

# Attachment and Parental Divorce: A Test of the Diffusion and Sensitive Period Hypotheses

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## Abstract

One of the assumptions of attachment theory is that disruptions in parental relationships are prospectively related to insecure attachment patterns in adulthood. The majority of research that has evaluated this hypothesis, however, has been based on retrospective reports of the quality of relationships with parents—research that is subject to retrospective biases. In the present research, the authors examined the impact of parental divorce—an event that can be assessed relatively objectively—on attachment patterns in adulthood across two samples. The data indicate that parental divorce has selective rather than diffuse implications for insecure attachment. Namely, parental divorce was more strongly related to insecure relationships with parents in adulthood than insecure relationships with romantic partners or friends. In addition, parental insecurity was most pronounced when parental divorce took place in early childhood. This finding is consistent with hypotheses about sensitive periods in attachment development.

## Keywords

adult attachment, parental divorce, close relationships, sensitive periods, attachment styles

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One of the assumptions of attachment theory is that individual differences in attachment styles (i.e., how secure or insecure people are in close relationships) are rooted, in part, in the quality of the relationships people have had over the course of their lives (Bowlby, 1969/1982). For example, attachment researchers assume that people who have experienced a history of supportive and responsive interactions with close others will be more secure. In contrast, individuals who have a history of unresponsive or disruptive interpersonal experiences are likely to develop the expectation that significant others will not be available when needed.

Although this assumption underlies much of contemporary attachment research, it has proven to be a difficult one to test empirically. Many researchers have examined the association between attachment styles and retrospective reports of interpersonal experiences (e.g., Hazan & Shaver, 1987). And, although such studies consistently reveal that people who report unsupportive caregiving experiences are more likely to be insecure as adults, the strength of this evidence is constrained by well-known limitations of retrospective reports (e.g., Scollon, Diener, Oishi, & Biswas-Diener, 2004).<sup>1</sup>

One way to overcome the traditional limitations of retrospective methods is to examine variation in early experiences that can be assessed in a relatively objective fashion (e.g., Aronsson, Lind, Ghirlanda, & Enquist, 2011). In this article, we examine variation in one such event—the experience of

parental divorce—as a means to better understand how early experiences might shape adult attachment patterns. Although many researchers have previously examined the association between parental divorce and adult attachment (e.g., Kilmann, Carranza, & Vendemia, 2006; Ozen, 2003; Riggs & Jacobvitz, 2002), our research is designed to expand the existing literature in two novel directions. First, we examined attachment styles as relational phenomena. Most researchers have focused on attachment style as a general interpersonal resource—as a trait that is common to different relationships that a person may have. In the present research, we focused on attachment styles in a contextual fashion by assessing security across a variety of relationship domains (i.e., relationships with mothers, fathers, romantic partners, and friends). One advantage of this approach is that it allows us to get a better understanding of whether early experiences, such as parental divorce, have broad and diffuse consequences for attachment organization or whether such experiences selectively impact security in specific relational domains (e.g., relationships with parents).

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Second, several scholars have hypothesized that the effects of parental divorce on later outcomes might vary as a function of the age of children at the time the divorce takes place. For example, Allison and Furstenberg (1989) found that parental divorce had more harmful effects if it occurred earlier rather than later in a child's life. In the present article, we examine the *sensitive period hypothesis*—the notion that experiences that take place early in development are more predictive of subsequent outcomes than experiences that take place later in development.

Although ideas about sensitive periods have a long history in psychology (Bornstein, 1987), the implications of these ideas for understanding attachment in adulthood have rarely been explored or formally examined (see Cheung, Chudek, & Heine, 2011, for an excellent exception in the study of culture). In contemporary psychology, it is widely assumed that causes that are in close temporal proximity to their effects are more likely to be influential than causes that are temporally far removed from their effects. In other words, events that took place long ago are assumed to be less consequential than events that took place more recently (e.g., Lewis, 1997). The sensitive period hypothesis, in contrast, holds that individuals may be more responsive to environmental inputs early in life versus later in life for a variety of reasons (e.g., the nervous system is more plastic in early childhood, early inputs serve as the foundation on which future knowledge is assimilated). Thus, one implication of the sensitive period hypothesis is that the effects of parental divorce on adult attachment styles may be most pronounced when the divorce took place earlier rather than later in life.

To address these issues, we examined variation in adult attachment styles in two samples. In the first sample, we examined the association between attachment in various relational domains as a function of divorce status and the age at divorce (while controlling some important covariates, such as participant age). In the second sample, we attempted to replicate the findings from the first study and examined in more depth how variation in parental custody predicted subsequent attachment. We begin by reviewing the existing literature on parental divorce, attachment, and developmental timing.

## Previous Research on Attachment and Parental Divorce

Previous research suggests that adolescents and young adults from divorced families are more likely to be insecurely attached compared with their counterparts from intact families (B. C. Feeney & Monin, 2008). Beckwith, Cohen, and Hamilton (1999), for example, found that adverse life events through age 12, particularly parental divorce, were associated with a reduced likelihood of secure attachment representations at age 18. In a longitudinal study, Lewis, Feiring, and Rosenthal (2000) found that parental divorce predicted

insecure attachment at age 18 as assessed by the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996). Riggs and Jacobvitz (2002) found that adults who were classified as preoccupied or unresolved on the AAI were more likely than others to report a history of parental divorce or separation during childhood. Other researchers have found that adolescents and college students from divorced families were more likely to report a fearful attachment style than those from intact families (Brennan & Shaver, 1998; Kilmann et al., 2006; Ozen, 2003). In a nationally representative sample of adults, parental divorce and separation were positively associated with attachment anxiety and negatively associated with attachment security (Mickelson, Kessler, & Shaver, 1997).

Although there are many studies which indicate that adults from divorced families are more likely to be insecure than those who come from intact families, there are also many studies that find no differences (Brennan & Shaver, 1993; J. A. Feeney & Noller, 1990; Hazan & Shaver, 1987; Hazelton, Lancee, & O'Neil, 1998). For instance, in their seminal study on adult attachment, Hazan and Shaver (1987) surveyed adults about their close relationships and attachment history and found no association between parental divorce and attachment style. In another study, young adults from divorced families were compared with matched young adults from intact families and the researchers found no long-term effects of parental divorce on participants' current attachment security (Hazelton et al., 1998).

One potential reason for the inconsistent findings regarding parental divorce and attachment security is that attachment researchers do not always carefully attend to relational domains when considering attachment. For example, the Beckwith et al. (1999) study reviewed earlier used the AAI to assess attachment in young adults—a method that focuses on adults' current representations of their early *parental* relationships. In contrast, many of the social-psychological measures of attachment tend to emphasize the way in which people generally feel in *romantic* relationships as assessed via self-report (e.g., Hazan & Shaver, 1987).

One of the recent developments in adult attachment theory is the idea that individuals hold different attachment representations for different relational domains (e.g., Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Collins, Guichard, Ford, & Feeney, 2004). Thus, although some people may have relatively insecure relationships with their parents, they may have relatively secure relationships with romantic partners. Indeed, the empirical literature suggests that the correlation between measures of security taken in different domains tends to hover between .10 and .50 (e.g., Baldwin et al., 1996; Fraley, Heffernan, Vicary, & Brumbaugh, 2011; Klohnen, Weller, Luo, & Choe, 2005).

One of the implications of these findings is that there are many potential pathways through which early experiences, such as parental divorce, may impact individual differences in adult attachment. One hypothesis is that parental divorce

may have *selective effects* on the development of attachment representations. For example, it is possible that parental divorce may lead people to develop insecure representations of one or more of their parents, but divorce may have little or no influence on the security of a person's representations of romantic partners. An alternative hypothesis is that parental divorce has *diffuse effects* on attachment across relationships, affecting not only people's developing representations of parents but also their representations of romantic relationships. One of the objectives of the present studies was to evaluate empirically these alternative hypotheses by examining the association between parental divorce and attachment as assessed across multiple relational domains (i.e., attachment with mothers, fathers, romantic partners, and close friends).

### Sensitive Periods in Attachment Development

A common assumption in attachment theory is that early experiences may be especially influential in shaping the development of attachment representations. According to the sensitive period hypothesis, early experiences, such as parental divorce, may have differential effects on attachment security as a function of the age of the child when the divorce took place.<sup>2</sup> There are several studies that report data consistent with this possibility. For instance, using a nationally representative sample, Allison and Furstenberg (1989) found a tendency for the most harmful effects of parental divorce (e.g., distress, delinquency, problem behavior, and academic difficulty) to occur in children who were younger when their parents divorced or separated (0-5 years of age) compared with children who were older (6-10 and 11-16 years; see also Zill, Morrison, & Coiro, 1993). However, other studies have found either no impact of the timing of parental divorce (Burt, Barnes, McGue, & Iacono, 2008) or suggest that children who were older rather than younger at the time of parental divorce were more vulnerable to mental health problems (Strohschein, 2005).

In short, there is some ambiguity in the existing literature concerning whether the effects of parental divorce are conditional on the age of children when their parents divorce. Moreover, none of the studies on the timing of divorce have examined attachment security as an outcome per se. Thus, one of our goals in the present research was to examine the association between parental divorce and adult attachment as a function of the age at which people experienced parental divorce.

We should note, however, that it is much more complicated to examine these issues than it might seem on the surface. It is often assumed in developmental theories that early experiences have enduring consequences for developmental outcomes (e.g., Fraley, Roisman, & Haltigan, 2013). However, empirical tests of those assumptions are typically weak. For example, it is sometimes assumed that the

demonstration of an association between early experiences and subsequent outcomes reflects something unique about the power of early experiences. But as several authors have pointed out (e.g., Fraley & Brumbaugh, 2004; Fraley, Roisman, & Haltigan, 2013), those kinds of demonstrations are ambiguous for a number of reasons. For one, they can reflect effects that are transitory and which, ultimately, would disappear when studied across broader time intervals (see Fraley & Roberts, 2005, for a discussion). For example, although it might be possible to demonstrate an association between early parental divorce and attachment security assessed at age 18, it is not necessarily the case that such an association will be sustained if attachment is assessed at age 28. To determine whether the consequences of parental divorce have enduring versus transient implications for adult attachment, it is necessary to study both variation (either cross-sectional or longitudinally) in the *delay* between the experience in question (e.g., parental divorce) and the *time* at which the outcome is assessed (e.g., attachment security).

An additional complicating factor is that the sensitive period hypothesis leads to predictions that oppose those entailed by common models of causation. Namely, most models of causation in psychology assume that experiences that have taken place in the recent past are more likely to be influential than experiences that have taken place in the distant past (e.g., Kagan, 1996; Lewis, 1997). Thus, in the context of parental divorce, a divorce would be assumed to have greater consequences for current attachment representations if it took place 1 year ago than if it had taken place 10 years ago. When the event in question is more recent, the conflict, turmoil, and disruption are likely to be at their most salient levels and, presumably, most likely to exert an impact on attachment representations.

Of course, although these two sets of mechanisms generate competing predictions that can obscure theory testing, the mechanisms themselves are not mutually exclusive. It is possible that certain experiences have their maximal impact at shorter rather than longer temporal delays. It is also possible that the impact that is observed is more consequential if the experience took place earlier in child development versus later. Thus, to separate the relative contribution of these two processes, it is necessary to ensure (a) variation across people in the age at which the event in question took place and (b) variation in the age of respondents (or, similarly, variation in the interval between the experience in question and the assessment of the outcome). One of the goals of the present research was to examine both sources of variation as a means to better understand the way in which parental divorce may shape the organization of attachment styles in adulthood and to provide a rigorous test of the sensitive period hypothesis. If the sensitive period hypothesis is correct, the impact of parental divorce on adult attachment styles should be most pronounced if the divorce took place in early childhood versus later in childhood. Importantly, however, this should be observed after controlling for variation in the time since the

divorce because, assuming everything else is equal, we expect divorces that happened more recently to have a more salient impact on attachment than divorces that took place in the distant past.

## Aims of the Current Research

The current research has two major goals. First, we wanted to examine whether parental divorce has diffuse or specific associations with attachment security. Specifically, we sought to examine whether the association between parental divorce and security varied across relationship domains (i.e., current relationships with mothers, fathers, romantic partners, and close friends). Second, we sought to provide a formal test of the sensitive period hypothesis—that parental divorce has a greater impact on security when divorce takes place early as opposed to later in development.

To address these issues, we examined variation in adult attachment styles in two samples. In the first sample, we examined the association between attachment in various relational domains as a function of divorce status and the age at divorce. In the second sample, we attempted to replicate the findings from the first study and examine in more depth how variation in parental custody predicted subsequent attachment.

## Study 1

In Study 1, we used an Internet survey to examine whether parental divorce was associated with insecure attachment across various domains and whether the timing of divorce moderated the effect of parental divorce on offspring attachment. Data from 12,308 people were collected through the website <http://www.yourpersonality.net>, which hosts a variety of studies and demonstrations about personality, attachment, and close relationships. Previous studies have shown that Internet-based samples can provide useful and valid data for psychological research (Srivastava, John, Gosling, & Potter, 2003). Moreover, such samples are often more diverse than traditional undergraduate samples with respect to age, ethnicity, nationality, relationship status, and income (Gosling, Vazire, Srivastava, & John, 2004).

## Method

**Participants.** The analysis sample was composed of individuals who participated in an attachment style survey between June 2011 and November 2011. We limited our analysis sample to a group of 7,335 individuals who indicated that (a) their parents were living, (b) they had not participated in the survey previously, and (c) their age was between 18 and 65, inclusive. Most participants in the analysis sample were from the United States (65.9%), the United Kingdom (8.5%), or Canada (5.9%). Fifty-three percent of participants reported that they were in an exclusive dating or marital relationship.

Eighty-six percent of participants were women. The average age of the sample was 24.80 ( $SD = 8.22$ ).

Thirty-six percent of the sample indicated that their parents were divorced. If participants indicated that their parents were divorced, a follow-up question appeared that asked them, “What age were you when your parents separated or divorced?” On average, people were 8.98 years old ( $SD = 6.90$ ) when their parents divorced.

## Measures

**Adult attachment style.** Participants completed the Experiences in Close Relationships—Relationship Structures (ECR-RS) questionnaire (Fraley et al., 2011). The ECR-RS is a self-report instrument designed to assess individual differences in adult attachment with respect to two dimensions. The first dimension, *attachment-related anxiety*, concerns the extent to which people are concerned that others might reject them or may be unavailable or unresponsive to their needs. The second dimension, *attachment-related avoidance*, concerns the extent to which people are comfortable opening up to others, depending on them, and, more generally using others as attachment figures. A prototypically secure individual is low on both of these dimensions.

Unlike most self-report measures of adult attachment, the ECR-RS is designed to assess these dimensions in distinct relational contexts. Thus, participants answered the ECR-RS questions separately with respect to (a) their current relationship with their mothers, (b) their current relationship with their fathers, (c) their current relationship with their dating or marital romantic partner, and (d) their closest nonromantic friend. If individuals were not involved in a dating or marital relationship, we instructed them to answer the romantic attachment questions with respect to how they generally feel about romantic relationships.

## Results

**Attachment and divorce.** Table 1 reports the zero-order correlations between the parental divorce status (0 = not divorced, 1 = divorced) and attachment with respect to mother, father, romantic partners, and close friends. On average, people were more likely to currently have insecure relationships with their mothers and fathers if their parents were divorced. Moreover, these associations were stronger for attachment to fathers ( $r_s = .28$  and  $.32$  for avoidance and anxiety, respectively,  $p < .05$ ) than attachment to mothers ( $r_s = .11$  and  $.15$  for avoidance and anxiety, respectively,  $p < .05$ ),  $z = 10.72$  and  $11.60$ , respectively,  $ps < .05$ .

The correlations between parental divorce status and attachment in romantic relationships were close to zero ( $r_s = .01$  and  $.03$  for avoidance and anxiety, respectively) and lower than those for mothers and fathers ( $z$ s ranged from  $-18.92$  to  $-6.08$ ,  $p < .05$ ). However, this particular analysis combines individuals who were in romantic relationships ( $n = 3,854$ ) and those who were not ( $n = 3,459$ ). Relationship

**Table 1.** Correlations for Parental Divorce Status and Attachment-Related Avoidance and Anxiety in Three Relational Domains for Studies 1 and 2.

	Study 1		Study 2	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Mother				
Avoidance	.11	<.01	.13	<.01
Anxiety	.15	<.01	.16	<.01
Father				
Avoidance	.28	<.01	.28	<.01
Anxiety	.33	<.01	.32	<.01
Romantic partner				
Avoidance	.01	.50	-.02	.84
Anxiety	.03	.03	.03	<.01
Close friend				
Avoidance	.00	.86	.04	<.01
Anxiety	.01	.58	.05	<.01

Note. SEs of the correlations are approximately .01. Parental divorce status was coded such that 0 = not divorced, and 1 = divorced.

status was correlated with attachment ratings such that individuals reporting on a current relationship were less likely to feel avoidant ( $r = -.29, p < .05$ ) or anxious ( $r = -.34, p < .05$ ) in romantic relationships. Thus, we analyzed the association between parental divorce and romantic attachment separately among individuals who were involved in dating relationships and those who were not. Among individuals who were not involved in a dating/marital relationship at the time of the study, those whose parents were divorced were more likely to feel avoidant ( $r = .04, p < .05$ ) and anxious ( $r = .06, p < .05$ ) with respect to romantic relationships. Among those who were in romantic relationships, avoidance was uncorrelated with divorce status ( $r = .01$ ), but individuals whose parents were divorced were slightly more likely to report attachment-related anxiety in their romantic relationships ( $r = .04, p < .05$ ).<sup>3</sup>

To summarize, individuals from divorced families were more likely to hold insecure representations of their current relationships with their parents. In general, the associations between parental divorce and romantic attachment were weaker, but there was a tendency for people to experience more attachment-related anxiety about romantic relationships if they were from divorced families. Taken as a whole, these results suggest that the effects of parental divorce on adult attachment patterns are relatively selective—affecting people's sense of security with parents more than their sense of security with respect to romantic relationships or friendships.

**Attachment and the timing of divorce.** One of the primary questions motivating this research is whether the timing of parental divorce impacts the security of the relationships that people have with their parents. To examine this issue, we

conducted a series of regression analyses in which we examined attachment-related anxiety and avoidance with mother and father separately as a function of the age of the respondent when his or her parents divorced. We also statistically controlled the age of the respondent because individuals whose parents divorced when they were older were more likely to be older themselves ( $r = .21, p < .05$ ). Moreover, controlling age allowed us to control for the time that had elapsed since the divorce.<sup>4</sup> These analyses were conducted on the subsample of individuals ( $n = 2,605$ ) who had experienced parental divorce.

The critical test of the sensitive period hypothesis is that, among individuals who experienced parental divorce, insecurity will be greatest among those who experienced the divorce early in life as opposed to later (holding age constant). Because temporal variables (e.g., age, time) rarely have simple linear relationships with outcomes of interest, we examined the linear effects of age at divorce and current age as well as the log transformations of those variables. The log transformations allow us to further examine whether the consequences of divorce vary as a function of the age at divorce itself. The results are reported in Tables 2 and 3 for attachment avoidance and anxiety, respectively.

In general, people who were younger when their parents divorced were more insecure in their relationships with their parents now than people whose parents divorced at a later age. It is also of note that the functional relationship is not strictly linear. In other words, although there is a general tendency for people to have insecure relationships with their parents when their parents divorced at an early age, those effects are particularly acute when the divorce took place in the first few years of life. For example, for someone who was 25 years old, the expected value of her avoidance with father is 1.13 times higher if her parents divorced when she was 1 year old ( $\hat{Y} = 5.24$ ) as opposed to 5 years old ( $\hat{Y} = 4.64$ ). These associations are illustrated in Figure 1.

**Summary.** Parental divorce was predictive of greater insecurity across a variety of relational domains, but the consequences of divorce appeared to be more selective than diffuse. In other words, there was virtually no difference in romantic security as a function of parental divorce. The consequences of parental divorce for people's current representations of their relationships with their parents—and, in particular, their fathers—was quite pronounced.

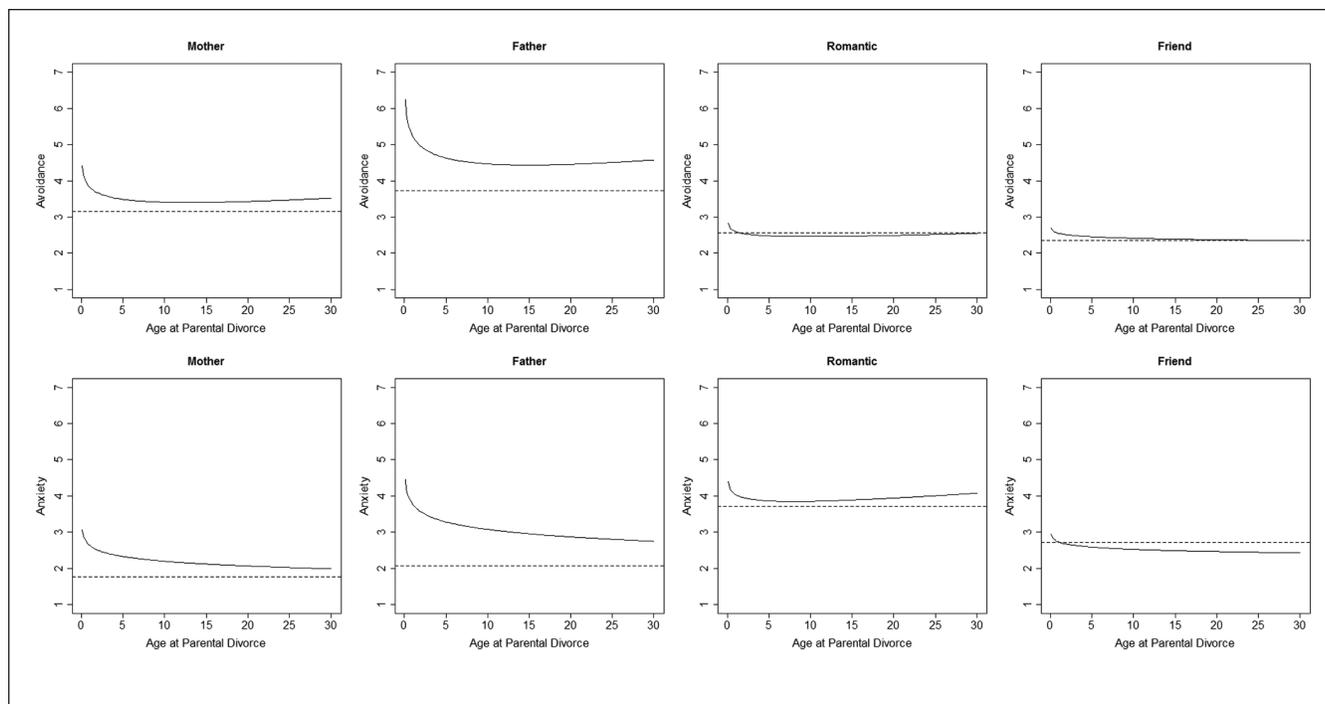
In addition, the data on parental attachment were compatible with a sensitive period hypothesis. Namely, individuals were more likely to have an insecure relationship with their parents when their parents divorced early in life as opposed to later in life. In fact, the relationship was nonlinear for both parents and both attachment dimensions, leading to the general conclusion that not only is early divorce more consequential than later divorce, but it is also particularly influential when it takes place in the early years of life.

**Table 2.** Parameter Estimates for the Regression of Attachment-Related Avoidance on Age and the Age at Parent's Divorce (Linear and Log Transformed), Study 1.

	B	SE	$\beta$	p
<b>Mother</b>				
Intercept	8.04	1.96		
Age	0.11	0.03	.50	<.01
Age at parent's divorce	0.02	0.01	.07	.16
Log (age)	-2.17	0.84	-.34	.01
Log (age at parent's divorce)	-0.26	0.10	-.13	.01
<b>Father</b>				
Intercept	8.47	1.99		
Age	0.05	0.03	.23	.08
Age at parent's divorce	0.03	0.01	.13	.01
Log (age)	-1.40	0.85	-.22	.10
Log (age at parent's divorce)	-0.45	0.11	-.21	<.01
<b>Romantic relationships</b>				
Intercept	3.28	1.36		
Age	0.02	0.02	.16	.25
Age at parent's divorce	0.01	0.01	.04	.48
Log (age)	-0.37	0.58	-.08	.53
Log (age at parent's divorce)	-0.10	0.07	-.07	.19
<b>Close friend</b>				
Intercept	-0.53	1.23		
Age	-0.03	0.02	-.24	.08
Age at parent's divorce	0.00	0.01	.02	.66
Log (age)	1.19	0.53	.30	.03
Log (age at parent's divorce)	-0.06	0.07	-.05	.32

**Table 3.** Parameter Estimates for the Regression of Attachment-Related Anxiety on Age and the Age at Parent's Divorce (Linear and Log Transformed), Study 1.

	B	SE	$\beta$	P
<b>Mother</b>				
Intercept	6.78	1.85		
Age	0.08	0.03	.40	<.01
Age at parent's divorce	-0.00	0.01	-.01	.89
Log (age)	-1.91	0.79	-.32	.02
Log (age at parent's divorce)	-0.19	0.10	-.10	.06
<b>Father</b>				
Intercept	5.92	2.13		
Age	0.04	0.03	.17	.22
Age at parent's divorce	0.00	0.01	.02	.76
Log (age)	-0.98	0.91	-.14	.28
Log (age at parent's divorce)	-0.30	0.11	-.13	<.01
<b>Romantic relationships</b>				
Intercept	6.97	2.09		
Age	0.03	0.03	.11	.40
Age at parent's divorce	0.02	0.01	.07	.16
Log (age)	-1.15	0.89	-.17	.20
Log (age at parent's divorce)	-0.16	0.11	-.07	.14
<b>Close friend</b>				
Intercept	6.63	1.75		
Age	0.05	0.03	.26	.05
Age at parent's divorce	0.00	0.01	.00	.99
Log (age)	-1.60	0.75	-.29	.03
Log (age at parent's divorce)	-0.09	0.09	-.05	.34



**Figure 1.** Attachment insecurity as a function of age at parental divorce and relational domain in Study 1.

Note. The top row illustrates attachment-related avoidance with respect to mother, father, romantic partners, and close friends, holding age constant at the mean. The lower row illustrates attachment-related anxiety with respect to the same targets, holding age constant at the mean. The dashed line in each panel represents the mean age-adjusted values of insecurity in each domain for participants who did not experience parental divorce. Predicted values are based on the regression estimates reported in Tables 2 to 3.

## Study 2

The objective of Study 2 was to replicate and extend the findings from Study 1. In recent years, there has been substantial discussion over the role and value of replication in the psychological sciences (e.g., Pashler & Harris, 2012). As such, we wanted to ensure that our key findings were robust across independent samples. In addition, we wanted to further probe the differential associations between maternal and paternal attachment. One potential explanation for why the association between parental divorce and parental insecurity was stronger with respect to fathers is that mothers are more likely than fathers to be awarded custody following a divorce (U.S. Department of Commerce, U.S. Census Bureau, 2011). In Study 2, we assessed the same variables that we assessed previously, and also asked participants who reported parental divorce to indicate which parent had been awarded primary custody. Our hypothesis was that individuals who did not have the opportunity to grow up under the primary care of one of their parents would be more likely to have an insecure relationship with that parent as adults.

## Participants

Data from 12,241 people were collected using the same website described earlier using similar methods between

November 2011 and March 2012. We limited our analysis sample to a group of 7,500 participants who indicated that (a) their parents were living, (b) they had not participated in the survey previously, and (c) their age was between 18 and 65, inclusive. Most participants in the analysis sample were from the United States (70.4%), Canada (8.4%), or the United Kingdom (6.2%).

Eighty-six percent of the sample was female. The average age was 23.67 ( $SD = 7.54$ ). Half of the respondents were involved in dating or marital romantic relationships. Thirty-four percent of the sample indicated that their parents were divorced. If participants indicated that their parents were divorced, a follow-up question appeared that asked them, "What age were you when your parents separated or divorced?" On average, people were 8.94 years old ( $SD = 6.73$ ) when their parents divorced. In addition, a question appeared that read, "With whom did you live after your parents separated or divorced?" The available response options were "primarily with my mother," "primarily with my father," "primarily with a grandparent or relative," "not applicable; I was living independently when my parents divorced/separated," and "other." The majority of participants indicated that they had lived with their mothers following the divorce or separation (74%). Eleven percent indicated living with their fathers. To simplify the analyses that follow, we created two binary variables ( $r = -.58$ ), one that indicated

**Table 4.** Parameter Estimates for the Regression of Attachment-Related Avoidance on Age and the Age at Parent's Divorce (Linear and Log Transformed), Study 2.

	B	SE	$\beta$	p
<b>Mother</b>				
Intercept	8.61	2.06		
Age	0.11	0.03	.49	<.01
Age at parent's divorce	0.01	0.01	.05	.33
Log (age)	-2.44	0.88	-.37	.01
Log (age at parent's divorce)	-0.13	0.10	-.06	.22
<b>Father</b>				
Intercept	5.80	2.08		
Age	0.04	0.03	.15	.26
Age at parent's divorce	0.00	0.01	.00	.99
Log (age)	-0.44	0.89	-.06	.63
Log (age at parent's divorce)	-0.30	0.10	-.14	<.01
<b>Romantic relationships</b>				
Intercept	3.75	1.41		
Age	0.04	0.02	.26	.05
Age at parent's divorce	-0.01	0.01	-.04	.38
Log (age)	-0.74	0.61	-.16	.22
Log (age at parent's divorce)	0.08	0.07	-.06	.26
<b>Close friend</b>				
Intercept	0.12	1.36		
Age	-0.02	0.02	-.15	.25
Age at parent's divorce	-0.01	0.01	-.06	.26
Log (age)	0.89	0.58	.20	.13
Log (age at parent's divorce)	0.08	0.07	.06	.26

whether the participant lived with his or her mother and the other that indicated whether the participant lived with his or her father.<sup>5</sup>

## Results

Table 1 reports the zero-order correlations between parental divorce status (0 = not divorced, 1 = divorced) and attachment with respect to mother, father, romantic partners, and friends. On average people were more likely to currently have insecure relationships with their mothers and fathers if their parents were divorced. Moreover, these associations were stronger for attachment to fathers ( $r_s = .28$  and  $.32$  for avoidance and anxiety, respectively,  $p < .05$ ) than attachment to mothers ( $r_s = .13$  and  $.16$  for avoidance and anxiety, respectively,  $p < .05$ ),  $z = 9.6$  and  $10.4$ , respectively,  $p_s < .05$ .

Among individuals who were not involved in a dating/marital relationship at the time of the study ( $n = 3,454$ ), those whose parents were divorced were more likely to feel avoidant ( $r = .04$ ,  $p < .05$ ) and anxious ( $r = .06$ ,  $p < .05$ ) with respect to romantic relationships. Among those who were in romantic relationships ( $n = 3,847$ ), avoidance was uncorrelated with divorce status, but individuals whose parents were divorced were slightly more likely to report attachment-related anxiety in their romantic relationships ( $r = .04$ ,  $p <$

$.05$ ). These associations were weaker than those for parental attachment ( $z_s$  ranged from  $-18.45$  to  $-8.04$ ,  $p < .05$ ).

To summarize, individuals from divorced families were more likely to hold insecure representations of their current relationships with their parents. In general, the associations between parental divorce and romantic attachment were weaker, but there was a tendency for people to experience more attachment-related anxiety in their romantic relationships if they were from divorced families. These results are compatible with the findings reported in Study 1 on the selectivity of the effects of parental divorce.

**Attachment and the timing of divorce.** To examine the relationship between attachment styles and the timing of divorce, we again examined attachment-related anxiety and avoidance with mother and father separately as a function of the age of the respondent when his or her parents divorced. We also statistically controlled the age of the respondent because individuals whose parents divorced when they were older were more likely to be older themselves ( $r = .20$ ,  $p < .05$ ). These analyses were conducted within the subsample of individuals who reported that their parents had divorced ( $n = 2,534$ ).

The results are reported in Tables 4 and 5. The results were generally consistent with what was found in Study 1. People who were younger when their parents divorced were

**Table 5.** Parameter Estimates for the Regression of Attachment-Related Anxiety on Age and the Age at Parent's Divorce (Linear and Log Transformed), Study 2.

	B	SE	$\beta$	p
<b>Mother</b>				
Intercept	4.04	1.94		
Age	0.04	0.03	.17	.18
Age at parent's divorce	0.02	0.01	.07	.18
Log (age)	-0.75	0.84	-.12	.37
Log (age at parent's divorce)	-0.21	0.10	-.11	.03
<b>Father</b>				
Intercept	4.73	2.21		
Age	0.03	0.03	.12	.36
Age at parent's divorce	0.01	0.01	.04	.39
Log (age)	-0.54	0.95	-.08	.57
Log (age an parent's divorce)	-0.36	0.11	-.16	<.01
<b>Romantic relationships</b>				
Intercept	5.67	2.20		
Age	0.01	0.03	.05	.71
Age at parent's divorce	0.00	0.01	.01	.82
Log (age)	-0.63	0.94	-.09	.51
Log (age at parent's divorce)	-0.08	0.11	-.03	.50
<b>Close friend</b>				
Intercept	4.71	1.87		
Age	0.02	0.03	.12	.36
Age at parent's divorce	0.01	0.01	.03	.57
Log (age)	-0.77	0.80	-.13	.33
Log (age at parent's divorce)	-0.09	0.09	-.05	.34

more insecure in their relationships with their parents now than those whose parents divorced at a later age. Although these associations did not replicate exactly for maternal avoidance, the coefficients were relatively similar to those estimated in Study 1. It is also of note that the functional relationships were not strictly linear. In other words, although there is a general tendency for people to have insecure relationships with their parents when their parents divorced at an early age, those effects are particularly acute when the divorce took place in the early years of life.

**Custody and attachment security.** The results from both Studies 1 and 2 indicate that divorce has a relatively selective association with insecurity in parental versus peer relationships. We also found that the association between divorce status and insecurity was greater with respect to paternal than maternal relationships. One potential explanation for this difference lies in living or custody arrangements. Specifically, if fathers are less likely to have legal custody of their children following divorce (U.S. Department of Commerce, U.S. Census Bureau, 2011), those children will have fewer opportunities, on average, to build an attachment relationship with their fathers, resulting in a lower sense of security in paternal relationships. We examined this hypothesis in two ways. First, we used our living arrangement variables to model

variation in insecurity with parents. As shown in Table 6, for both anxiety and avoidance, people were more likely to have an insecure relationship with their father if they lived with their mother, but were less likely to have an insecure relationship with their father if they lived with him. Living arrangements had similar associations with insecurity with respect to mothers. Namely, people reported less insecurity with their mothers if they lived with her than if they lived with their fathers.

We also conducted mixed-level regression analyses to examine the *difference* in anxiety and avoidance across relationship targets (i.e., mother vs. father). Specifically, we modeled variation in security within persons as a function of target (mother vs. father), whether people lived primarily with their mothers, whether people lived primarily with their fathers, and the cross-level interactions between these two factors and target. We conducted separate analyses for anxiety and avoidance. The results are summarized in Table 7 and illustrated in Figure 2. In summary, people were more insecure with fathers than mothers, on average. Importantly, however, the cross-level interactions were statistically significant. Specifically, people who lived with their mothers reported more insecurity with their fathers than their mothers. Importantly, this pattern was reversed among people who lived with their fathers. People who lived with their

**Table 6.** Parameter Estimates for the Regression of Attachment-Related Avoidance and Anxiety With Mother and Father on Living Arrangements, Study 2.

	B	SE	$\beta$	p
Avoidance with mother				
Intercept	3.73	0.09		
Lived with mother	-0.34	0.09	-.09	<.01
Lived with father	0.64	0.13	.12	<.01
Avoidance with father				
Intercept	4.51	0.09		
Lived with mother	0.39	0.09	.10	<.01
Lived with father	-0.96	0.13	-.17	<.01
Anxiety with mother				
Intercept	2.52	0.08		
Lived with mother	-0.31	0.09	-.08	<.01
Lived with father	0.66	0.13	.13	<.01
Anxiety with father				
Intercept	3.04	0.09		
Lived with mother	0.23	0.10	.05	.03
Lived with father	-0.64	0.15	-.11	<.01

fathers reported more insecurity in their relationships with their mothers than their fathers.

## Discussion

The purpose of this research was to examine the implications of parental divorce in adult attachment patterns. In particular, we sought to address two specific issues that have become relevant in light of theoretical developments in the study of attachment. First, attachment researchers have begun to focus on the ways in which the attachment system is differentially calibrated across interpersonal relationships. Previous research clearly indicates that there is variance that is common across relationship domains such that people who are secure with their parents are also more likely than not to be secure in their romantic relationships (e.g., Sibley & Overall, 2008). But an increasing body of research is highlighting the ways in which working models can diverge across relational domains. Theoretically, one reason for this divergence is that people have slightly different experiences in various interpersonal domains and, to the extent to which their experiences diverge—even in subtle ways—from experiences in other relationships, those differences function to create differentiation across working models (Collins et al., 2004).

One of the important findings of the present research is that the effects of parental divorce appear to be somewhat selective in how they shape working models of attachment—having a stronger impact on representations of parental relationships than romantic ones. It is also noteworthy that people reported being more insecure with their fathers than their mothers.<sup>6</sup> Study 2 suggested that parental custody might play a key role in explaining this finding. On average, people are less likely to live with their fathers than their mothers

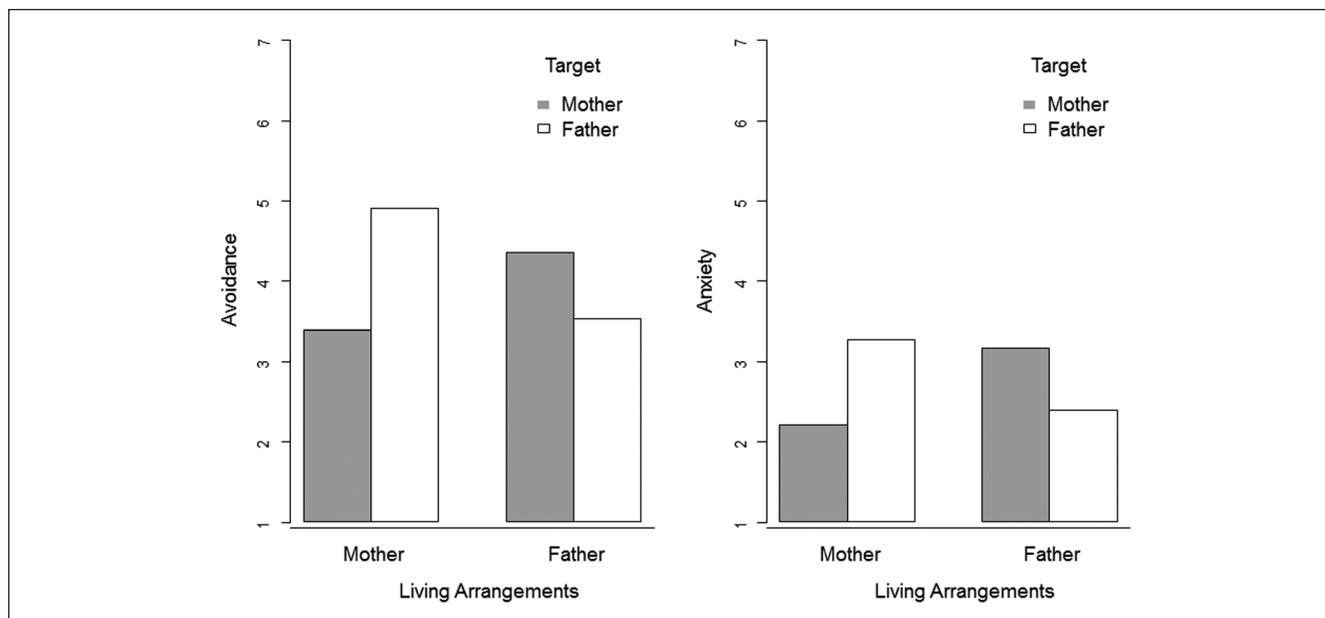
**Table 7.** Parameter Estimates for Mixed-Level Regressions of Attachment-Related Avoidance and Anxiety on Target (Mother or Father), Living Arrangements, and All Cross-Level Interactions for Study 2.

	B	SE	p
Avoidance			
Intercept	3.73	0.09	
Lived with mother	-0.34	0.10	<.01
Lived with father	0.63	0.14	<.01
Target (mother vs. father)	0.77	0.12	<.01
Target × Lived with mother	0.74	0.14	<.01
Target × Lived with father	-1.58	0.19	<.01
Anxiety			
Intercept	2.51	0.09	
Lived with mother	-0.31	0.10	<.01
Lived with father	0.65	0.14	<.01
Target (mother vs. father)	0.51	0.12	<.01
Target × Lived with mother	0.56	0.14	<.01
Target × Lived with father	-1.28	0.19	<.01

Note. Avoidance and anxiety were modeled as repeated measures within persons, nested with target (mother = 0, father = 1). Living arrangements varied between persons.

after parental divorce. And, those who did live with their fathers were less likely to have an insecure relationship with their fathers presently than those who lived with their mothers. The reverse was true as well: People who lived with their mothers following parental divorce were less likely to have an insecure relationship with the mothers presently and more likely to have insecure relationships with their fathers. These findings are valuable because they suggest that something as basic as the amount of time that one spends with a parent or one's living arrangements can have the potential to shape the quality of the attachment relationship that one has with a parent.

Overall, the implications of parental divorce for insecurity in romantic relationships were much less pronounced than those for parental relationships. We do not want to suggest that parental divorce has no implications for romantic attachment but, placing these findings in context, it is clear that the effects of divorce are relatively nuanced and differentiated across relational domains. Assuming that our estimates are correct (i.e., the association between parental divorce and romantic insecurity is between .01 and .06), this might help explain why the existing empirical literature on the associations between parental divorce and attachment has produced such inconsistent findings. Some studies have found associations between parental divorce and insecurity (e.g., Beckwith et al., 1999; Mickelson et al., 1997), whereas others have not (e.g., Berstein, Keltner, & Laurent, 2012; Hazan & Shaver, 1987). Based on our data, we believe that the association between parental divorce and insecurity in romantic relationships is relatively small. It is possible that there are mechanisms that weaken the effect of parental



**Figure 2.** Variation in avoidance and anxiety as a function of target (mother vs. father) and living arrangements, Study 2.

divorce on people's romantic relationships. For instance, perhaps some individuals, having witnessed the breakdown of their parents' marriage, vow not to make the same mistakes that their parents made (e.g., Darlington, 2001). If such effects exist in opposition to effects that facilitate romantic insecurity following parental divorce, the overall association between parental divorce and romantic insecurity should be small.

These kinds of findings raise a number of important questions about how basic attachment processes play out across relationships. One possibility is that parental divorce has a strong influence on shaping people's working models in the romantic domain, but that the influence is attenuated as people's ongoing experiences in romantic relationships reorganize those expectations in idiosyncratic ways. Another possibility is that how secure or insecure people feel about romantic relationships is highly contextual, leaving relatively little room for parental experiences to contribute strongly to variation in romantic insecurity. Hopefully, future research can begin to tease these mechanisms apart.

A second objective of this research was to examine the sensitive period hypothesis—the notion that experiences that take place early in life may be particularly influential in shaping attachment security. To do this, we assessed the age of individuals when their parents divorced while controlling variation across people in their ages. Our data supported the sensitive period hypothesis. People who were younger when their parents divorced were more likely to be insecure in their parental relationships than those who were older when their parents divorced. Moreover, we found that insecurity with parents was especially high if parental divorce took place in the first few years of life.

This research suggests that some experiences can be more influential in shaping personality development when they take place early in life as opposed to when they take place later. Why might this be the case? One possibility is that the nervous system is more plastic in early life and, as such, experiences that take place at that time might be more likely to calibrate an individual's psychology than experiences that take place later (Sullivan et al., 2006). Another possibility is that early experiences help set the stage for the expectations and assumptions people develop for close relationships. And once those expectations are configured, it becomes relatively difficult to override them (see Fraley, 2002; Fraley & Roberts, 2005). In other words, when a disruptive event takes place (e.g., parental divorce), the influence of that event on attachment representations must compete with a history of experiences and assumptions that already exist. If that relational history has yet to be firmly established, however, then there is less competition among experiences that shape a person's attachment representations. In short, when a potential attachment relationship is disrupted early in life, that relationship does not have the requisite history to enable it to endure the kinds of challenges that coincide with separation and divorce. As such, when parental divorce takes place early in life, that relational context becomes the history on which future experiences compete against.

We should note that it is sometimes assumed that experiences that take place early in life have the potential to be influential in psychological functioning not because of assumptions concerning sensitive periods, but because the multiple effects of parental divorce have accumulated for a longer period of time, potentially leading to greater effects than they would otherwise. We believe, however, that one of

the strengths of our research is the unconfounding of *time* and *timing*. Specifically, if cumulative impact was capable of explaining the timing results we have reported here, then we would have found that, regardless of the age at which parental divorce took place, people whose parents divorced long ago would have more insecure relationships with their parents than those whose parents divorced more recently. In fact, we found the opposite: people whose parents divorced more recently (holding constant the age at parental divorce) generally had more insecure relationships with their parents than those whose parents divorced longer ago.

There are two implications of these findings. First, they suggest that cumulative impact processes do not explain the sensitive period patterns we see in these data. Second, they suggest that some of the consequences of parental divorce that researchers have previously attributed to cumulative impact processes may be a result of timing effects (e.g., sensitive periods) instead. We believe it will be valuable for future research to separately consider the effects of time (e.g., how much time has transpired since an event took place) and timing (e.g., the age at which events took place).

### *Strengths and Limitations*

One of the strengths of this research is the use of a relatively large sample composed of people varying considerably in parental divorce status, age, and age at parental divorce. A second advantage of this research was the focus on attachment in various relational domains. As explained previously, most researchers focused on attachment as a relationship-general construct. However, there is potentially a lot to learn about the dynamics of attachment by studying interpersonal processes in a diverse number of relational domains. A third advantage of this research was that we were able to replicate our core findings across two samples. A fourth strength of this research is that we examined the sensitive period hypothesis in a way that is more rigorous than is typically the case. Most models of causality in the social sciences assume that experiences that take place more proximally in time will have greater impacts than experiences that take place more distally. One of the points that we highlighted in this paper is that this assumption (which we believe to be true, as a general rule) has the potential to obscure sensitive period effects. Namely, because events that took place early in life necessarily happened longer ago than events that took place recently, the effects of time delay compete with the potential effects of early experiences *per se*. We attempted to overcome this limitation by sampling individuals who varied in both respects (i.e., whether parental divorce took place in early childhood vs. later and whether the divorce took place recently vs. in the distant past). We think this approach is an advantageous way to probe questions concerning the timing of developmental processes.

Despite these strengths, there were some limitations of the present investigation. First, although we focused on the consequences of a relatively objective life event (i.e., parental

divorce) for understanding adult attachment, we nonetheless relied on self-report methods to assess that event. Our working assumption is that people can accurately report on whether or not their parents divorced. But it is quite possible that they are unable to report certain details (e.g., the age at which the divorce took place) with perfect fidelity. Another limitation of this work is that we treated parental divorce as a relatively discrete event—one that happens at a specific point in time. Legally, of course, people become divorced at a specific point in time. But divorce proper represents an accumulation of events that take place over an extended period of time. By focusing on divorce in such a discrete fashion, we may have introduced undesirable sources of error into the present measurements and missed the opportunity to study the ways in which the context of divorce might moderate the organization of attachment styles.

A third limitation of the study is that we relied exclusively on self-report measures of attachment. There are multiple ways of assessing individual differences in attachment in adulthood, some of which rely on interview-based measures (e.g., Roisman et al., 2007) and some of which rely on different conceptual models for understanding individual differences (e.g., Gillath, Hart, Nofle, & Stockdale, 2009). Although we have concluded that parental divorce predicts attachment insecurity—particularly in the domain of parental relationships, it is possible that things could work differently if security was defined and assessed in other ways.

A fourth limitation is that we are limited in the extent to which we can draw conclusions about cause and effect. Our theoretical assumptions have led us to write as if parental divorce causes people to be more insecure in their parental relationships than they would be otherwise. However, it is possible that people who have insecure relationships with their parents are more likely to have parents who divorce. In other words, there could be a third variable (e.g., a family history of interpersonal conflict) that plays the primary causal role by shaping both relationship insecurities and by facilitating parental divorce. We should note, however, that the particular pattern of results that we have predicted here might be challenging to explain with alternative causal assumptions. For example, if one assumes that divorce is “heritable” because the factors that predict divorce and attachment insecurity (e.g., negative affectivity) are heritable (Jocklin, McGue, & Lykken, 1996), one might predict that the impact of divorce on attachment would be relationship general rather than relationship specific. In addition, without further assumptions, it would be difficult to explain the timing effects—that parental divorce seems to have greater consequences for insecurity when it takes place early rather than later in life. In short, we want to be clear that our data do not rule out alternative causal models. However, we also believe that the pattern of results we have reported place severe constraints on what kinds of models can explain the data. In other words, alternative causal accounts not only have to explain the link between parental divorce and insecurity, but

also the relationship-specific effects, the parental custody data, and the developmental timing data.

A fifth limitation is that we have not fully explored all the contextual factors that can impact the way in which individuals adapt to parental divorce. For example, some research suggests that parental divorce can have beneficial psychological consequences when it brings an end to the day-to-day conflict and strife that might be taking place in families (Amato, 2003). For instance, parental divorce is associated with a reduction in antisocial behavior among children who come from families that had a high degree of family dysfunction before the divorce (Strohschein, 2005). In addition, as a reviewer of this article observed, it could very well be the case that the tendency for parental divorce to have a diffuse as opposed to a more circumscribed impact on people's attachment representations may be an individual difference factor itself. In other words, it could be the case that parental divorce selectively impacts some people's relationships with their parents, but not romantic partners, whereas for other people the effects bleed over into multiple areas of interpersonal functioning. This is a promising question for future research.

A final limitation of this research is that we have focused exclusively on adult attachment styles as outcome variables. There are many studies that have shown that parental divorce is associated with a variety of outcomes that are of interest to social, personality, and developmental psychologists. For example, parental divorce is a risk factor in offspring divorce (Amato, 1996; Wolfinger, 2003). In addition, people from divorced families are less trusting of their romantic partners (Jacquet & Surra, 2001) and have less favorable expectations for their own future marriages (Boyer-Pennington, Pennington, & Spink, 2001). We believe it would be valuable to examine these and other outcomes to determine if the timing of divorce differentially impacts these too.

In conclusion, the effects of parental divorce appear to have a stronger impact on people's attachment with parents than with romantic partners or friends. Furthermore, the timing of parental divorce matters—people who were younger when their parents divorced report more parental attachment insecurity than people who were older when their parents divorced. To the best of our knowledge, this is the first empirical data that speak to the possibility that there are sensitive periods in attachment development such that the timing of specific events (e.g., parental divorce) can have differential impacts on the security of people's representations of parental relationships.

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### Notes

1. Fortunately, there are a small, but growing, number of longitudinal studies which suggest that early interpersonal experiences are prospectively related to adult attachment styles (e.g., Fraley, Roisman, Booth-LaForce, Owen, & Holland, 2013; Salo, Jokela, Lehtimäki, & Keltikangas-Järvinen, 2011; Zayas, Mischel, Shoda, & Aber, 2011).
2. To be clear, the sensitive period hypothesis is not the hypothesis that there is a discrete window of time during which the organism can be shaped by experiential inputs. The core idea is that organisms are more susceptible to experiential inputs at certain phases of development than at other phases, not that there are certain phases at which experiential inputs become irrelevant.
3. Relationship length did not moderate the association between divorce status and attachment security in the romantic domain.
4. Conceptually it would seem optimal to compute *Time Since the Divorce* as  $Age - Age \text{ at divorce}$ . However, because this computation involves one of our key predictors, *Age at divorce*, the basic regression model would contain redundancy (i.e.,  $Outcome = [Age - Age \text{ at divorce}] + Age \text{ at divorce}$ ). Thus, we used *Age* as a means of controlling the time that had passed since the divorce because, all things being equal, older individuals' parents would have divorced longer ago than younger individuals' parents.
5. These two variables are less than perfectly related because some people had 0s for both variables because they were living with neither parent after the divorce.
6. To be clear, this was also the case among those whose parents had not divorced. We assume that some of the same mechanisms (e.g., parental involvement and availability) are relevant to explaining this phenomenon in divorced and nondivorced samples.

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