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Attachment features and functions in adult romantic relationships

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Abstract

The present research examined the development of attachment bonds in adult romantic relationships using a cross-sectional internet survey (Study 1) and a longitudinal study (Study 2). Results suggested that attachment features and functions emerge in a specific sequence that begins with proximity-seeking, followed by safe haven, and finally secure base. Our cross-sectional data indicated that people who had been in relationships for longer were more likely to use their partners for attachment functions. However, in our longitudinal study, after controlling for relationship length and age, there was relatively little change in attachment features and functions over time. The data also indicated that adult attachment bonds might develop more quickly than has been previously assumed.

Keywords

Adult development, attachment behavior, interpersonal relationships, passionate love, relationship initiation, social dating

Over the last few decades Bowlby's (1969/1982) attachment theory has emerged as one of the leading frameworks for understanding close relationships. Although the theory is often applied to the study of individual differences in attachment style, it also offers a normative model for how relationships develop, how they function, and how and why

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they dissolve. Unfortunately, after a quarter of a century of research, we know relatively little about how attachment bonds are formed in romantic relationships (Simpson & Rholes, 2010). Clarifying the normative processes underlying attachment is important not only because the theory rests on the assumption of a normative pattern of development, but because the early phases of a relationship are the crucial junctures at which people begin to discern whether the partner is a viable attachment figure, caregiver, and sexual partner. Understanding how attachment bonds develop early in a relationship might provide theoretical leverage for understanding what kinds of factors allow relationships to flourish.

The objective of the present research was to help fill this gap by examining the normative development of attachment in romantic relationships. Specifically, we tested a widely accepted model of attachment development (Hazan & Shaver, 1994; Hazan & Zeifman, 1994) using both cross-sectional (Study 1) and longitudinal (Study 2) designs. We begin by reviewing briefly Bowlby's (1969/1982) attachment theory and its extension to adult romantic relationships.

A brief overview of attachment development

Bowlby (1969/1982) observed that the young of many altricial species possess a strong propensity to seek and maintain contact with a caregiver. Drawing upon evolutionary theory, he hypothesized that this propensity was the result of an evolved motivational-behavioral system responsible for monitoring the proximity of the primary caregiver. According to Bowlby, such a system would be critical for the survival of individuals who are born with limited capacities for feeding, exploration, and defense. As such, human infants possess features (smiling, large eyes) and behave in ways (clinging, crying) that promote contact with the caregiver. When the child senses that the attachment figure is nearby and accessible, the infant experiences "felt security" (Sroufe & Waters, 1977) and, behaviorally, is more sociable and more willing to explore the environment. In contrast, when the attachment figure is distant or inaccessible, the infant becomes distressed and behaves in ways that function to re-establish proximity to the attachment figure (e.g., by searching, crying, clinging).

One of the assumptions of adult attachment theory is that the same motivational system that is responsible for the bond between infants and their primary caregivers is responsible for the bond that develops between adults in romantic relationships (Hazan & Shaver, 1994). If this assumption is correct, we should expect to observe a number of parallels between infant-caregiver relationships and adult romantic relationships. In fact, previous research has demonstrated many similarities between the two types of relationships. For example, both adults and children (a) feel anxious and restless when separated from their attachment figures, (b) feel at ease when their attachment figures are nearby and accessible, and (c) engage in "baby talk" with one another (Shaver, Hazan, & Bradshaw, 1988).

Furthermore, both infant-caregiver and adult romantic attachment relationships are characterized by three defining qualities, often referred to as the features and functions of attachment: proximity-seeking, safe haven, and secure base. For example, infants *seek proximity* to their caregiver and feel comforted and protected when their caregiver is

nearby. Adults also desire frequent close contact with their romantic partners, especially in the initial stages of a romantic relationship when couple members begin to fall in love. Infants use their caregiver as a *haven of safety* when they are frightened or experience distress. Similarly, adults turn to their romantic partners for support in times of distress. Finally, infants use their caregiver as a *secure base* from which to explore new environments, people, toys, and activities. Correspondingly, romantic partners serve as a secure base for one another from which to explore not only the familiar environments of day-to-day life (Hazan & Zeifman, 1999), but also novel environments and activities, such as new career paths, going back to school, or running a marathon.

For infants, these attachment features and functions appear to emerge in an orderly sequence (Zeifman & Hazan, 2008). Initially, infants are indiscriminant in their proximity-seeking and will socialize with anyone who engages their attention. Infants begin to preferentially seek proximity to their primary caregiver (i.e., attachment figure) between two and six months of age (Ainsworth, 1967; Marvin & Britner, 2008). They direct smiles and vocalizations toward the caregiver more than others. Around six to seven months of age, infants begin to use their primary caregiver as a safe haven, a source of comfort when the infant feels unwell or frightened. Typically by eight months of age, infants establish a secure base with the primary caregiver, using this person as a base for exploration. They also protest separations from their primary caregiver (Zeifman & Hazan, 2008). Finally, sometime within the first three years, children establish a ''goal-corrected partnership'' (Bowlby, 1969/1982) with their primary caregiver in which they are able to negotiate prolonged periods of separation.

Hazan and Shaver (1994) suggested that the formation of an attachment bond at any age involves the same sequence: proximity-seeking, followed by safe haven, and finally the establishment of a secure base. This developmental sequence is often referenced in the attachment literature (Hazan & Zeifman, 1999; Mikulincer & Shaver, 2007), but, in fact, there has been relatively little research that has examined this developmental process empirically. In the sections below we review the few studies that have been done on this topic and highlight their key findings – along with some of the ambiguities they pose.

Review of previous research

Much of the existing work on attachment development in adulthood has examined how the attachment-related features and functions are transferred from parents to peers in adolescence and young adulthood. In one such study, Hazan and Zeifman (1994) administered an interview measure of attachment features and functions (proximity-seeking, safe haven, secure base, and separation protest) to a cross-section of children and adolescents ranging from 6 to 17 years of age. They found that attachment-related features and functions were transferred from parents to peers in a stepwise fashion that begins with proximity-seeking in childhood (6 to 7 years old), followed by safe haven in adolescence and young adulthood (between 8 and 14 years of age). Parents continued to serve as the targets for secure base and separation protest until late adolescence (15 to 17 years old). In a second study, Hazan and Zeifman (1994) assessed attachment features and functions among people in romantic relationships. Participants were classified into

one of two groups: those who were in romantic relationships that had lasted less than two years and those who were in romantic relationships that had lasted two years or more. Compared with those in shorter relationships, participants in relationships that had lasted two years or more reported greater levels of partner-directed attachment features and functions. Hazan and Zeifman suggested that this pattern of results supported the stepwise model of attachment development beginning with proximity-seeking, followed by safe haven, and if the relationship endures beyond two years, establishment of a secure base – indicating a full-fledged attachment.

Fraley and Davis (1997) also examined the way that attachment features and functions were transferred from parents to peers in a college student sample. Their results replicated those of Hazan and Zeifman (1994, Study 1). Using a survey measure of attachment features and functions, they found that a majority of college students reported seeking proximity to their peers (approximately 78%), a smaller proportion had transferred the safe haven function to their peers (approximately 54%), and a majority still used their parents as a secure base (approximately 60%). Additionally, they found that for participants involved in romantic relationships, the degree to which they had transferred attachment-related functions from their parents to their peers increased as a function of relationship length.

Instead of focusing on a single, primary attachment figure, Trinke and Bartholomew (1997) assessed the network of people that college-age individuals used for attachment-related functions. Participants listed the significant people in their lives and then ranked those people in the order they would be used for various attachment-related functions. Results indicated that participants tended to use their peers as a safe haven more so than their parents, but parents, especially mothers, were still primarily used as a secure base. This is consistent with Hazan and Zeifman's (1994) and Fraley and Davis's (1997) findings that young adults were in the midst of transferring safe haven needs to their peers, but that parents remained the target of secure base needs. Additionally, for participants involved in romantic relationships, relationship length was correlated with the partner's rank in the attachment hierarchy, suggesting that participants who had been in their relationships for longer were more likely to direct attachment needs, and particularly secure base needs, toward their partners.

Friedlmeier and Granqvist (2006) examined attachment features and functions in Swedish and German adolescent samples over 12 to 15 months with two assessment points. In their cross-sectional analyses, their results replicated those of Fraley and Davis (1997). Approximately 90% of adolescents in both samples sought proximity to their peers. As expected, a smaller proportion of each group (40–60%) used their peers as a safe haven, and a majority of adolescents in both groups (54–75%) still used their parents as a secure base. Based on the assumption that when the secure base feature has been transferred, the two "lower order" functions also should have been transferred, and similarly when safe haven has been transferred, proximity-seeking also should have been transferred, the authors created a Guttman scale and computed the coefficient of reproducibility for both Swedish and German samples at both assessment points. All coefficients were above .95, supporting the Hazan and Zeifman (1994) model of stepwise transfer of attachment features.[1]

However, Friedlmeier and Granqvist's (2006) prospective analyses did not support the stepwise model. The researchers used the coefficient of reproducibility to test the predicted pattern (from parent to peer) against the opposite pattern (from peer to parent) from Time 1 to Time 2. The coefficient of reproducibility was .84, indicating poor fit for the stepwise model. In fact, for those participants who reported changes in attachment functions, they were just as likely to be in the predicted direction (38%; from parent to peer) as the opposite direction (37%; peer to parent).

Summary and outstanding issues

In summary, previous research has provided some preliminary evidence that attachment features and functions generally emerge in peer relationships in ways that are similar to their emergence in infancy and early childhood. Nonetheless, there are a few ambiguities in this literature. First, previous studies do not provide a strong consensus on how these features and functions develop. For example, Friedlmeier and Granqvist's (2006) cross-sectional analyses, but not prospective analyses, supported the sequential development of attachment functions. Second, much of this research has focused on attachment to peers in a general sense (e.g., including childhood friends) rather than on the development of romantic relationships per se. Conceptually, it would be desirable to be able to examine the development of attachment in romantic relationships explicitly rather than examining attachment development in peers more broadly. In particular, much of the previous research has focused on the transference of attachment features and functions from parents to peers in adolescence. The present studies use older samples (mean age = 27.48 and 20.38 years) to examine attachment in adult romantic relationships, which may be more stable than adolescent relationships. Third, a number of scholars (Fraley & Davis, 1997; Hazan, Gur-Yaish, & Campa, 2004; Hazan & Zeifman, 1999; Klohnen, Weller, Luo, & Choe, 2005; Trinke & Bartholomew, 1997) have referenced or loosely replicated Hazan and Zeifman's (1994) finding that it takes about two years, on average, for romantic attachments to fully develop. However, researchers have not demonstrated unambiguously that there is something unique or special about the two-year mark. Hazan and Zeifman (1994, p. 161) reported that the two-year threshold they highlighted was empirically derived, but they did not report data on alternative thresholds. It could be the case that attachments develop at a faster rate than what was implied by Hazan and Zeifman (1994). Alternatively, it could be the case that it takes considerably longer than two years for romantic attachments to fully develop.

Overview of the present research

Two major questions guided the present research. First, we wanted to examine the sequence in which the features and functions of attachment emerge in adult romantic relationships. We address this by examining both cross-sectional variation in relationship length (Study 1 and Study 2) and by examining longitudinal changes in ongoing relationships (Study 2). Our second major research question was whether there is a point in relationship development at which relationships can be said to be fully formed attachment relationships. As explained previously, some writers have hypothesized that such a

point exists and that it takes place at two years, on average. However, previous research has not been well positioned to examine this hypothesis rigorously.

Study 1

We conducted a cross-sectional survey to examine the way in which attachment-related features and functions develop over varying time intervals. Participants provided relationship information and completed a measure of attachment features and functions (Fraley & Davis, 1997). Importantly, we treated relationship length in a more graded fashion than has been done in the past so we could examine how attachment features and functions change over increasing relationship length.

Method

Participants. Data from over 6000 participants were collected through an internet survey designed to assess attachment behaviors in past and current relationships. The survey was administered on the second author's website, www.yourpersonality.net, which contains a variety of web studies related to personality, attachment, and close relationships. The host site can be found via keyword searches for terms associated with personality and relationships. It receives approximately 100 to 200 visitors per day; however, not all visitors participate in each study posted on the website.

For the purposes of the present report, we focused on a subsample of 2306 participants who reported that they were in a dating relationship. The sample comprised 1899 women (82.4%). The average age was 27.48 years ($SD = 9.58$) and the average relationship length was 17.86 months ($SD = 15.97$). The average age was typical of internet-based studies (Gosling, Vazire, Srivastava, & John, 2004). The gender composition of our sample was slightly atypical, with more women than most internet studies (see Gosling, et al., 2004, for a comparison of internet samples and traditional undergraduate samples). The women ($M = 27.10$, $SD = 9.21$) in our sample tended to be slightly younger than the men ($M = 29.28$, $SD = 11.00$), $t\ (525) = -3.72$, $p < .001$, $d = -0.21$. Women also tended to report longer relationship lengths ($M = 18.34$, $SD = 16.01$) compared with men ($M = 15.56$, $SD = 15.69$), $t\ (589) = 3.17$, $p = .002$, $d = 0.18$. The majority of our sample was from the United States ($n = 1429$), with the remainder of the sample from Canada ($n = 80$) and elsewhere ($n = 797$).

Materials and procedure. Participants provided demographic and relationship information. To assess attachment features and functions, participants completed the six-item WHOTO survey by Fraley and Davis (1997) – a measure that was derived from the more extensive WHOTO assessment developed by Hazan and her colleagues (Hazan, Hutt, Sturgeon, & Bricker, 1991).[2] Two items corresponded to each of three attachment features and functions: proximity-seeking (e.g., "Who is the person you most like to spend time with?"), safe haven (e.g., "Who is the person you want to be with when you are feeling upset or down?"), and secure base (e.g., "Who is the person you would want to tell first if you achieved something good?"). Participants selected a target person for

Table 1. Study 1: Percentage of participants endorsing each person as the target for the six WHOTO (Fraley & Davis, 1997) items

	Response options						
WHOTO items	Mother	Father	Partner	Ex-partner	Friend	Sibling	Other
Proximity-seeking							
Who is the person you most like to spend time with?	3.0	0.6	74.6	2.3	11.1	3.7	4.6
Who is the person you do not like to be away from?	8.2	2.0	68.0	3.4	4.7	3.5	9.4
Safe Haven							
Who is the person you want to be with when you are feeling upset or down?	6.5	1.2	64.0	3.9	14.4	3.5	6.2
Who is the person you would count on for advice?	19.9	6.2	28.6	3.0	29.4	7.6	4.9
Secure Base							
Who is the person you would want to tell first if you achieved something good?	20.4	7.6	60.4	1.7	5.5	2.5	1.7
Who is the person you can always count on?	27.2	8.6	34.0	2.3	13.5	7.2	6.5

Note. Rows may not add to 100% due to non-responses.

each of the six items. The options were: mother, father, partner, ex-partner, friend, sibling, and other. Only one option could be selected for each item.

We used a binary coding scheme to analyze attachment features and functions. If a participant selected his or her partner as the target of one or both of the WHOTO items for a particular attachment feature, we considered him or her to be directing that attachment feature toward the partner (coded as 1). If a participant did not select his or her partner as the target for either of the WHOTO items for a particular feature, we considered him or her to be directing that attachment feature toward someone other than the partner (coded as 0). This coding scheme is more lenient than one requiring that a participant select his or her partner as the target for both of the WHOTO items to be considered as directing that feature toward the partner. We opted for this more lenient coding scheme largely because it closely resembles the coding schemes used by other investigators (e.g., Fraley & Davis, 1997; Friedlmeier & Granqvist, 2006; Zhang, Chan, & Teng, 2011). We discuss in more depth later the implications of using alternative coding procedures.

Results

Sequence of attachment features and functions. The proportions of participants selecting each target for all six questions are presented in Table 1. Our first research question was to examine the sequence in which attachment features and functions emerge in adult romantic relationships. To better understand proximity-seeking, safe haven, and secure

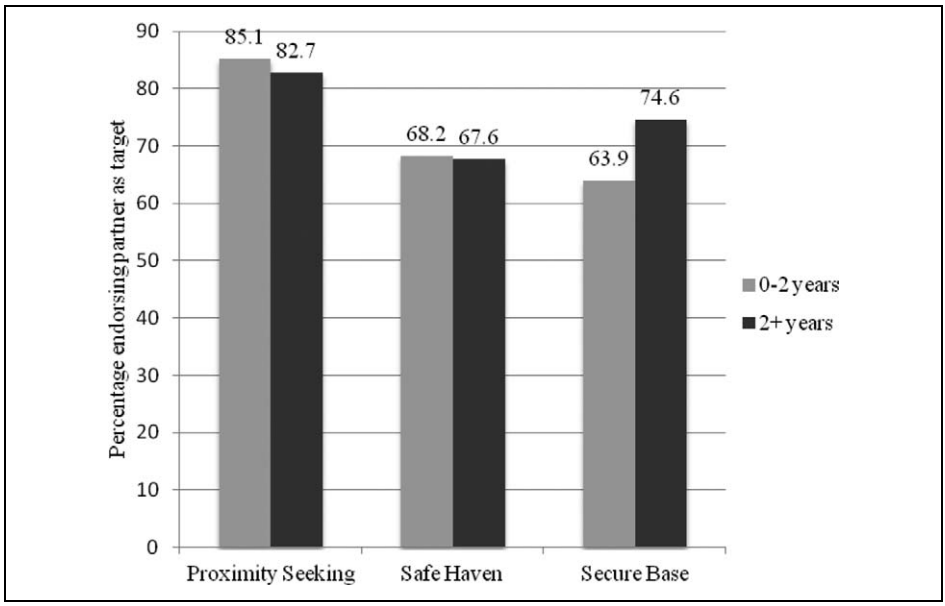

Figure 1. Study 1: Proportion of participants directing each attachment feature toward the romantic partner in "short" (0-2 years) and "long" (2+ years) relationships.

base as a function of time, we divided relationship length into a sequence of three-month blocks and determined the proportion of people directing each attachment feature toward the partner within each temporal block. There were 21 blocks in total, with the 21st block indicating a relationship of just over five years. (We stopped at 21 blocks because subsequent blocks contained fewer than 20 people.) The sample sizes for each relationship length block ranged from 366 (Block 1, 0–3 months) to 22 (Block 19, 55–57 months). Results are displayed in Figure 1. One way to address the question about the manner in which attachment-related features and functions emerge is to examine the initial block, which includes nascent relationships of three months or less. Seventy-five percent of participants in this group reported seeking proximity to their partner. A smaller proportion of participants reported using the partner as a safe haven during times of distress (57.4%), and an even smaller proportion reported using the partner as a secure base from which to explore new things (48.4%). These results converge with the pattern in which attachment features and functions emerge in infant-caregiver relationships.[3]

"Short" versus "long" relationships. To explore whether two years is a threshold at which point people are more likely to have a fully formed attachment relationship with their romantic partners, we examined more closely the two-year point in relationships. In the past, researchers (Hazan & Zeifman, 1994) have separated people into two groups: those who have been involved with their partner for less than two years and those who have been involved for two years or longer. Hazan and Zeifman (1994) suggested that there was a qualitative difference between relationships that had lasted two years or more

(fully attached) and those that had lasted for less than two years (not yet fully attached). Following their protocol, we split participants into two groups. The "short" relationships group comprised people who had been in their relationship for less than two years ($n = 1620$; $M = 8.94$ months, $SD = 6.04$ months); the "long" relationships group comprised those who had been in their relationship for two years or more ($n = 686$; $M = 38.92$ months, $SD = 11.83$ months). We then examined the extent to which people directed attachment features and functions toward their partner as a function of "short" versus "long" relationship length.

The results are displayed in Figure 1. For all three attachment features and functions, the two groups had similar proportions of participants who directed the feature toward the partner. In the short relationships group, 85.1% of participants were seeking proximity to the partner compared with 82.7% in the long relationships group, $\chi^2(1) = 2.23$, *ns*. Similar proportions used their partners as a safe haven during times of distress: 68.2% in the short relationships group, and 67.6% in the long relationships group, $\chi^2(1) = 0.72$, *ns*. The secure base feature demonstrated the only difference between the two groups: 63.9% of participants in the short relationships group used their partner as a secure base from which to explore new things compared with 74.6% in the long relationships group, $\chi^2(1) = 25.21$, $p < .001$.

To examine gender differences in the "short" versus "long" relationship comparisons we conducted a three-way log-linear analysis for each attachment feature. This type of analysis is ideal to examine interactions among several discrete variables. Each log-linear analysis included the binary attachment feature variable, binary relationship length variable, and sex. The three-way interaction among attachment feature, relationship length, and sex was not significant for any of the attachment features, suggesting that the association between relationship length and each of the attachment features was similar for men and women.

Attachment threshold. Next, we further examined the threshold issue to determine if there is any point in relationship development at which relationships can be said to be fully formed attachment relationships. We approached this in two ways: (1) we examined the attachment-related features and functions over other temporal blocks, and (2) we conducted logistic regression analyses.

First, when we examined the attachment-related features and functions over other temporal blocks, proximity-seeking appeared relatively stable across relationship length. The proportion of people using the partner as a safe haven appeared to increase with increasing relationship length. If anything, the association between relationship length and attachment is linear such that the proportion of participants using the partner as a secure base increased as relationship length increased. These results are illustrated with lowess (locally weighted scatterplot smoothing) regression lines in Figure 2 (Cleveland, 1979; Cleveland & Devlin, 1988). These data suggest there is no threshold at two years for using one's partner as a secure base. Indeed, they suggest that there is no threshold at all. The proportion of people who use their partner as a secure base increases linearly as a function of relationship length, at least within the five-year span studied here.

Second, we conducted logistic regressions to further examine these issues. For each attachment feature, we regressed the binary outcome variable onto (log) relationship

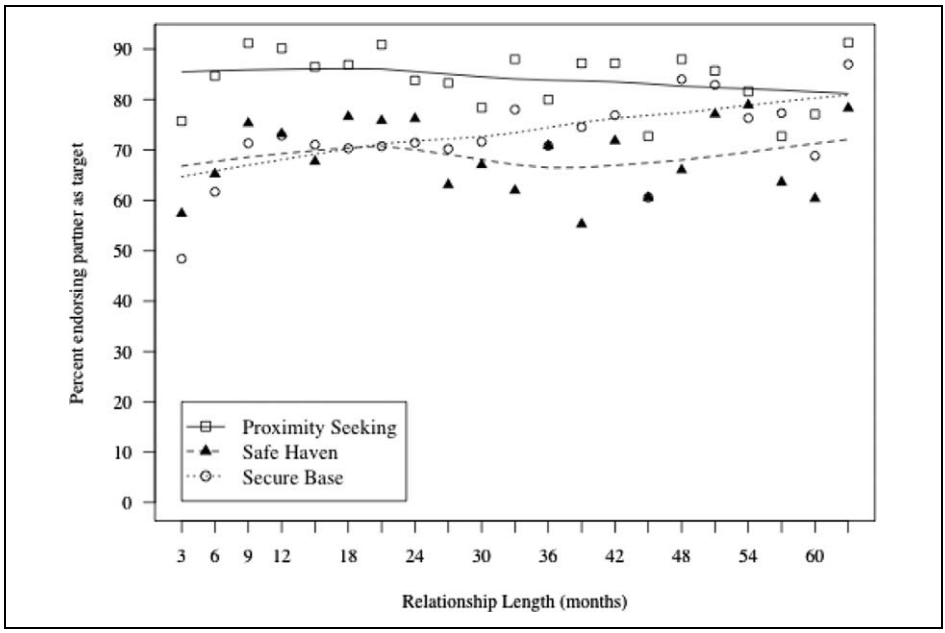

Figure 2. Study 1: Percent of participants directing each attachment feature toward the partner by relationship length with lowess lines.

length, sex, and the interaction between sex and relationship length. Being in one's relationship for longer translated into increased odds of seeking proximity to the partner, $B = 0.33$, Wald $\chi^2(1, N = 2300) = 6.17$, $p = .01$, 95% CI [1.07, 1.81]. There were no gender differences for proximity-seeking, $B = -0.13$, Wald $\chi^2(1, N = 2300) = 0.16$, $p = .69$, 95% CI [0.47, 1.65], and women and men demonstrated similar odds of seeking proximity across differing relationship lengths, $B = -0.12$, Wald $\chi^2(1, N = 2300) = 0.15$, $p = .70$, 95% CI [0.50, 1.60].

For the safe haven feature, being in a relationship for longer led to greater odds of using the partner as a safe haven, $B = 0.36$, Wald $\chi^2(1, N = 2300) = 12.20$, $p < .001$, 95% CI [1.17, 1.76]. There were no gender differences for the safe haven feature, $B = 0.34$, Wald $\chi^2(1, N = 2300) = 1.59$, $p = .21$, 95% CI [0.83, 2.39], and this was true across differing relationship lengths, $B = -0.26$, Wald $\chi^2(1, N = 2300) = 1.09$, $p = .30$, 95% CI [0.47, 1.26].

Finally, for the secure base feature, people in longer relationships had greater odds of using their partner as a secure base than people in shorter relationships, $B = 0.79$, Wald $\chi^2(1, N = 2300) = 56.81$, $p < .001$, 95% CI [1.79, 2.70]. There were no gender differences for secure base, $B = -0.16$, Wald $\chi^2(1, N = 2300) = 0.37$, $p = .55$, 95% CI [0.50, 1.44]. However, the interaction between sex and relationship length marginally predicted the odds of using the partner as a secure base, $B = 0.46$, Wald $\chi^2(1, N = 2300) = 3.01$, $p = .08$, 95% CI [0.94, 2.67]. Because females were the reference group, this positive coefficient suggests that for males, increased relationship length led to even

greater odds of using the partner as a secure base compared with females. In sum, our logistic regression analyses suggest that the odds of seeking proximity to the partner, the odds of using the partner as a safe haven, and the odds of using the partner as a secure base increase with increasing relationship length.[4] Again, there is no threshold at which people are fully attached to the partner.

It is important to note that the three attachment features and functions are present in a large number of "new" relationships (i.e., relationships that have lasted less than a year). Until now, it has been assumed that people are not fully attached to their romantic partners until approximately two years (Hazan & Zeifman, 1994). Our results suggest that this may not be the case. People appear to become attached to their romantic partners relatively quickly. However, these rates are also dependent on exactly what kinds of cut-offs are used for classifying people as using their partner for the various features and functions. As noted previously, we classified people as exhibiting safe haven behavior, for example, if they identified their partner for either one of the two safe haven items. If a stricter criterion is used (e.g., the person must identify the partner for *both* safe haven items), the relative rates of attachment bonds are lower. Specifically, in the first temporal block 45.5% of participants used their partners for proximity-seeking, 15.8% for safe haven functions, and 17.8% for secure base functions. Importantly, however, when we conducted logistic regressions using the strict criterion set, similar developmental patterns emerged as with the more lenient criteria.[5] We return to these issues and their implications for adult attachment theory and research in the Discussion.

Summary

In Study 1 our findings supported the proposed sequence of attachment development in which people first seek proximity to a romantic partner, then begin to use the partner as a safe haven in times of distress, and finally use the partner as a secure base from which to explore new environments, opportunities, and ideas. We also demonstrated that people who have been in their relationships for less than two years do not differ qualitatively from those in relationships for more than two years. As such, it appears that there is nothing exceptional about the two-year marker in relationships and that it does not necessarily distinguish between fully attached individuals and not-yet-fully attached individuals. Moreover, there does not appear to be any specific time point that usefully discriminates people who have formed attachments to their partners from those who have not. In fact, the most surprising finding from Study 1 was that many people exhibited the features and functions of attachment much earlier in their relationships than previously has been assumed when traditional criteria are used for classifying relationships. When more strict criteria are used, the prevalence of attachment relationships is lower.

Study 2

We conducted a second study to examine the sequence of attachment features and functions longitudinally. The cross-sectional design that we employed in Study 1, while providing important insight into this little studied topic, also had limitations. Most notably, relationship length was correlated with age ($r = .10$), suggesting that people who

had been in their relationships for longer (e.g., those assigned to the later time blocks) also tended to be older than those participants who reported shorter relationship lengths. Thus, it is possible that increases in safe haven and secure base functions were due to an age effect rather than increasing relationship length. Examining the features and functions longitudinally ameliorates this problem because relationship length increases uniformly for all participants. Age was also correlated with proximity-seeking ($r = -0.05$) and with secure base ($r = 0.05$), which further highlights the possibility that variation in our dependent measures might be due to an age effect. The hierarchical analyses employed in Study 2 address this limitation because they allow us to directly estimate the effect of age.

We begin by presenting the descriptive data on the proportions of participants who selected the partner as the target of the attachment-related features and functions at each assessment point. Next, we use hierarchical linear modeling to fit linear growth models for each of the attachment-related features and functions while controlling for relationship length and age at the study initiation.

Method

Participants. Participants were recruited from the campus of a large Midwestern university as well as the surrounding community. Data from over 400 romantically involved participants were collected. Both dyad members participated. For the purposes of this study, we focused on those participants who did not experience a breakup during the year-long study and who completed assessments at three or more waves. Both dyad members did not have to satisfy the eligibility criteria for one of their data to be used. Our sample size was 150 (50.3% women). The average age was 20.38 years (ranging from 18 to 25 years, $SD = 1.70$) and the average relationship length was 16.31 months (ranging from 0 to 69 months, $SD = 15.51$). The majority of our sample was Caucasian (78.7%), followed by Chinese (6.7%), Indian/Pakistani (3.3%), African American (3.3%), and other ethnicities (8.0%).

Materials and procedures. To establish rapport, explain the study's procedures, and obtain the first assessment, both couple members came to our laboratory for an initial visit. Following this visit, participants completed four online assessments individually and from their own homes over the course of one year. They were paid a portion of their total stipend upfront and received $150 in total if they completed the study. If they withdrew from the study early, they were paid in a way that was proportional to their participation. Each assessment consisted of multiple surveys to assess personality, relationship functioning, attachment, and intrapersonal functioning. For the purposes of the present study, we focus on a subset of these inventories related to attachment features and functions and relationship functioning.

Adult attachment features and functions. At all five assessments, participants completed the same six-item WHOTO (Fraley & Davis, 1997) measure used in Study 1. Participants were instructed to think about how they were feeling in that moment, rather than how

they had felt since the time of their last study assessment. This measure and the coding scheme are described in full under Study 1.

Results

Eligibility analyses. Since our eligibility criteria resulted in a large reduction in sample size, we conducted analyses on Time 1 data to compare those participants who were used in our sample with those who did not satisfy the eligibility criteria. In general, the two groups were similar in demographic, intrapersonal, and relational variables. However, a few important differences emerged. The percentage of females in our sample (50.3%) was smaller than the percentage of females among ineligible participants (60.9%). Additionally, eligible participants reported greater satisfaction, commitment, and investment in their relationships, higher dyadic functioning, and lower depression compared with those participants who did not meet our eligibility criteria. See Table 2 for a complete listing of the eligibility analyses. Taken together, these results suggest that participants in our sample had generally more successful relationships than those who did not meet our eligibility criteria.

General analyses. The proportions of participants selecting their partner as the target for proximity-seeking, safe haven, and secure base (WHOTO: Fraley & Davis, 1997) at each time point are shown in Figure 3. We discuss them here for descriptive purposes. At Time 1, 95.3% of participants sought proximity to their partner, which decreased to 93.3% at Time 2, 92.7% at Time 3, and 90.4% at Time 4, and decreased further to 86.0% at Time 5. Based on these proportions, it appears that participants may seek proximity to their partners less frequently as relationships progress.

The trends for safe haven and secure base are less clear. At Time 1, 78.7% of participants reported using their partner as a safe haven in times of distress. This proportion fluctuated at the subsequent time points: 85.3% at Time 2, 80.7% at Time 3, 70.6% at Time 4, and 72.7% at Time 5. It appears that after an initial increase in the tendency to use the partner as a safe haven, there was a slight but steady decline in the proportion of participants whose partners served as a haven of safety. For secure base, at Time 1, 72.7% of participants reported their partner as the target. At subsequent time points, this proportion fluctuated without a clear trend: 71.3% at Time 2, 70.7% at Time 3, 74.3% at Time 4, and 66.1% at Time 5. Additionally, for those participants who were in relationships of less than two years ($n = 117$) at Time 1, 72.6% reported already using their partner as a secure base.

However, there is one potential problem with examining these raw data. Participants entered the study at varying relationship lengths (less than one month to over five years) and ages (18–25). It is possible that the variation in relationship length and age obfuscated meaningful changes over the five time points. Therefore, we present next multilevel models that take relationship length and age into account.

Multilevel analyses. To examine the variation in the extent to which participants directed the specific features and functions toward their romantic partners over time, we used multilevel modeling. In these models, the ''level one'' equation represented the repeated

Table 2. Study 2: Means, standard deviations, and proportions of ineligible versus eligible participants

	Ineligible		Eligible				
	M	*SD*	*M*	*SD*	*t*	χ^2	*p*
Age	20.27	1.55	20.38	1.70	−0.66		0.51
Relationship length	16.79	15.89	16.31	15.51	0.30		0.76
Time 1 Anxiety toward partner	2.27	1.46	2.15	1.42	0.77		0.44
Time 1 Avoidance toward partner	1.73	0.77	1.63	0.70	1.25		0.21
Time 1 Dyadic functioning	118.21	14.32	120.88	12.24	−1.87		0.06
Time 1 CES-D Depression score	2.77	0.98	2.59	0.92	1.75		0.08
Time 1 ECR-R Anxiety	3.12	1.18	3.10	1.27	0.17		0.87
Time 1 ECR-R Avoidance	2.46	0.96	2.38	0.98	0.81		0.42
Time 1 IMS – Satisfaction	5.91	0.95	6.11	0.81	−2.07		0.04
Time 1 IMS – Commitment	6.01	1.12	6.30	0.83	−2.84		0.01
Time 1 IMS – Alternatives	3.17	1.33	3.18	1.19	−0.05		0.96
Time 1 IMS – Investment	4.88	1.18	5.13	1.07	−2.08		0.04
	Proportion		Proportion				
Gender (% female)	61.90		50.30			5.37	0.02
Time 1 Proximity-seeking (% partner as target)	91.30		95.30			2.22	0.14
Time 1 Safe Haven (% partner as target)	78.00		78.70			0.25	0.88
Time 1 Secure Base (% partner as target)	64.70		72.70			2.60	1.07

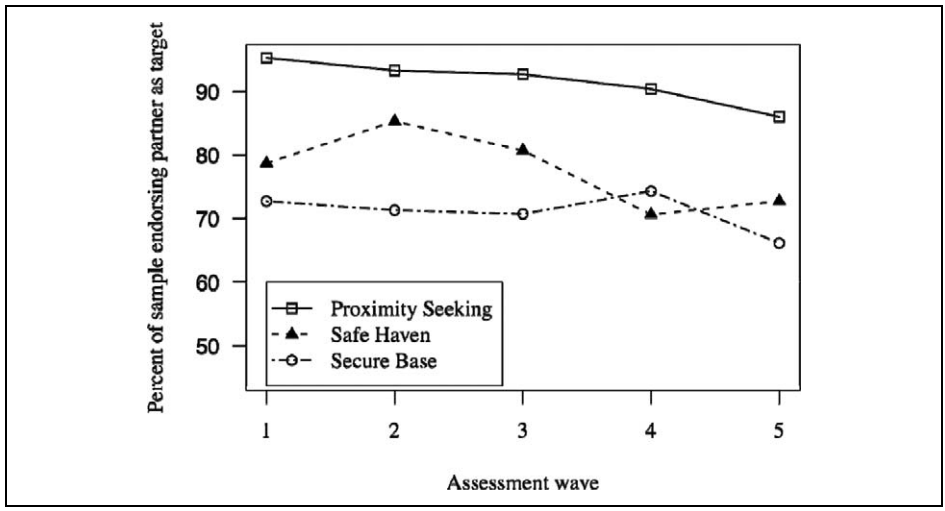

Figure 3. Study 2: Percent of sample directing each attachment feature toward the partner by assessment wave.

measurements of attachment features within a person; the "level two" equations represented person-level variables, such as relationship length and age (Dai, Li, & Rocke, n.d.). We fit separate models for each attachment feature: proximity-seeking, safe haven, and secure base. Because our outcome variables were binary, we used multilevel logistic models in which "1" was used to represent the direction of the attachment feature toward the romantic partner and "0" was used to represent the direction of the attachment feature toward someone else.

The basic form of the models used in each analysis was as follows:

Level 1 (within individual)

$$\text{logit(attachment feature/function)} = \beta_{0j} + \beta_{1j}(\text{time})$$

Level 2 (between individuals)

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{age}) + \gamma_{02}(\text{relationship length}) + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{age}) + \gamma_{12}(\text{relationship length}) + U_{1j}$$

At Level 1 we used time as a predictor for the attachment feature. Time was based on the five measurement occasions and was coded 0, 1, 2, 3, and 4. The Level 2 equations contained person-level predictors. Specifically, to examine the effect of participant age and relationship length at study initiation, we included these variables in the model as explanatory variables for the random intercept and the random slope of time.[6]

For each attachment feature, we used SAS PROC GLIMMIX (SAS Institute Inc., 2008) to estimate parameters for four multilevel logistic models: a null model, a random intercept model in which the intercepts for participants and dyads were allowed to vary randomly, a random slope model in which the slopes for participants and dyads were allowed to vary randomly, and a random intercept and slope model in which intercepts and slopes were allowed to vary randomly for participants and dyads. (The equations above represent the most inclusive of these – the random intercept and slope model.) The

Table 3. Study 2: Parameter coefficients and fit statistics for the three hierarchical logistic models

	Proximity-seeking			Safe haven			Secure base		
	Estimate	*SE*	*p*	Estimate	*SE*	*p*	Estimate	*SE*	*p*
Level 1									
Intercept	−4.16	4.17	0.32	2.66	3.09	0.39	−8.85	3.28	0.01
Time	3.46	2.59	0.18	−1.72	1.24	0.16	0.55	1.49	0.71
Level 2									
Age	0.39	0.21	0.07	−0.04	0.15	0.82	0.51	0.17	0.00
Relationship length	−0.04	0.02	0.05	0.03	0.02	0.10	0.00	0.02	0.77
Cross-level									
Age×time	−0.13	0.13	0.31	0.08	0.06	0.21	−0.25	0.08	0.74
Relationship length×time	0.02	0.01	0.19	0.00	0.01	0.58	0.01	0.01	0.36
Variance									
Intercept (subject)	–	–		2.35	1.11		2.12	1.26	
Intercept (dyad)	–	–		0.90			0.95		
Time (subject)	0.64	1.86		0.17	0.22		0.33	0.38	
Time (dyad)	3.25			0.11			0.21		
Fit statistics									
−2 Log Likelihood	318.54			637.22			685.67		
AIC	334.54			657.22			705.67		
BIC	358.57			687.26			735.71		

random slope and intercept model was the best fitting model for safe haven and secure base, and the random slope model was the best fitting model for proximity-seeking based on the -2 Log Likelihood, Akaike information criterion (AIC), and Bayesian information criterion (BIC). Lower values of these indices indicate better fit. As such, we focus on the best fitting models in the results that follow.

The complete results from our final models are presented in Table 3. Over increasing time in our year-long longitudinal study, there was no significant change in the probabilities of seeking proximity to the partner, using the partner as a safe haven in times of distress, or using the partner as a secure base from which to explore new environments. However, the probability of seeking proximity to the partner was greater for older individuals, and slightly lower for individuals who had been in their relationships for longer at the start of the study. Additionally, relationship length marginally predicted the probability of using the partner as a safe haven. People who had been in their relationships for longer were more likely to use the partner as a safe haven. Finally, age predicted the probability of using the partner as a secure base. Older people were more likely to use their partner as a secure base compared with younger people. The partial odds ratio for the effect of age is given by $e^{(0.51)} = 1.66$, indicating that for each unit increase in age (year), the odds of using the partner as a secure base were 1.66 times higher. It is important to note that this is based on an analysis that jointly controls time, variation in relationship length, and age. Thus, the fact that people in longer relationships appear to be more likely to use their partner as a secure base compared with people in shorter relationships, as shown in Study 1, might be due to age: people in longer relationships tend to be older on average.

Discussion

The main objective of this research was to examine the normative process by which people become attached to romantic partners in adulthood. Our research was guided by two major questions. First, we wanted to examine the sequence in which people come to seek proximity to a romantic partner, use the partner as a safe haven in times of distress, and use the partner as a secure base from which to explore new environments. We examined this process using both a cross-sectional study (Study 1) and a longitudinal study (Study 2). Second, we wanted to assess whether there is a point in relationship development at which relationships can be said to be fully formed attachment relationships. Some researchers have suggested that such a threshold exists around the two-year point in relationships. We will address each of these research questions in turn.

In Study 1, we demonstrated that for people in new relationships (e.g., in the initial relationship length block of 0–3 months), proximity-seeking was the most prevalent attachment feature, followed by safe haven, and finally the establishment of a secure base. This suggests that the sequence in which these features emerge in adult romantic relationships may be similar to the sequence in which they emerge in infant-caregiver relationships (Hazan & Shaver, 1994).

When we examined change in the features and functions of attachment over time, we found that controlling for relationship length and age was crucial. In Study 1 we employed a cross-sectional design to examine the attachment features and functions over increasing relationship length. Our logistic regression analyses showed that people who had been in their relationships for longer were more likely to seek proximity to the partner, use the partner as a safe haven, and use the partner as a secure base.

However, in our longitudinal analyses (Study 2), we demonstrated that after taking relationship length and age into account, there were no significant changes in the proximity-seeking, safe haven, or secure base functions over the course of our year-long longitudinal study. Instead, we found that the probability of seeking proximity to the partner was greater for older people, and people who had been in their relationships for longer at the start of the study. Additionally, people who had been in their relationships for longer were more likely to use the partner as a safe haven than those who had been in their relationships for shorter periods of time. Finally, participant age predicted the probability of using the partner as a secure base. Older people were more likely than younger people to use the partner as a secure base.

Our second major research question was whether there was a threshold at which relationships could be considered fully formed attachment relationships. We did not find evidence for such a threshold. In Study 1 we found that people who had been in their relationships for less than two years did not differ qualitatively from those in relationships for more than two years. As such, it appears that the two-year mark does not have a threshold-like quality. It does not necessarily distinguish between fully attached individuals and not-yet-fully attached individuals. Furthermore, after examining the proportions of people who used their partner as a secure base over increasing relationship lengths, it appears that the proportion of people using their partner as a secure base increased in a linear fashion. These data suggest that there is no threshold at the two-year point or at any point over the course of time points studied.

In fact, one of the most interesting findings from our studies was the presence of attachment-related features and functions in relatively new relationships. At least two potential explanations might account for this finding. One possibility is that there is a problem with the way we commonly measure these constructs in adults. Even if attachment-related features and functions are relevant in the context of new relationships, it seems unlikely that they play the same role in new relationships as they do in more established relationships. Perhaps our measures are not sensitive enough to distinguish between full-fledged attachments and attachments that are still developing. If our measures are too "easy" then nearly everyone with any degree of attachment to their partner will score at the high end of the scale. In other words, it is possible that the measurement of attachment functions used in this research is analogous to administering a simple test of addition to assess people's skills in calculus. Most people would probably score high on the test, but the test would be unable to distinguish between those people with exceptional calculus skills and those with mediocre or poor calculus skills. It may be that we are measuring attachment features and functions in a way that is simply too lenient so we are unable to distinguish between people whose attachments are "full-fledged" and those whose attachments are at earlier stages of development. This might also explain why we detected little change in attachment features and functions over time (Study 2). If people score high on our measures of attachment features and functions in the beginning stages of a relationship, there is not much room to increase. As a field, we need to continue to work to better understand and solve this issue. Perhaps there are modifications that can be made to our measures that will make them more sensitive at higher levels of attachment (e.g., Rowe & Carnelley, 2005). For example, it is possible that administering our measures using an experience sampling methodology would more adequately capture people's attachment realities. That is, people would report on the people they *actually* sought proximity to, used as a safe haven, and used as a secure base throughout their daily lives, rather than their own general summary of who they tend to turn to for these attachment needs.

Alternatively, a modified measure could prompt participants to think of the most recent time they felt distressed, and then they would answer the safe haven questions (e.g., "Who is the person you wanted to be with during this distressing time?"). Next, they would be prompted to think about the most recent time they achieved something good or felt excited about something, and then they would answer the secure base items (e.g., "Who is the person you wanted to tell first about your achievement or excitement?"). Proximity-seeking does not lend itself to this format as easily. Instead it might be useful to ask participants who they talk to most frequently on the phone, communicate with most frequently on the internet (email, instant messaging, social networking sites), and who they see most often in person. Responses to these questions would give a sense of with whom the participant has the most contact. However, the current WHOTO questions may more adequately address the psychological aspect of proximity-seeking; for example, people the participant does not like to be away from and people the participant thinks about often. Combining the current WHOTO questions and the behavioral questions might give a more complete picture of proximity-seeking.

Additionally, some of the WHOTO items may not adequately tap into the underlying attachment features and functions. For example the item, ''Who would you tell first if you achieved something good?'' may not be the best assessment of the secure base function. The measure may benefit from a revision of these items. Moreover, the scoring of the WHOTO questionnaire has been inconsistent in the literature. Some have used a form of Guttman scaling to examine the extent of attachment to a particular target (e.g., Fraley & Davis, 1997; Friedlmeier & Granqvist, 2006; Zhang et al., 2011), whereas others have considered anyone named as the target for any of the six items an attachment figure, albeit not necessarily a primary attachment figure (Mikulincer, Gillath, & Shaver, 2002). Ideally, a measure of the features and functions of attachment would have a more explicit scoring system that researchers could implement easily.

However, another possibility is that the measurement of these constructs is adequate and that the field (ourselves included) has simply overestimated the amount of time it takes for attachment relationships to develop. Why might attachment functions become relevant so early in relationship development? One potential explanation may be derived from recent research by Eastwick and Finkel (2008). They found that attachment features and functions were relevant even in fledgling relationships that were not yet ''official'' dating relationships, and that the features and functions might take on a fantasy-like quality in the earliest stages of relationships. In their studies, attachment anxiety within fledgling relationships was normative and it predicted engagement in partner-directed attachment features and functions in both correlational and experimental studies. Eastwick and Finkel observed, ''It is almost as if a central component of the experience of passionate love is the fantasy that one will ultimately possess an attachment bond with the desired partner'' (p. 642). A fantasy-like simulation of the relationship as if it were an attachment relationship might help people get a sense for the partner's potential as an attachment figure. If people conclude the partner is a viable attachment figure, there would be little reason to delay the development of an attachment bond for two years.

However, it seems plausible that attachment-related feelings and fantasies in the initial stages of a relationship may be qualitatively different than attachment in more established relationships. Campa (2011) has examined a similar phenomenon in her work on attachment potency, or the extent to which a relationship fulfills attachment needs. She found that after controlling for infatuation, there is a greater association between relationship length and attachment potency. It is possible that the current measure of attachment features and functions does not distinguish between attachment-related feelings or fantasies during the infatuation stage of a new relationship and the attachment to a romantic partner that may emerge more gradually.

A final point is that, even in the infant attachment literature, infants do not take two years to become fully attached to their caregivers. Instead, infants are typically fully attached to their primary caregiver within the first year of life and the quality of that bond can be assessed in the strange situation procedure (Ainsworth, Blehar, Waters, & Wall, 1978). Furthermore, physical and cognitive milestones set the pace for infant attachment. For instance, an infant cannot use her caregiver as a secure base from which to explore her environment until she has the motor skills necessary to engage in exploration. In adult romantic attachment, there are no comparable pacemakers.

Limitations and future directions

There were several limitations in the present studies that could be addressed in future research. First, we had a high proportion of women participating in Study 1 (82.4%). This is comparable to the proportion of women participating in other internet-based, relationship surveys (Fraley, Heffernan, Vicary, & Brumbaugh, 2011; Saavedra, Chapman, & Rogge, 2010). It is possible that women are more interested in taking an internet survey of a relational nature like the current study because women are more interdependent and concerned with close relationships compared with men (Cross & Madson, 1997). This highlights a potential issue: whether the men in our sample are representative of men more generally. It is possible that men who participate in internet studies like ours differ from men who do not participate in these types of studies. Unfortunately, we have no way of knowing this with our data. However, in Study 2 we had nearly equal proportions of men and women who participated. Thus, interpreting results from Study 1 in conjunction with those from Study 2 mitigates this limitation. Future research should address this issue more directly to determine whether men participating via the internet and in lab-based studies are generally the same.

A second limitation was in our assessment of relationship length in Study 1. We assessed relationship length in a way that did not permit comparisons between dating participants and married participants. As such, we focused on a subsample of dating people. Indeed, it is possible that this sample is ideal for studying the normative development of attachment bonds in romantic relationships because we might expect more developmental changes to occur in the early years of a relationship than after 25 years of marriage. However, examining attachment features and functions in married individuals would enhance our understanding of normative attachment development and is a potential direction for future research.

A third limitation is that our measure of attachment features and functions does not permit us to distinguish between romantic-sexual motivations and attachment motivations. As an anonymous reviewer pointed out, proximity-seeking is motivationally ambiguous. People may seek proximity to a partner to fulfill attachment goals, or to fulfill sexual goals. For example, the item ''Who is the person you most like to spend time with?'' does not distinguish between attachment and sexual motivations.

In closing, the current findings provide partial support for the proposed *sequence* in which attachment features and functions are expected to develop, but suggest that the *timing* of attachment development might be much faster than has been previously assumed. It is critical that future research determines whether these attachments are indicative of a true attachment or if our measures are not sensitive enough to distinguish between full-fledged attachments and attachments that are still developing. Answering this question and discovering ways to increase the sensitivity of our measures are imperative to advance our understanding of the normative development of attachment in adult romantic relationships.

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Notes

1. See Zhang, Chan, and Teng (2011) for similar results supporting the stepwise model in a sample of Chinese young adults.
2. We used the WHOTO survey because it is the most well known and validated measure of attachment features and functions. However, there are some potential issues with this measure, which we will address in the Discussion.
3. We also created a Guttman scale to analyze the patterns in which attachment features emerge. This yielded a coefficient of reproducibility of .92, suggesting good fit of the sequential model.
4. To examine cultural differences in attachment features and function, we conducted the logistic regression analyses using only those participations from the United States and found the same pattern of results as with the full sample with one exception. Relationship length was no longer a predictor of proximity-seeking in the U.S. sample, $B = 0.15$, Wald $\chi^2(1, N = 1425) = 0.67$, $p = .41$, 95% CI [0.82, 1.63].
5. When we used the strict criterion set for the logistic regressions, the results were similar to those when we used the lenient criterion set. Increasing relationship length predicted greater odds of seeking proximity to the partner, $B = 0.35$, Wald $\chi^2(1, N = 2300) = 12.63$, $p < .001$, 95% CI [1.17, 1.73]. However, using the strict criterion set, a gender difference in proximity-seeking emerged. Men were more likely to seek proximity to their partners than women, $B = 0.35$, Wald $\chi^2(1, N = 2300) = 12.63$, $p < .001$, 95% CI [1.15, 3.18]. The interaction between relationship length and sex was significant, suggesting that for men, increasing relationship length led to reduced odds of seeking proximity to the partner, $B = -0.53$, Wald $\chi^2(1, N = 2300) = 4.91$, $p = .03$, 95% CI [0.37, 0.94]. For safe haven, just as with the more lenient criteria, increasing relationship length predicted increased odds of using the partner as a safe haven in times of distress, $B = 0.56$, Wald $\chi^2(1, N = 2300) = 21.94$, $p < .001$, 95% CI [1.39, 2.23]. Finally, increasing relationship length led to increased odds of using the partner as a secure base, $B = 0.48$, Wald $\chi^2(1, N = 2300) = 17.08$, $p < .001$, 95% CI [1.28, 2.02]. However, the interaction between relationship length and sex did not predict the probability of using the partner as a secure base, $B = 0.19$, Wald $\chi^2(1, N = 2300) = 0.51$, $p = .47$, 95% CI [0.72, 2.02]. Thus for both men and women, increasing relationship length led to greater probability of using the partner as a secure base.
6. To account for the dyadic nature of the data, we included a random coefficient for the dyad (Singer, 1998). This allows us to control for both initial differences in dyads as well as any dyad-specific linear time trends.

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