, $p$  .001; men: use  $r = .37$, $p$  .001, support, $r = .34$, $p$  .001).

*Effect of Partner Behavior on the Link between AAI Classifications and Secure Base Behavior*

Behavior occurs in a dyadic context. Consistent with other reports (van IJzendoorn & Bakermans-Kranenburg, 1996), the partners often came from quite different backgrounds with respect to attachment experiences, and they did not strongly sort themselves by attachment security. As a result, we expect that the partner's behavior is a key factor in influencing secure base behavior in a developing adult attachment relationship. In addition, feelings about the relationship may impact upon current behavior. For example, marital interaction behavior is associated with overall relationship satisfaction and feelings of distress due to recent discord between partners (Gottman, 1979; Heyman et al., 1993; Weiss & Heyman, 1990). In addition, personal qualities might also exert influence. For example, more educated individuals or those with higher IQ scores may more effectively support their partners or express their own needs.

**Table 3    Regression Statistics for Predicting Secure Base Behavior**

**Women's secure base use: Multiple R = .64, $R^2$ = .40, F (4,130) = 22.74, p   .000**

| Predictors | Pearson $r$ | semi-partial $r$ | Unique contribution |
|---|---|---|---|
| IQ score | .13 | .02 | .00 |
| Her discord report | -.16 | -.04 | .00 |
| His support | .58*** | .47*** | .22 |
| Her coherence | .43*** | .27*** | .07 |

**Women's secure base support: Multiple R =.66, $R^2$ = .43, F (4,121) = 22.85, p   .000**

| Predictors | Pearson $r$ | semi-partial $r$ | Unique contribution |
|---|---|---|---|
| IQ score | .17 | .09 | .01 |
| Her discord report | -.29*** | -.13 | .02 |
| His use | .58*** | .45*** | .20 |
| Her coherence | .41*** | .24*** | .06 |

**Men's secure base use: Multiple R = .65, $R^2$ = .42, F (4,122) = 21.82, p   .000**

| Predictors | Pearson $r$ | semi-partial $r$ | Unique contribution |
|---|---|---|---|
| IQ score | .28*** | .10 | .00 |
| His discord report | -.21* | -.06 | .00 |
| Her support | .58*** | .47*** | .22 |
| His coherence | .37*** | .21** | .04 |

**Men's secure base support: Multiple R = .65, $R^2$ = .42, F (4,130) = 23.92, p   .000**

| Predictors | Pearson $r$ | semi-partial $r$ | Unique contribution |
|---|---|---|---|
| IQ score | .22** | .07 | .00 |
| His discord report | -.13 | -.05 | .00 |
| Her use | .58*** | .52*** | .28 |
| His coherence | .34*** | .21** | .04 |

*$p$  .05, ** $p$  .01. *** $p$  .001

To test the link between the AAI and secure base behavior in the context of partner behavior and other possible influences, we conducted hierarchical multiple regression analyses (see Table 3). In the first step of the analysis, we controlled for the effects of IQ score on the individuals' behavior. In the second step, the report of discord was entered to account for the influence of recent conflict history on behavior.[1] In the third step, the complementary secure base behavior of the partner was entered to take into account the immediate secure base environment of the individual. For example, if the secure base use behavior of men was being predicted, we entered the female partners' support score. The final variable entered was AAI coherence to determine if there was a unique contribution of security to adult secure base behavior.

Forty percent of the variance of women's secure base use was predicted (see Table 3), with her coherence and his support being the significant predictors. With respect to women's support, the total variance predicted was 43%. Only her coherence and his secure base use were significant predictors of her support. For men's secure base use, 42% of the variance was predicted. Only his coherence and her support were significant predictors. Forty-two percent of the total variance was predicted for men's secure base support, with his coherence and her secure base use being significant predictors. Thus both women's and men's AAI coherence was significantly and uniquely related to their secure base behavior even taking into account other possible influences.

### Discussion

The results demonstrate that Ainsworth's insights about infant-parent relationships can be successfully applied to adult-adult relationships. Men and women at this point in their developing relationships were similar in behaviors, reports of the relationships, and in the association between attachment representations and secure base behavior. An individual's ability to provide support was highly related to his or her ability to seek and use support. Secure base behaviors of partners were similar as well. Contrary to what might be expected from observed gender differences in the marital literature (Gottman, 1993; Gottman & Krokoff, 1989), the men and women were equally likely to seek and use support, both raised concerns and were responsive to their partners. They were similar in the effectiveness of their secure base behaviors.

*Representations and behavior.* The association between mental representations of attachment and the secure base behavior of adults is of critical importance. The secure base scoring system is validated with respect to the AAI, which in turn, is enhanced and clarified by its association with adult secure base behavior.

Clearly, attachment representations are not the sole influences on attachment behavior within the relationship; romantic relationship experiences and the current partner, in particular, are very influential. The couples are creating their own secure base relationships. These new co-constructed behavioral systems may lead to alteration of the existing attachment working models or development of new relationship-specific models (Crowell et al., in press; Owens et al.,1995). Nevertheless it also appears that the generalized representations originating in childhood do play a role in influencing behavior in important adult relationships. The results suggest that for every occasion that a partner reaches out to the other or responds to the other, there is a small advantage if the individual has a Secure representation. Over time and with repeated experience, this advantage should result in a substantial difference in the quality of the couple's experience together.

*A single organizing system?* From a statistical standpoint, the correlation between support and use behaviors within individuals suggests the scores could be combined into a single score of secure base behavior. We elected not to do this for two reasons. First, the behavioral criteria for each construct are distinct. And second, the finding addresses a critical question regarding whether in adults the roles of secure base use and secure base support are different sides of the same coin (Sroufe & Fleeson, 1986). We suggest that at this point in their relationship, the young adults are drawing upon one overarching system or script rather than dual systems of attachment and caregiving.

*AAI classifications.* Men and women who presented clear, coherent, and valuing analyses of their childhood attachment experiences (classified as Secure) were effective in using their partners as a secure base and also in serving as a secure base. In contrast, those who presented incoherent, confused, or limited narratives about attachment experiences were less effective in their secure base behaviors.

10

Theory does not suggest that the insecure classifications would differ in the effectiveness of secure base behavior, although there well could be stylistic differences. Therefore, it was of interest that men classified as Preoccupied were more effective in using their partners and providing support than those classified as Dismissing, a distinction not observed in the women. Examination of the sub-scales was useful, and showed the Preoccupied men were relatively willing to engage in rather than limit interaction with their partners. Marital research suggests women engage problems actively even in dysfunctional relationships; whereas the use of withdrawal as a means of controlling interaction is a tactic more commonly used by men (Gottman, 1993; Gottman & Krokoff, 1989). Perhaps this is a tactic specifically employed by men who manifest a dismissing stance with respect to attachment.

Although the Unresolved classification is found more often in at-risk populations and is related to more disturbed mother-child interactions (Lyons-Ruth, Bronfman, & Atwood, 1999), the Unresolved participants did not emerge as having more impaired secure base behavior than other Insecure participants. Interactions with partners, especially brief interactions of generally happy couples, may not elicit the problems identified in Unresolved mother-child dyads (Main & Hesse, 1990; Schuengel, Bakermans-Kranenburg, van IJzendoorn, & Blom, 1999). Furthermore, the protocol does not target "Unresolved" behaviors specifically (Otter-Henderson & Creasey, 2001).

## Study 2

### Introduction

In the second study, we examined the association of secure base behavior and other aspects of the couples' relationships. A key component of this investigation is how attachment behavior and representations fit within the broad framework of adult partnerships, and how they relate to other important domains such as communication, conflict tactics, and feelings about the relationship.

*Attachment Theory and Marriage.* Much marital research has its origins in behavioral or psychoanalytic clinical work and theory, e.g., (Dicks, 1967; Gottman, 1992; Karney & Bradbury, 1995; Meissner, 1978; Weiss, 1978), and studies of marital discord and distress have dominated the field. Thus, marital research provides considerable insight into the issue of marital failure. Nevertheless a focus on negative behavior and conflict tactics does little to inform us about what needs to go right in an adult partnership, or about the normative aspects of adult relationships (Heyman, 2001). More recently, efforts have been made to determine qualities of a marriage than lead to success and satisfaction, e.g., (Bradbury, 1998; Bradbury & Fincham, 1990; Gottman, Coan, Carrere, & Swanson, 1998; Karney & Bradbury, 1995; Kelly & Conley, 1987).

Researchers and clinicians recognize that attachment theory provides insight into important aspects of the nature and function of adult partnerships (Bartholomew & Horowitz, 1991; Davila, Bradbury, & Fincham, 1998; Fuller & Fincham, 1995; Hazan & Shaver, 1987; Senchak & Leonard, 1992; Simpson, 1990). The adaptive function of a secure attachment relationship is clear. Furthermore, assuming that individuals bring certain beliefs and expectations about relationships into a partnership, attachment theory suggests where the ideas may have come from, what they might be about, and how they might influence relationship behavior and outcome. Thus, the theory offers an almost unique perspective on marriage in its focus on adaptive relationship behaviors and the origins of relationship competence.

Initially, research in adult attachment and love relationships was predominantly directed toward identifying similarities between parent-child attachment relationships and adult partnerships (Hazan & Shaver, 1987; Shaver & Hazan, 1993; Shaver, Hazan, & Bradshaw, 1988). At the same time, self-reports of feelings in close relationships were developed that were intended to parallel the classifications of attachment identified by Ainsworth and colleagues (1978). Much research has been aimed at validating these measures via other self-report correlates (Crowell et al., 1999), and more recently, behavioral correlates of attachment representations and styles (e.g., Cohn et al., 1992; Collins & Feeney, 2000; Fraley & Shaver, 1998; Paley et al., 1999; Riggs & Wampler, 1999; Simpson et al., 1992). This work has pushed attachment research to have the life span perspective that Bowlby originally hypothesized, broadening attachment research beyond the study of children and their parents.

Nevertheless, the assessment of behavior in the social psychology and marital research arenas has focused largely on communication and regulation of emotion, especially negative emotion, emergencies,

and/or relationship dysfunction (Bartholomew & Horowitz, 1991; Brennan & Shaver, 1995; Feeney, 1999; Hazan & Zeifman, 1999; Holtzworth-Monroe, Stuart, & Hutchinson, 1997; Paley et al., 1999). There have been few attempts to make connections from generalized representations to adult attachment behavior (Cohn et al., 1992; Paley et al., 1999; Riggs & Wampler, 1999). Some studies have over-reached the attachment system and included systems of sexuality and reproduction (Hazan & Zeifman, 1999; Kirkpatrick, 1998). No approach fully addresses the function of the attachment system in adulthood, making the research, and ultimately the theory, vulnerable to critics with alternative explanations (Kirkpatrick, 1998).

*Validity and usefulness of the secure base scoring system.* For researchers and clinicians in the fields of adult attachment and close relationships to benefit from the insights of the theory in a practical and direct way, a measure that captures the secure base behavioral core of the attachment system is needed. As described in Study I, we developed a measure of adult secure base behavior, and validated it with respect to the AAI. A second critical test of validity of the secure base assessment is its association with aspects of the couples' relationship. To address this goal, we examined relations between secure base behavior and reports of feelings and behaviors in the relationships of young couples. In addition, couples' interactions were assessed with the secure base scoring system and with a communication/emotion based scoring system, and the two systems were compared.

We tested the following hypotheses. First, attachment is one component of an adult partnership, and as such secure base behavior should be related to, but not redundant with, other domains of the relationship, e.g., communication skills, feelings, and conflict tactics. Second, to be most useful, assessment of secure base behavior should offer information beyond what can be obtained or predicted with other assessments of close relationships, such as a communication based scoring system. Third, the secure base scoring system should offer information different from or beyond representational measures of attachment, such as the AAI, that capture a general or global orientation toward attachment-related experiences, but which are not specific to any one attachment relationship. Fourth, the possibility of gender differences is of particular interest in this investigation. Unlike the relations among

core elements of the attachment system (links between representations and secure base behavior examined in Study I) which should be gender neutral, marital behavior and feelings often differ significantly for men and women (Gottman, 1993; Gottman & Krokoff, 1989). Thus, we anticipated gender differences in relations between attachment and other domains of relationships that would offer insight into how those domains develop and are organized for men and women.

## Method

*Participants and Procedure*

Participants are described in the Study I, as is the overall procedure.

*Couples Problem Solving Interaction (CPSI).* The couples participated in a standard marital observation paradigm (Gottman, 1979; Weiss, 1978; Weiss & Heyman, 1990). Two sets of coders independently and blindly scored the videotaped interactions; one group used the Secure Base Scoring System (SBSS)(Crowell et al., 1998) and the other, the Rapid Marital Interaction Coding System (RMICS) (Heyman & Vivian, 1993). Coders trained in the SBSS had no knowledge of the RMICS, and had no clinical training. Richard Heyman trained the RMICS coders who had no experience with the SBSS and minimal knowledge of its theoretical underpinnings.

*Measures*

*The Secure Base Scoring System (SBSS)* (Crowell et al., 1998) is described in the Method section of the first study. It is a theoretically based system of scoring that assesses the secure base use and support of each partner in a couple's interaction. A participant who scores high on the *Summary of Secure Base Use* scale conveys his/her distress or concern clearly and effectively initially and throughout the discussion. He/she approaches the partner with the clear expectation that he/she should/will help, and is able to make use of the partner's efforts to help. A high score on the *Summary of Secure Base Support* scale indicates interest in the partner, sensitivity to distress, willingness and ability to understand the concern, and cooperative responsiveness.

*The Rapid Marital Interaction Coding System (RMICS)*(Heyman & Vivian, 1993) is an observational assessment of couples' communication behavior. It is an abbreviated form of the widely used

Marital Interaction Coding System (MICS-IV) (Heyman, Weiss, & Eddy, 1995) with comparable psychometric properties (Heyman et al., 1993). Factor analysis of the 37 micro-behavioral codes of the MICS resulted in four factors used to construct the five RMICS codes of hostility, constructive problem discussion, humor, and distress maintaining and relationship enhancing attributions. Seven other codes were added to make the system exhaustive and content valid to code the behavior, affect, and expressed cognitions of partners during an interaction task.

During the interaction, the person speaking "holds the floor". Floor switches occur when the speaker voluntarily gives up the floor or the partner successfully interrupts. Only one code per partner is assigned per speaker turn. A speaker turn ends when there is a floor switch or when the speaker holds the floor for more than 30 seconds. If the speaker holds the floor for extended periods, a new code is assigned every 30 seconds. The RMICS codes are arranged hierarchically with negative communication codes at the top, positive codes in the middle, and neutral codes at the bottom. The hierarchy is based on communication theory and research showing that negative behaviors are most critical for understanding marital conflict (Heyman, 2001). If more than one behavior is emitted during a single turn, the hierarchy is used to assign the highest-ranking code. The codes are listed below in order from most to least important.

Negative codes include *Psychological Abuse*, that is, behavior that causes psychological pain to the partner regardless of intent. Examples include expressions of disgust, contempt, belittling or mocking the partner, belligerence and threats, and devaluing partner's ideas. *Distress-Maintaining Attributions* are negative causal explanations for events. Negative behaviors are explained as intentional or due to stable personality characteristics, e.g. "You lost your wedding ring because you're careless." Positive behaviors are seen as unintended or circumstantial, e.g. "The only reason you bought me flowers is because you want to watch the game with your friends." *Hostility* refers to negative affect and verbalizations with strong negative content, including expressions of hostility, disapproval, or pointless disagreement. Non-negative statements stated in a negative tone are also coded as hostile. *Dysphoric Affect* refers to the expression of sad or depressed emotions. The distress may be current, past,

or anticipated in the future. *Withdrawal* describes behaviors that distance the self from the partner (e. g. not responding, gazing away).

Positive codes include *Relationship-Enhancing Attributions*, communications that give positive causal explanations of events that attribute negative behaviors to circumstantial or unintentional factors, and positive behaviors to stable personality characteristics or to intentional causes. *Acceptance* validates the partner to make him/her feel accepted and understood. It involves active listening and empathic feedback. *Self-Disclosure* reflects the speaker's feelings, opinions, wishes, values, or beliefs. Global negative feelings meant to hurt or criticize the partner and depressive feelings are not included. *Humor* includes laughing, smiling, jokes, silly solutions to problems, lighthearted teasing that is lightly received, and statements focusing in on the funny side of a situation. Humor with even slight sarcasm directed at the partner is coded as Hostile. Nervous laughter and smiling are excluded.

Neutral codes include *Constructive Problem Discussion*, that is, constructive approaches to resolving a problem, such as discussing the problem, active questioning, agreeing and disagreeing in a manner that furthers discussion, and proposing viable solutions. *Other* is used to score statements unrelated to the problem under discussion.

Three coders scored 32 randomly selected videotapes (23%) to assess inter-rater reliability. Disagreements were resolved through discussion and consensus. Inter-rater reliability for all positive codes was k = .62, *p* = .001 and for the negative codes was k = .66, *p* = .001. Given the non-clinical nature of the sample, base rates of certain codes (e. g., Withdrawal and Dysphoric Affect) were low. Thus, to maximize predictive power, the codes were reduced to a Negative Behavior Summary score and a Positive Behavior Summary score. Summary scores were calculated by summing the respective codes in each category and dividing by the total number of codes emitted by each partner. Neutral codes were not included in analyses.

*The Adult Attachment Interview (AAI)* (George et al., 1985; Main & Goldwyn, 1994) is described in the Study I. The coherence score was used to assess AAI security (Waters et al., submitted), as a continuous measure was more useful in the regression analyses planned. Relations between AAI classifications and relationship variables for this sample are

reported elsewhere (Crowell et al., in press).

*The Family Behavior Survey (FBS)* (Posada & Waters, 1988) assesses three dimensions of marital functioning: frequency of discord, happiness in the relationship, and aggression. The *Discord* and *Happiness* scales are described in Study 1.

The *Aggression* scale consists of 66 aggressive behaviors or tactics that couples may employ when having an argument or disagreement. Traditional measures of spousal aggression (e.g., Conflict Tactics Scale; (Straus, 1979)) measure aggressive behaviors across contexts. In contrast, the FBS items specify the behavioral context (e.g., hit you during an argument). The Aggression Scale is divided into three sub-scales. The *Verbal Aggression* sub-scale has 46 items reflecting hostile, but not physical, behaviors (*alpha* = .93). The *Physical Aggression* sub-scale consists of 12 items reflecting mild physical aggression (Straus, 1979)(*alpha* = .79). The *Threats of Abandonment* sub-scale consists of nine items describing threats to leave the relationship (*alpha* = .84). Respondents were asked how often in the past six months their partners had engaged in the behaviors, ranging from 0 (never) to 5 (every week or more). Thus, women's reports are used to describe men's behaviors, and men's reports to describe women's behaviors.

*The Sternberg Triangular Love Scale- Short Version (STLS-SV)* (Aron & Westbay, 1996; Sternberg, 1988) is a 21-item scale with three sub-scales (seven items each). *Intimacy* refers to feelings of closeness and being connected (*alpha* = .79). *Passion* refers to romance, physical attraction, and sexual feelings (*alpha* = .80). *Commitment* reflects the intent to maintain one's love for one's partner (*alpha* = .82). The statements are rated on a Likert-scale from 1 (not at all true) to 7 (extremely true).

*The Commitment Inventory (CI)* (Stanley, 1986; Stanley & Markman, 1992) is a 31-item scale measuring two components of commitment. The *Personal Dedication* sub-scale (14 items) refers to the individual's desire to maintain or improve the quality of the relationship (*alpha* = .72). The *Constraint* sub-scale (15 items) assesses the degree to which forces other than personal dedication (e.g., family, financial issues) put pressure on the individual to maintain the relationship (*alpha* = .52). Items are answered on a 7-point Likert-type scale from strongly disagree (1) to strongly agree (7).

## Results

Analyses are presented in four sections. The first section examines the relation of gender to the SBSS, RMICS, and marital variables. The second section addresses the association of the SBSS with relationship variables of discord, aggression, happiness, and other positive feelings in the relationship. The third section examines the correlates of the RMICS, and the relation between the SBSS and RMICS. The final section examines the common and unique contributions of the AAI, SBSS, and RMICS to predicting relationship variables. Analyses were conducted separately for men and women.

### Gender and Relations among Secure Base Behavior, RMICS, and Marital Variables

T-tests and correlations were used to compare men and women in their RMICS behavior and relationship variables (See Table 4). The RMICS positive score did not differ by gender, but the women received higher negative scores. Men and women did not differ in reports of happiness, physical aggression, or threats to leave the partner, but the women were reported to be more verbally aggressive. Women also reported feeling more passion and dedication. Men were more likely to report discord in the relationship over the preceding six months, and to feel constrained by the relationship. Partners' RMICS scores were highly correlated. Behaviors and feelings of men and women were also significantly correlated, with the exception of feelings of dedication and commitment.

### Secure Base Behavior: Relation to Reports of the Relationship

An important test of the SBSS is its relation to other measures of the couples' relationship, and to another system of scoring marital interactions. Pearson *r* correlations showed that both secure base support and use were related in the expected direction to reports of happiness and discord, and to the aggressive behaviors of the partner and the self, especially verbal aggression, for both men and women (See Table 5). Secure base behavior was also correlated with positive feelings about the relationship. Behaviors were not related to the duration of the couple's relationship.

*Correlates of the RMICS: Marital Behavior, AAI Coherence, and the SBSS*

**Table 4**          **Means, Standard Deviations of Behavior and Reported Feelings, t-tests, and Pearson correlations between Women and Men**

|  | Women | | Men | | | Partner-partner |
|---|---|---|---|---|---|---|
|  | X | SD | X | SD | t-test | Pearson r |
| RMICS positive behavior | .09 | (.08) | .09 | (.07) | 1.28 | .66*** |
| RMICS negative behavior | .17 | (.19) | .15 | (.18) | 2.15* | .80*** |
| AAI Coherence | 4.7 | (2.2) | 4.2 | (2.0) | 2.16* | .22** |
| Happiness | 4.8 | (0.9) | 4.7 | (0.8) | 1.14 | .39*** |
| Discord | 16.1 | (10.6) | 20.2 | (13.8) | -3.62*** | .32*** |
| Verbal Aggression | 19.1 | (18.0) | 15.4 | (15.1) | 2.5* | .37*** |
| Physical Aggression | 1.2 | (2.3) | 1.0 | (2.0) | .63 | .35*** |
| Threats to Abandon | 1.6 | (2.7) | 1.2 | (2.7) | 1.40 | .27*** |
| Intimacy | 38.3 | (3.9) | 37.9 | (4.0) | 1.28 | .32*** |
| Passion | 43.2 | (4.6) | 42.3 | (5.0) | 1.98* | .23** |
| Commitment | 47.5 | (2.9) | 46.9 | (2.9) | 1.80 | .11 |
| Dedication | 88.4 | (8.1) | 85.8 | (9.0) | 2.85** | .12 |
| Constraint | 57.4 | (9.5) | 59.7 | (9.5) | -2.42* | .20* |

*$* p < .05; ** p < .01; *** p < .001$*

Pearson *r* correlations showed RMICS negative behaviors were significantly related in the expected directions to reports of happiness, discord, and the aggressive behaviors of the partner and the self for both men and women (See Table 5). RMICS positive behaviors were largely unrelated to the marital variables, except unexpectedly, women's threats to abandon the partner. RMICS scores were not related to relationship duration. They were weakly correlated with AAI coherence for women, but not for men.

The relations among the SBSS use and support scales and the RMICS positive and negative behavior scales were examined. As expected, both secure base use and secure base support scores correlated positively with positive RMICS behaviors and negatively with RMICS negative behaviors for both men and women, with significant absolute *r* values ranging from .17, *p* .05 to .40, *p* .001.

*Predicting Marital Behavior using the AAI, SBSS, and RMICS*

The RMICS and SBSS are similar in their marital correlates. For the SBSS to be useful in the study of marriage and close relationships, it should offer something beyond what can be predicted with a

communication based scoring system. In addition, it should contribute to our understanding of adult partnerships beyond that which can be understood from generalized adult attachment representations assessed with the AAI.

To examine these issues, we conducted hierarchical multiple regression analyses. Men and women who were scored for both roles in the SBSS (secure base use and support) and who had both positive and negative behavior codes in the RMICS were included in these analyses (*n* = 115 couples). In the first step of the analysis, we entered the AAI coherence score, followed by individuals' RMICS behaviors. The SBSS secure base behaviors were then entered to obtain the unique contribution of the SBSS. The procedure was then reversed, and SBSS scores were entered in a single step after the AAI coherence score, followed by RMICS behaviors. This analysis resulted in the unique contribution of the RMICS codes. The last set of analyses entered the RMICS first, SBSS second, and coherence third to obtain the unique contribution of AAI security. Common variance was calculated using the unique contributions and overall multiple $R^2$.

For women (see Table 6), the three assessments (SBSS, AAI coherence, and RMICS) significantly

15

**Table 5** *Pearson r Correlations between Behavior Scales of the SBSS and RMICS and the AAI and Relationship Variables*

| | Secure base scoring system | | | | Rapid marital interaction coding system | | | |
|---|---|---|---|---|---|---|---|---|
| | Women | | Men | | Women | | Men | |
| | *Use* | *Support* | *Use* | *Support* | *Pos. beh.* | *Neg. beh.* | *Pos. beh.* | *Neg. beh.* |
| AAI coherence | .43*** | .41*** | .37*** | .34*** | .21* | -.21* | .07 | -.11 |
| Duration of relationship | .02 | -.01 | -.05 | -.06 | -.04 | -.02 | -.01 | -.10 |
| Happiness | .22** | .37*** | .14 | .20* | .05 | -.26** | .05 | -.22** |
| Discord | -.15 | -.29*** | -.21* | -.13 | -.00 | .18* | -.09 | .16 |
| Verb. aggression | -.25** | -.38*** | -.22** | -.27*** | .03 | .26** | .03 | .17* |
| Phys. aggression | -.17* | -.26** | -.12 | -.13 | -.09 | .28*** | .07 | .26** |
| Threats to abandon | -.27*** | -.30*** | -.07 | -.18* | .19* | .07 | .04 | .15 |
| Partners' Verb. aggression | -.31*** | -.39*** | -.27** | -.25** | -.08 | .17* | -.06 | .34*** |
| Partners' Phys. aggression | -.28*** | -.28*** | -.16 | -.18* | -.03 | .20* | -.08 | .37*** |
| Partners' Threats | .15 | -.15 | -.19* | -.16 | -.04 | .14 | .11 | .16 |
| Commitment | .17* | .26** | .18* | .17* | .14 | -.18* | .15 | -.13 |
| Passion | .11 | .12 | .09 | .15 | .19* | -.09 | .09 | -.08 |
| Intimacy | .21* | .32*** | .13 | .21* | .15 | -.19* | -.01 | -.22** |
| Dedication | .10 | .12 | .23** | .23** | .07 | -.04 | .08 | -.24** |
| Constraint | .09 | .06 | .24** | .24** | .10 | .13 | .17* | -.12 |

**Table 6** Predicting Women's Relationship Variables Using the AAI, SBSS and the RMICS

| | | AAI | SBSS | RMICS | | |
|---|---|---|---|---|---|---|
| | *Multiple $R^2$* | *Unique $R^2$* | *Unique $R^2$* | *Unique $R^2$* | *Common $R^2$* | *F (5, 109)* |
| Happiness | .20*** | .00 | .11*** | .02 | .07 | 5.31 |
| Discord | .12** | .00 | .06** | .00 | .06 | 2.87 |
| Verb. aggression | .17*** | .00 | .11*** | .00 | .06 | 4.38 |
| Phys. Aggression | .12** | .01 | .06* | .00 | .05 | 3.02 |
| Threats to abandon. | .15** | .02 | .07** | .00 | .06 | 3.74 |
| Commitment | .11* | .00 | .04 | .01 | .06 | 2.63 |
| Passion | .06 | .00 | .01 | .03 | .02 | 1.38 |
| Intimacy | .15** | .00 | .07** | .01 | .07 | 3.75 |
| Dedication | .03 | .00 | .02 | .00 | .01 | .68 |
| Constraint | .04 | .00 | .02 | .02 | .00 | 1.05 |

* *p* .05, ** *p* .01. *** *p* .001

predicted seven out of ten relationship variables ranging from 11% of the variance (commitment) to 20% (happiness). The unique contribution of the secure base behaviors was significant for many relationship variables with $R^2$ change scores between .06 (*p* .05) for reports of discord and physical aggression to .11 (*p* .001) for verbal aggression and happiness. The RMICS and the AAI did not contribute uniquely to the prediction of any of the women's relationship variables.

**Table 7    Predicting Men's Relationship Variables Using the AAI, SBSS and the RMICS**

| | | | AAI | SBSS | RMICS | |
| | *Multiple $R^2$* | *Unique $R^2$* | *Unique $R^2$* | *Unique $R^2$* | *Common $R^2$* | *F (5, 109)* |
|---|---|---|---|---|---|---|
| Happiness | .09 | .00 | .05* | .02 | .02 | 2.15 |
| Discord | .07 | .00 | .03 | .01 | .03 | 1.65 |
| Verb. aggression | .18*** | .00 | .02 | .09** | .07 | 5.65 |
| Phys. aggression | .15*** | .02 | .01 | .09** | .03 | 3.82 |
| Threats to abandon | .14** | .05** | .00 | .05* | .04 | 3.61 |
| Commitment | .05 | .00 | .01 | .02 | .02 | 1.15 |
| Passion | .02 | .01 | .01 | .00 | .00 | .50 |
| Intimacy | .06 | .00 | .02 | .03 | .01 | 1.50 |
| Dedication | .11* | .01 | .01 | .04 | .05 | 2.79 |
| Constraint | .10* | .03* | .01 | .01 | .05 | 2.47 |

* *p* .05, ** *p* .01. *** *p* .00

For men, the three assessments combined significantly predicted five out of ten relationship variables ranging from 10% of the variance (constraint) to 18% (verbal aggression)(see Table 7). Unlike the women however, men's secure base scores did not uniquely predict relationship feelings and behaviors with the exception of happiness with the relationship. The AAI contributed uniquely to the understanding of men's threats to leave the partner and to feelings of constraint. The RMICS uniquely predicted all of men's aggressive behaviors.

### Discussion

In summary, links between adult secure base behavior and (a) self-report measures of the relationship, and (b) a communication based scoring assessment of couples' interactive behavior, were evaluated. As expected, the Secure Base Scoring System was related to the marital variables, both self-reports and RMICS, for both men and women. However, despite many similarities between women and men, clear gender differences were found in the strength of the correlates between secure base behavior and marital self-reports. Examining whether the SBSS improved upon the prediction of relationship variables beyond the RMICS and the AAI, this was clearly true for the women, but much less so for the men.

As expected, the SBSS did relate to important aspects of the couples' relationships, e.g., relationship happiness and aggressive behavior of both partners, and had a similar pattern of correlates as the RMICS. The usefulness of the SBSS was evident in its prediction of women's relationship feelings and aggressive behaviors and men's reports of happiness beyond the RMICS. Thus it appears the SBSS can be a useful tool in the study of marriage and close relationships, offering something beyond what is captured by communication/emotion based scoring.

There was overlap in the behavior scored within each coding system, for example, overtly hostile behaviors are captured within each system, and positive behavior is generally seen similarly. Nevertheless the systems diverge in several important ways. Given its global scoring system, the SBSS relies more heavily on content and context than the RMICS. The RMICS is hierarchical in its structure, thus forcing out or discounting the impact of positive behaviors in favor of negative behaviors. In addition, the RMICS coding considers Problem Discussion and Other codes to be neutral, whereas these behaviors are considered relevant within the SBSS. Lastly, the interpretation of behavior can be quite different in the two systems. For example,

pleasant humor may be coded as unsupportive in the SBSS system if it is used as an avoidance tactic. Similarly, a somewhat confrontational style and dysphoric affect early in the discussion might be considered hostile within the RMICS framework, but clear signaling behavior with the SBSS if it conveys distress about a critical issue such as trusting the partner.

It should be noted that the study used a normative sample of relatively happy young couples as they approached their weddings. The couples were generally not aggressive at home, and their interactions were overall neutral to positive. The RMICS and similar scoring systems were developed for use in clinical samples, and the SBSS was not. The study should be repeated with a clinical sample to test the applicability of the SBSS to more distressed couples.

*The SBSS, RMICS, and AAI*

Based upon its relation to AAI security (see Study I), the SBSS meets a criterion for an attachment measure. In contrast, the RMICS does not appear to be an attachment assessment, showing minimal relation to attachment security for women or men. This finding is consistent that of Paley et al. (1999) in which little relation was found between the AAI and behavior scored with another emotion and communication based rating system (Julien, Markman, & Lindahl, 1989), especially for men.

*Gender differences*. There are notable gender differences in the prediction of relationship variables with the AAI and two coding systems. When the men were reported to use aggressive tactics at home, the RMICS negative behavior codes captured this tendency. In contrast, the RMICS negative code was not associated with the aggressive behaviors of women, although the women received higher negative behavior scores than the men. If the women were reported to use aggressive conflict tactics at home, they were seen in the laboratory session as poor in giving support and weak in their use of the partner as a secure base. It is possible that aggressive behavior, at least at a low level, is more linked to the attachment system for women than for men. Aggression in women may occur more in the context of seeking help or expressing distress, rather than as an effort to express anger, retaliate, or harm.

Results with the AAI and SBSS suggest that the attachment system may impact upon the relationship behavior of men and women differently. For women, their feelings and reported behavior in the relationship were linked to their secure base behavior in interaction. There was little evidence of this connection for men; yet some of men's aggressive behaviors did show links to representational security. It is unclear whether these findings represent a true difference between men and women in the links among representations, observed attachment behavior, and current relationship domains. It is possible that the findings reflect a developmental difference between men and women associated with the transition to marriage and readiness to identify the romantic partnership as an attachment relationship in its own right. It is also possible that men continue to use a generalized attachment representation to guide their secure base behavior in partnerships whereas women view the partnership more as a unique attachment relationship to which they respond specifically. Longitudinal and developmental research will help to understand the meaning of the gender differences, and the usefulness of the measure for men.

**Conclusion**

The Secure Base Scoring System is a successful first attempt at assessing adult attachment behavior. We found a clear relation between attachment representations and behavior using a system of coding intended to capture the secure base phenomenon, an association that was not evident when the emphasis was on individuals' communication skills and expressions of emotion. Clinicians and researchers in the field of adult close relationships should find the pursuit of the secure base phenomenon valuable. The method offers a way to evaluate the relevance of both interview and self-report measures to the attachment construct. From a clinical standpoint, the secure base phenomenon emphasizes adaptive relationship behaviors that suggest ways to supplement existing efforts at intervention with distressed couples. Even in the context of a sample with a somewhat limited range of experiences and reported feelings and behaviors, the SBSS was useful. As the method appears to have attachment specificity, it can be used to more clearly understand relations among domains of close relationships and to explore the function of the attachment system in adulthood vis a vis other domains.

Clearly, we can not understand the full significance of relations among attachment representations, secure base behavior, and feelings and behaviors in relationships with this cross-sectional study of young engaged couples. The couples appeared to view each other as attachment figures. They had made a commitment to an enduring relationship, and indeed, 97% of them went on to marry. Nevertheless, it must be noted that their opportunity for secure base interactions at the time of the assessment was limited. Despite the fact that most partners had known each other for years (the length of their relationships ranged from almost 1 to 12 years); they were not married and most (80%) did not live with each other. In contrast to time in a dating/engaged relationship, the nature of marriage leads to increased intensity, frequency, opportunity, and importance of secure base interactions, in turn enhancing the development of the partnership as an attachment relationship. Such development is likely to lead to stronger and/or clearer relations among secure base behavior, attachment representations, communication, and reports of the marriage.

Overall, the results indicate that Ainsworth's analysis of the secure base phenomenon in infant-mother relationships provides a cogent perspective on secure base behavior of adults, and the findings support the value of bringing ideas from the Bowlby-Ainsworth developmental tradition into the assessment of adult relationships. The results highlight the need to distinguish between an attachment relationship and an attachment representation. The representation may serve as a relatively enduring guide to behavior, feelings, and cognitions in close relationships, but offers no guarantee that any particular relationship will exactly map onto it. Following couples over time and into marriage will provide insight into the developing attachment relationship and possible gender differences, and whether the representation of attachment based on experiences with parents waxes or wanes in its association with secure base behaviors and other marital variables in a particular relationship. The prospect of assessing secure base behavior in adults helps keep the secure base concept, and the interplay between behavior and representation, at the center of attachment theory.

## References

Aber, J. L., Belsky, J., Slade, A., & Crnic, K. (2000). Maternal representations of the relationship with their toddlers: Links to attachment and observed mothering. *Developmental Psychology, 35*, 611-619.

Ainsworth, M. D. S. (1985). Attachments across the life span. *Bulletin of the New York Academy of Medicine, 61*(9), 792-811.

Ainsworth, M. D. S. (1989). Attachment beyond infancy. *American Psychologist, 44*, 709-716.

Ainsworth, M. D. S. (1991). Attachments and other affectional bonds across the life cycle. In C. M. Parkes, J. Stevenson-Hinde, & P. Marris (Eds.), *Attachment across the life cycle* (pp. 33-51). London: Routledge.

Ainsworth, M. D. S., & Bell, S. M. (1969). Some contemporary patterns in the feeding situation. In A. Ambrose (Ed.), *Stimulation in early infancy* (pp. 133-170). London: Academic Press.

Ainsworth, M. D. S., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation*. Hillsdale, NJ: Lawrence Erlbaum.

Aron, A., & Westbay, L. (1996). Dimensions of the prototype of love. *Journal of Personality and Social Psychology, 70*, 535-551.

Bartholomew, K., & Horowitz, L. (1991). Attachment styles among young adults: A test of a four category model. *Journal of Personality and Social Psychology, 61*(2), 226-244.

Bowlby, J. (1969/1982). *Attachment and loss: Attachment* ( Vol. 1). New York: Basic Books.

Bradbury, T. N. (1998). *The developmental course of marital dysfunction*. New York: Cambridge University Press.

Bradbury, T. N., & Fincham, F. D. (1990). Attributions in marriage: Review and critique. *Psychological Bulletin, 107*, 3-33.

Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin, 23*, 23-31.

Bretherton, I. (1985). Attachment theory: Retrospect and prospect. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research* (Vol. 50, pp. 3-35). Chicago: Monographs of the Society for Research in Child Development, Nos. 1-2, Serial No. 209.

Buros, O.K. (Ed.) (1965). *The sixth mental measurement yearbook*. Highland Park, New Jersey: Gryphon Press.

Cohn, D., Silver, D., Cowan, P., Cowan, C., & Pearson, J. (1992). Working models of childhood attachment and couples relationships. *Journal of Family Issues, 13*(4), 432-449.

Collins, N., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology, 78*, 1053-1073.

Crowell, J., & Treboux, D. (1995). A review of adult attachment measures: Implications for theory and research. *Social Development, 4*(3), 294-327.

Crowell, J., Waters, E., Treboux, D., O'Connor, E., Colon-Downs, C., Feider, O., Golby, B., & Posada, G. (1996). Discriminant validity of the Adult Attachment Interview. *Child Development, 67*, 2584-2599.

Crowell, J. A., Fraley, R. C., & Shaver, P. R. (1999). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 434-465). New York: The Guilford Press.

Crowell, J. A., Pan, H. S., Gao, Y., Treboux, D., O'Connor, E., & Waters, E. (1998). *The Secure base scoring system for adults.* Unpublished manuscript, State University of New York at Stony Brook.

Crowell, J. A., Treboux, D., & Waters, E. (in press). Stability of attachment representations: The transition to marriage. *Developmental Psychology.*

Davila, J., Bradbury, T. N., & Fincham, F. D. (1998). Negative affectivity as a mediator of the association between adult attachment and marital satisfaction. *Personal Relationships, 5*, 467-484.

Dicks, H. V. (1967). *Marital tensions: Clinical studies toward a psychological theory of interaction*. London: Routledge & Kegan Paul.

Feeney, J. A. (1999). Adult romantic attachment and couple relationships. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 355-377). New York: Guilford Press.

Fraley, R. C., & Shaver, P. (1998). Airport separations: A naturalistic study of adult attachment dynamics in separating couples. *Journal of Personality and Social Psychology, 75*, 1198-1212.

Freud, S. (1949/1953). *Abriss der psychoanalyse (An outline of psychoanalysis*. Frankfurt am Main: Fischer Bucherei.

Fuller, T. L., & Fincham, F. D. (1995). Attachment style in married couples: Relation to current marital functioning, stability over time, and method of assessment. *Personal Relationships, 2*, 17-34.

George, C., Kaplan, N., & Main, M. (1985). *The Adult Attachment Interview*. Unpublished manuscript, University of California at Berkeley.

George, C., & Solomon, J. (1999). Attachment and caregiving: The caregiving behavioral system. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 649-670). New York: Guilford Press.

Gottman, J. M. (1979). *Marital interaction: Experimental investigation*. New York: Academic Press.

Gottman, J. M. (1992). Marital processes predictive of later dissolution: Behavior, physiology, and health. *Journal of Personality and Social Psychology, 63*, 221-233.

Gottman, J. M. (1993). The roles of conflict engagement, escalation, and avoidance in marital interaction: a longitudinal study of five types of couples. *Journal of Clinical and Consulting Psychology, 61*, 6-15.

Gottman, J. M., Coan, J., Carrere, S., & Swanson, C. (1998). Predicting marital happiness and stability from newlywed interactions. *Journal of Marriage and the Family, 60*, 5-22.

Gottman, J. M., & Krokoff, L. J. (1989). Marital interaction and satisfaction: A longitudinal view. *Journal of Clinical and Consulting Psychology, 57*, 47-52.

Gottman, J. M., Markman, H. J., & Notarius, C. (1977). The topography of marital conflict: A sequential analysis of verbal and nonverbal behavior. *Journal of Marriage and the Family, 39*, 461-477.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*(3), 511-524.

Hazan, C., & Zeifman, D. (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.

Hesse, E. (1999). The Adult Attachment Interview: Historical and current perspective. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 395-433). New York: Guilford Press.

Heyman, R. E., Chaudhry, B. R., Treboux, D., Crowell, J., Lord, C., Vivian, D., & Waters, E. B. (2001). How Much Observational Data is Enough? An Empirical Test Using Marital Interaction Coding. *Behavior Therapy, 32*, 107-123.

Heyman, R., & Vivian, D. (1993). *RMICS: Rapid Marital Interaction Coding System. Training manual for coders.* Unpublished manuscript, SUNY at Stony Brook.

Heyman, R., Vivian, D., Weiss, R. L., Hubbard, K., & Ayerle, C. (1993). *Coding marital interaction at three levels of abstraction.* Paper presented at the 27th annual meeting of the Association for Advancement of Behavioral Therapy, Atlanta, Georgia.

Heyman, R., Weiss, R. L., & Eddy, J. M. (1995). Marital Interaction Coding System: Revision and empirical evaluation. *Behavioral Research Therapy, 33*, 737-746.

Heyman, R. E. (2001). Observation of couple conflicts: Clinical assessment applications, stubborn truths, and shaky foundations. *Psychological Assessment, 13*, 5-35.

Holtzworth-Monroe, A., Stuart, G. L., & Hutchinson, G. (1997). Violent vs. nonviolent husbands: Differences in attachment patterns, dependency, and jealousy. *Family Psychology, 11*, 314-331.

Julien, D., Markman, H. J., & Lindahl, K. M. (1989). A comparison of a global and micro-analytic coding system: Implications for future trends in studying interactions. *Behavioral Assessment, 11*, 81-100.

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin, 118*, 3-34.

Kelly, E. L., & Conley, J. J. (1987). Personality and compatibility: a prospective analysis of marital stability and marital satisfaction. *Journal of Personality and Social Psychology, 52*, 27-40.

Kirkpatrick, L. A. (1998). Evolution, pair bonding, and reproductive strategies: A reconceptualization of adult attachment. In J. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 353-393). New York: Guilford Press.

Kling, J., Davis, W., & Knost, E. (1978). Henmon-Nelson IQ scores as predictors of WAIS Full Scale IQ in alcoholics. *Journal of Clinical Psychology, 34*(4), 1001-1002.

Kobak, R. R. (1991). *Attachment strategies in marital relationships.* Unpublished Symposium paper presented at the biennial meeting of the Society for Research in Child Development, Seattle, Washington.

Lamke, T. A., & Nelson, M. J. (1973). *The Henmon-Nelson Tests of Mental Ability.* Boston, MA: Houghton Mifflin.

Lyons-Ruth, K., Bronfman, E., & Atwood, G. (1999). A relational diathesis model of hostile-helpless states of mind: Expressions of mother-infant interaction. In J. Solomon & C. George (Eds.), *Attachment disorganization* (pp. 33-70). New York: Guilford.

Main, M. (1990). Cross-cultural studies of attachment organization: recent studies, changing methodologies, and the concept of conditional strategies. *Human Development, 33*, 48-61.

Main, M., & Goldwyn, R. (1994). *Adult Attachment Rating and Classification Systems, Version 6.0.* Unpublished manuscript, University of California at Berkeley.

Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 161-182). Chicago: University of Chicago Press.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security of infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research* (pp. 66-106). Monographs for the Society for Research in Child Development, Volume 50, Nos. 1-2, Serial No. 209.

Meissner, W. W. (1978). The conceptualization of marriage and family dynamics from a psychoanalytic perspective. In T. J. Paulino & B. S. McCrady (Eds.), *Marriage and marital therapy* (pp. 25-88). New York: Bruner/Mazel.

Otter-Henderson, K. & Creasey, G. (April, 2001). Frightened/frightening behaviors in romantic relationships- An attachment perspective. Poster presented at the Society for Research in Child Development, Minneapolis, MN.

Owens, G., Crowell, J., Pan, H., Treboux, D., O'-Connor, E., & Waters, E. (1995). The prototype hypothesis and the origins of attachment working models: Child-parent relationships and adult-adult romantic relationships. In E. Waters, B. Vaughn, G. Posada, & K. Kondo-Ikemura, (Eds.), *Constructs, cultures and caregiving: New growing points of attachment theory and research. Monographs of the Society for Research in Child Development  Serial No. 244,* (Vol. 60, pp.  216-233). Chicago: University of Chicago Press.

Paley, B., Cox, M., & Burchinal, M. R. (1999). Attachment and marital functioning, comparison of spouses with continuous-secure, earned secure, dismissing and preoccupied attachment. *Journal of Family Psychology, 13*, 580-597.

Pederson, D. R., & Moran, G. (1995a). A categorical description of infant-mother relationships in the home and its relation to q-sort measures of infant-mother interaction. In E. Waters & B. E. Vaughn & G. Posada & K. Kondo-Ikemura (Eds.), *Caregiving, cultural, and cognitive perspectives on secure-base behavior and working models: New growing points of attachment theory and research* (Vol. 60, pp. 111-132). Chicago: University of Chicago Press.

Pederson, D. R., & Moran, G. (1995b). Maternal behavior q-set. In E. Waters & B. E. Vaughn & G. Posada & K. Kondo-Ikemura (Eds.), *Caregiving, cultural, and cognitive perspectives on secure-base behavior and working models: New growing points of attachment theory and research* (Vol. 60, pp. 247-254). Chicago: University of Chicago Press.

Posada, G., & Waters, E. (1988). *The Family Behavior Survey.* Unpublished manuscript, State University of New York at Stony Brook, Stony Brook.

Riggs, B., & Wampler, K. (1999). *Assessment of attachment behavior during couple interaction.* Unpublished Poster presented at the biennial meeting of the Society for Research in Child Development, Albuquerque, NM.

Sagi, A., van IJzendoorn, M., Scharf, M., Korne-Karje, N., Joels, T., & Mayseless, O. (1994). Stability and discriminant validity of the Adult Attachment Interview. *Developmental Psychology, 30*(5), 771-777.

Sameroff, A. J., & Chandler, M. J. (1975). Reproductive risk and the continuum of caretaking casualty. In F. D. Horowitz (Ed.), *Review of child development research* (Vol. 4, pp. 187-244). Chicago: University of Chicago Press.

Schuengel, C., Bakermans-Kranenburg, M., van IJzendoorn, M., & Blom, M. (1999). Unresolved loss and infant disorganization: Links to frightening maternal behavior. In J. Solomon & C. George (Eds.), *Attachment disorganization* (pp. 71-94). New York: Guilford Press.

Senchak, M., & Leonard, K. E. (1992). Attachment styles and marital adjustment among newlywed couples. *Journal of Social and Personal Relationships, 9*, 51-64.

Shaver, P., & Hazan, C. (1993). Adult romantic attachment: Theory and evidence. *Advances in Personal Relationships, 4*, 29-70.

Shaver, P., Hazan, C., & Bradshaw, D. (1988). Love as attachment: The integration of three behavioral systems. In R. J. Sternberg & M. L. Barnes (Eds.), *The Psychology of Love* (pp. 68-99). New Haven, CT: Yale University Press.

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

Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology, 62*(3), 434-446.

Spanier, G. B., (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family, 38,* 15-28.

Sroufe, L. A., & Fleeson, J. (1986). Attachment and the construction of relationships. In W. Hartup & Z. Rubin (Eds.), *Relationships and development* (pp. 51-71). Hillsdale, NJ: Erlbaum.

Stanley, M. (1986). Commitment and the maintenance and enhancement of relationships. (Doctoral dissertation, Univ. of Denver). *Dissertation Abstracts International, 47B*, 174.

Stanley, M., & Markman, H. J. (1992). Assessing commitment in personal relationships. *Journal of Marriage and the Family, 54*, 595-608.

Sternberg, R. (1988). *Triangular Theory of Love Scale.* Unpublished manuscript, Yale University.

Sternberg, R., Conway, B., Ketron, J., & Bernstein, M. (1981). Peoples' conceptions of intelligence. *Journal of Personality and Social Psychology, 41*, 37-55.

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics Scale. *Journal of Marriage and the Family, 41*, 75-88.

Thorndike, R. M., Cunningham, G. K., Thorndike, R. L., & Hagen, E. P. (1991). *Measurement and evaluation in psychology and education.* New York: MacMillan Publishing Company.

Touliatos, J., Perlmutter, B. F., & Straus, M. A. (1990). *Handbook of family measurement techniques*. Newbury Park, CA: Sage Publishers.

van IJzendoorn, M. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin, 117*, 387-403.

van IJzendoorn, M., & Bakermans-Kranenburg, M. (1996). Attachment representations in mothers, fathers, adolescents, and clinical groups: a meta-analytic search for normative data. *Journal of Consulting and Clinical Psychology, 64* (1), 8-21.

Waters, E., & Deane, K. E. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research* (Vol. 50, pp. 41-65). Chicago: Monographs of the Society for Research in Child Development, Nos. 1-2, Serial No. 209.

Waters, E., & Gao, Y. (1998). *Secure base q-sort for parents.* Unpublished manuscript, State University of New York at Stony Brook, Stony Brook.

Waters, E., Hamilton, C. E. & Weinfield, N. S. (2000). The stability of attachment security from infancy to adolescence and early adulthood: General Introduction. *Child Development, 71*, 678-683.

Waters, E., Kondo-Ikemura, K., Posada, G., & Richters, J. (1991). Learning to love: Mechanisms and milestones. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self processes and development* (Vol. 23, pp. 217-255). Hillsdale, NJ: Lawrence Erlbaum.

Waters, E., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: a twenty-year longitudinal study. *Child Development, 71*, 684-689.

Waters, E., & Sroufe, L. A. (1983). Social competence as a developmental construct. *Developmental Review, 3*, 79-97.

Waters, E., Treboux, D., Fyffe, C., & Crowell, J. (2001). *Secure versus Insecure and Dismissing versus Preoccupied attachment representation scored as continuous varaibles from AAI state of mind scales.* Manuscript submitted for publication.

Weiss, R. (1978). The conceptualization of marriage from a behavioral perspective. In T. J. Paulino & B. S. McCrady (Eds.), *Marriage and marital therapy* (pp. 165-239). New York: Brunner/Mazel.

Weiss, R. (1982). Attachment in adult life. In C. M. Parkes & J. Stevenson-Hinde (Eds.), *The place of attachment in human behavior* (pp. 171-184). Englewood Cliffs, NJ: Prentice Hall.

Weiss, R. L., & Heyman, R. (1990). Observation of marital interaction. In F. D. Fincham & T. N. Bradbury (Eds.), *The psychology of marriage: Basic issues and applications* (pp. 87-117). New York: Guilford Press.

### Footnote

[1] Hierarchical regression analyses were conducted using each partner's report of happiness in the relationship in place of the report of discord. Happiness contributed significantly to the caregiving behavior, but not careseeking, of both men and women, uniquely accounting for 2% of the variance. Women's careseeking, Multiple $R = .64$, $R^2 = .41$, $F(4,129) = 22.35$, $p$ .000, semi-partial correlation for happiness $= .006$, *ns*. Women's caregiving, Multiple $R = .66$, $R^2 = .44$, $F(4,120) = 23.65$, $p$ .000, semi-partial correlation for happiness $= .14$, $p = .03$. Men's careseeking, Multiple $R = .64$, $R^2 = .42$, $F(4,122) = 21.75$, $p$ .000, semi-partial correlation for happiness $= .05$, *ns*. Men's caregiving, Multiple $R = .66$, $R^2 = .44$, $F(4,130) = 25.40$, $p$ .000, semi-partial correlation for happiness $= .13$, $p = .05$.