

Attachment and Jealousy: Understanding the Dynamic Experience of Jealousy Using the Response Escalation Paradigm

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Abstract

Jealousy is a complex, dynamic experience that unfolds over time in relationship-threatening situations. Prior research has used retrospective reports that cannot disentangle initial levels and change in jealousy in response to escalating threat. In three studies, we examined responses to the Response Escalation Paradigm (REP)—a 5-stage hypothetical scenario in which individuals are exposed to increasing levels of relationship threat—as a function of attachment orientations. Highly anxious individuals exhibited hypervigilant, slow escalation response patterns, interfered earlier in the REP, felt more jealousy, sadness, and worry when they interfered, and wanted to engage in more vigilant, destructive, and passive behaviors aimed at their partner. Highly avoidant individuals felt more anger when they interfered in the REP and wanted to engage in more partner-focused, destructive behaviors. The REP offers a dynamic method for inducing and examining jealousy and introduces a novel approach to studying other emotional experiences.

Keywords

emotion in relationships, adult attachment, romantic relationships, emotions

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Imagine you are at a party with your partner. You stand in line to get a drink and notice your partner talking and laughing with an attractive woman you do not know. Later, you notice the woman's hand on your partner's shoulder. How would you feel when you notice the woman talking with your partner? Would you immediately feel jealous or not until she touches your partner? As the situation progresses, would your feelings and behavior change? Depending on your relationship history, such jealousy-inducing situations should trigger specific emotional and cognitive responses that eventually generate behavioral reactions. This cascade of responses is likely to have significant consequences for you, your partner, and your relationship.

Despite the significant role that jealousy plays in people's lives, it has rarely been studied as the dynamic, unfolding experience it truly is. Instead, most prior research has investigated jealousy by asking people how they felt during a previous, self-selected jealousy-inducing event. Although such approaches have produced considerable insight into jealousy, they do not ascertain how different people respond to the same jealousy-inducing situation while it occurs. Why do some people feel jealous when their partner merely glances at a potential mate, whereas others do not feel jealous until there is clearer evidence of a mate-poaching attempt? Do feelings of jealousy and associated negative emotions intensify rapidly or gradually as threat escalates?

These questions cannot be answered without using a paradigm that (a) standardizes the jealousy situation, (b) allows it to unfold and intensify over time, and (c) allows individuals to experience jealousy without harming their relationships. To answer these questions, we developed a new paradigm—the Response Escalation Paradigm (REP). Using this paradigm in three studies, we examine how individuals' emotional, cognitive, and behavioral reactions to a hypothetical, escalating jealousy situation are associated with their romantic attachment orientations.

The Nature and Functions of Jealousy

Jealousy is

a complex of thoughts, emotions, and actions that follows loss of or threat to self-esteem and/or the existence or quality of the romantic relationship [when] the perceived loss or threat is

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generated by the perception of a real or potential romantic attraction between one's partner and a (perhaps imaginary) rival. (White & Mullen, 1989, p. 9)

When jealousy arises, people usually feel strong negative emotions (Sharpsteen, 1993), which can leave enduring, negative effects on individuals and their relationships. Indeed, people frequently cite infidelity as a primary reason for divorce (Amato & Previti, 2003).

Although jealousy can have very negative consequences, it also serves adaptive functions (Buunk & Hupka, 1987). One adaptive function is to trigger emotions that launch actions that mitigate or terminate a threat. Anger, for example, is evoked when important goals are blocked or threatened. It initiates actions to remove the barrier or change the behavior of others to obtain or maintain a valued goal (Berkowitz, 1993; Carver & Harmon-Jones, 2009; Fischer & Roseman, 2007). In jealousy situations, anger often arises because a romantic rival (or the partner) is perceived as threatening an individual's relational goals. Anger may also trigger behavioral intentions to harm the rival (or partner) physically or emotionally to stop the situation (Fischer & Roseman, 2007; Shaver, Schwartz, Kirson, & O'Connor, 1987).

Fear and sadness, in contrast, are triggered by danger or loss (Frijda, 1986; Marks & Nesse, 1994). When social threats are encountered, fear can evoke increased social acceptance (Marks & Nesse, 1994). Sadness, which arises from real or perceived loss of an important relationship, person, or object (Raghunathan & Pham, 1999), is associated with perceptions that a negative event is uncontrollable (Frijda, Kuipers, & Ter Schure, 1989). In jealousy-inducing situations, fear and sadness may pave the way toward repairing a damaged relationship or coping with relationship loss.

Jealousy evolved not only to alert individuals to potential relationship threats, but also to activate mate-guarding behaviors to mitigate them (Buss, 2003). Mate-guarding behaviors can be either partner-focused or rival-focused (i.e., mate poacher-focused; Buss, 1988). Partner-focused tactics involve guarding the partner (e.g., watching him or her, monopolizing her or his time), threatening or punishing the partner (e.g., threatening infidelity, emotionally manipulating the partner), or enhancing the self or promoting the relationship (e.g., displaying affection, enhancing one's appearance). Poacher-focused tactics include signals of possessing the partner (e.g., putting one's arm around the partner) or threatening the poacher (e.g., behaving aggressively). These tactics suggest that mate-guarding behaviors can either be partner-focused or poacher-focused, constructive or destructive, and direct or indirect.

At its core, jealousy is a uniquely interpersonal emotional experience because it is highly contingent upon (a) the actions of one's partner and (b) the actions of the rival or poacher. In other words, jealousy is a dynamic, interpersonal process because a person's reactions to a jealousy-inducing situation cannot be understood without taking the partner's

and poacher's behaviors into account. Although all emotions have dynamic components to them, jealousy, at its core, is about recognizing and interpreting threat to a relationship. Only an iterative, dynamic empirical approach can capture the points at which individuals recognize and respond to threat based on their partner's and the poacher's actions.

The REP

Studies that induce jealousy can have negative repercussions on individuals and relationships. Accordingly, little if any prior research has exposed romantic couples to actual jealousy-inducing situations. Most prior research has asked individuals to report how they reacted to a self-selected prior experience when they felt jealous (e.g., Guerrero, 1998; Sharpsteen & Kirkpatrick, 1997). Such retrospective paradigms have limitations. Individual differences in retrospectively reported jealousy may be attributable to remembering different types of situations, such as one person remembering his or her partner looking at an attractive potential partner versus another person remembering his or her partner kissing someone else. Moreover, the outcome of a remembered situation may bias appraisals when that event is recalled. For example, individuals may remember being more upset by an act that led to a major indiscretion, or less upset by something that turned out to be inconsequential (Hawkins & Hastie, 1990).

Many studies have asked individuals how they would react if their partner engaged in certain types of infidelity, such as having an affair or flirting with another person (e.g., Miller, Denes, Diaz, & Buck, 2014; Radecki-Bush, Farrell, & Bush, 1993; Selterman & Maier, 2013). Buss and colleagues used forced-choice dilemmas in which individuals indicated how they would feel and/or respond if they discovered their partner was interested in someone else (e.g., Buss, Larsen, Westen, & Semmelroth, 1992). These studies have highlighted the importance of considering how individual differences shape responses to jealousy-inducing situations. Because these methods have treated situations as static, however, they do not capture the dynamic process and experience of jealousy. These limitations necessitate a paradigm that creates a dynamic, jealousy-inducing situation that does not harm existing relationships.

Vicary and Fraley (2007) developed an iterative paradigm to assess how people's responses to a jealousy-inducing scenario affect their romantic relationship perceptions. They found that highly anxious and avoidant individuals were more likely to choose detrimental behavioral responses (e.g., trying to make their partner feel jealous) across the progressive iterations of the paradigm, regardless of their partners' responses. This research suggests that highly anxious and avoidant individuals interpret their partners' behaviors in negative ways. In the current research, we build on this work by developing the REP to better understand the experiences of highly anxious and avoidant individuals that may prompt them to respond to jealousy-inducing scenarios negatively.

Table 1. Stages of the Response Escalation Paradigm.

Stages	
1	You and your partner are at a large party. There are a lot of people there and everyone is having a good time. You leave your partner to go up to the bar to try to get a drink. While waiting, you see an attractive [man/woman] come up to your partner and start talking to [him/her].
2	As you continue waiting for your drink, you see your partner is still talking to the attractive [man/woman]. They both seem to be enjoying the conversation and are laughing together.
3	Soon you discover that the [man/woman] is clearly flirting with your partner. [He/She] puts [his/her] hand on your partner’s shoulder and leans forward. Your partner does not push [him/her] away or look uncomfortable.
4	As your partner and the attractive [man/woman] continue to talk, [he/she] stands even closer to your partner, gazing deeply into your partner’s eyes and stroking [his or her] side and face.
5	You see the attractive [man/woman] start to kiss your partner.

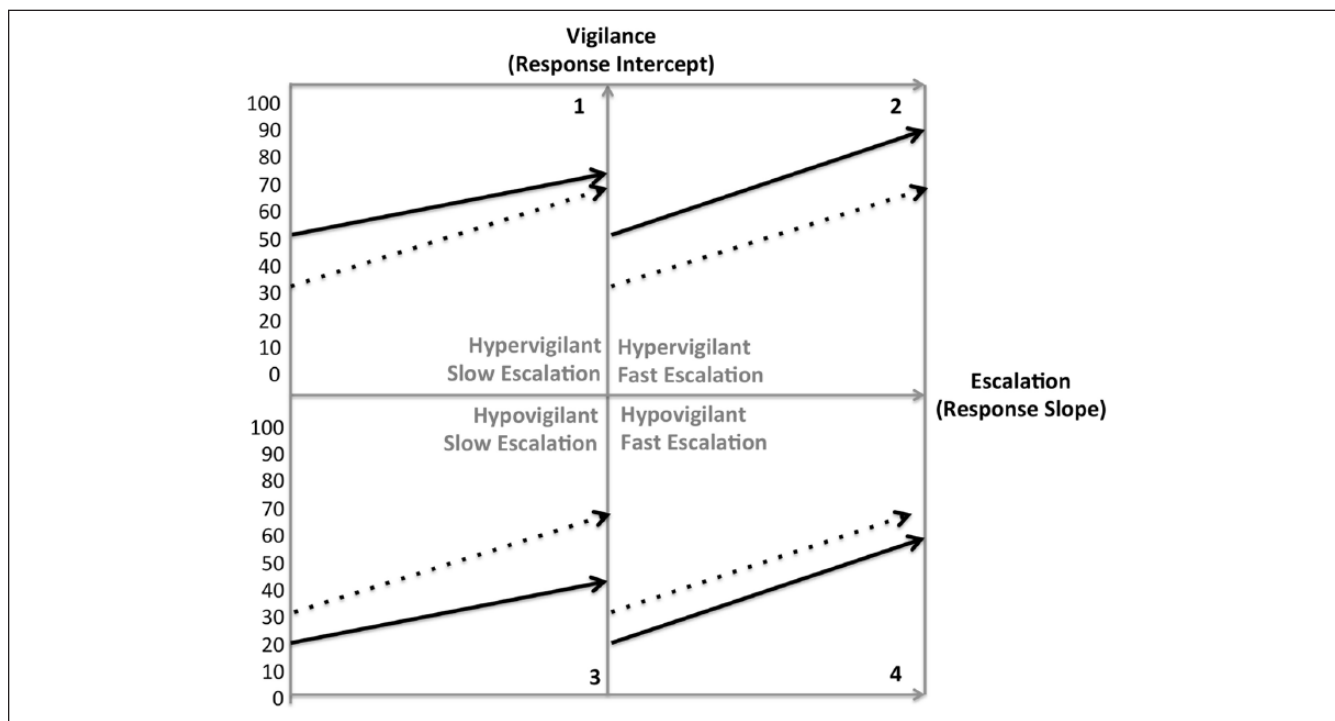


Figure 1. Two-dimensional model of jealousy responses.

Note. The bold line in each quadrant represents the type of pattern (e.g., Hypervigilant Slow Escalation, Quadrant 1). The dotted line represents the modal response and is the same across the quadrants.

In the REP (see Table 1), participants are exposed to a hypothetical unfolding situation in which the threat posed by a desirable alternative partner (a potential mate poacher) gradually increases. The level of potential threat intensifies from stage-to-stage, reflecting how jealousy-inducing situations often unfold. This allows for the measurement of an individual’s emotional, cognitive, and behavioral reactions at each stage. As the situation transpires, it remains unclear whether the person’s partner is passively or actively flirting with the poacher, and although the poacher is described as “attractive,” no other details are provided. The REP, therefore, allows individuals to interpret the event, while the specific information and described behaviors at each stage

remain consistent. This paradigm allows researchers to address two questions that cannot be answered by traditional, static paradigms: (a) Do individuals differ in their jealousy trajectories as a threat increases over time? and (b) Do they differ in their behavioral reactions as a function of differences in jealousy trajectories?

Individual Differences in Responding

As shown in Figure 1, the REP allows one to identify distinct patterns of jealousy based on differences in initial jealousy levels (intercept effects) and rates of increase in jealousy levels (slope effects). The y-axis in Figure 1 represents level of

jealousy (with the intercept representing *vigilance*). The *x*-axis represents intensity of the stimulus (with the slope representing *escalation*). Individuals high in vigilance experience comparatively greater jealousy at the first sign of threat. Individuals exhibiting fast escalation experience comparatively greater increases in jealousy across the situation. The four quadrants in this two-dimensional space represent different combinations of high versus low vigilance and fast versus slow escalation.

If individuals differ in jealousy trajectories, how might different trajectories be associated with different outcomes for individuals and relationships? One function of jealousy is to impel individuals to mitigate relational threats. This may generate actions that are behavioral (e.g., interfering in the situation) and/or emotional (e.g., disengaging from the situation). Some trajectories may lead individuals to take action immediately, which might mitigate the threat, but could have relationship costs (e.g., intervening prematurely and angering one's partner). Other trajectories may lead individuals to defer action, which may result in costs to the self, but could mitigate relationship costs (e.g., enduring the uncomfortable situation to avoid appearing possessive). It remains unclear, however, whether different trajectories lead different individuals to experience different emotional and/or behavioral outcomes.

Consider an example. Elizabeth is at a party with her partner (William), and she is worried he might stray. When she notices an attractive woman approaching William, Elizabeth immediately feels jealous and begins monitoring the situation closely (i.e., hypervigilance). When she sees the woman starting to flirt with William, Elizabeth's jealousy sharply increases (i.e., fast escalation), and she quickly intervenes. Alternatively, Elizabeth might experience a more gradual increase in jealousy (i.e., slow escalation). If so, she may reach a tipping point slightly later (e.g., at Stage 3 in the REP), resulting in emotional and/or behavioral reactions that are more appropriate (e.g., intervening harshly when the woman is touching William rather than merely laughing with him). Static methods do not allow researchers to study *how* initial emotional reactions and changes in emotional reactions generate different outcomes.

In contrast, when William sees Elizabeth talking to an attractive man, he may assume the interaction is platonic and experience low jealousy at Stage 1 (i.e., hypovigilance). As the situation progresses, however, William's jealousy may rise sharply (i.e., fast escalation). As shown in Figure 1, he may end up at a similar level of jealousy by Stage 5 as someone with an average intercept and slope. However, he may respond differently because he escalates from low jealousy to high jealousy relatively quickly. Alternatively, William may experience a gradual increase in jealousy (i.e., slow escalation). In this case, he might experience little distress, even when relational threat is high (e.g., at Stage 5). If so, he might never interfere in the situation, which could affect both his relationship and his well-being.

The REP enables one to ascertain the jealousy response patterns that people exhibit, to examine when people reach emotional and behavioral tipping points, and to begin to identify the emotional and behavioral consequences that stem from these response patterns.

Attachment Orientations and Jealousy

What governs which pattern individuals experience and how these patterns shape their responses in jealousy-inducing situations? One key predictor should be an individual's attachment orientation. According to attachment theory (Bowlby, 1969, 1973, 1980), earlier relationship experiences shape expectations about whether relationship partners are likely to be reliable, available, and trustworthy (Simpson & Rholes, 2012).

Adult romantic attachment orientations exist on two relatively orthogonal dimensions (Brennan, Clark, & Shaver, 1998). Highly avoidant individuals worry about being taken advantage of, are uncomfortable with closeness and intimacy, and value autonomy and control in relationships. Highly anxious individuals seek closeness and reassurance from their romantic partners and are attuned to even minor signs that their partners could be pulling away. Secure attachment (i.e., low anxiety and low avoidance) is characterized by comfort with interdependence and closeness and trusting relationship partners.

According to Mikulincer and Shaver's (2003) threat-activation model, when a potential threat is detected, individuals who have different attachment orientations use different strategies to regulate and reduce their negative emotions. Anxiously attached individuals employ a *hyperactivating strategy*, which is characterized by a lower threshold for detecting possible threats and worrying about threat-related cues, and they display strong, negative emotional responses to negative relationship events (Mikulincer & Shaver, 2005). In the REP, therefore, we hypothesize that highly anxious individuals should display a hypervigilant response pattern, reporting greater jealousy at the first sign of possible threat (at Stage 1). This confirmatory prediction is consistent with the fact that highly anxious individuals report greater jealousy than other people (e.g., Buunk, 1997; Marshall, Bejanyan, Di Castro, & Lee, 2013; Sharpsteen & Kirkpatrick, 1997).

With regard to their rate of escalation in jealousy, there are two competing exploratory predictions. The fact that highly anxious individuals report greater jealousy (e.g., Buunk, 1997) could be attributed to intercept effects, slope effects, or both. Highly anxious people might report higher jealousy because they experience higher jealousy at any given point in the situation, or because they experience a faster rate of increase in jealousy across the situation. Thus, highly anxious individuals might display a hypervigilant slow escalation pattern (Quadrant 1) or a hypervigilant fast escalation pattern (Quadrant 2).

Highly avoidant individuals use a deactivating strategy to mitigate negative emotions when threatened (Mikulincer & Shaver, 2003). A deactivating strategy produces emotional distance and detachment from others, which is manifested as disregarding or downplaying relationship threats (e.g., Cassidy & Kobak, 1988; Mikulincer & Shaver, 2005). Although highly avoidant individuals monitor jealousy situations to some degree, they should have a higher threshold for recognizing threat and feeling jealous. Past findings are somewhat mixed; some studies show that highly avoidant people feel similar jealousy compared with less avoidant people (e.g., Buunk, 1997; Hazan & Shaver, 1987), whereas others show avoidance is associated with less jealousy (e.g., Guerrero, 1998; Marshall et al., 2013). These studies differ, however, in how jealousy and attachment were assessed. Thus, although it is unclear whether highly avoidant people should experience more or less jealousy than less avoidant people, it is unlikely they will experience greater jealousy at the beginning of the REP or across its stages.

In the REP, therefore, we hypothesize that highly avoidant individuals should display a hypovigilant, slow escalation response, experiencing less jealousy at the first sign of possible threat and increasing in jealousy more slowly than less avoidant individuals as threat cues escalate (Quadrant 3). Given that theory and previous research has not addressed the rate of change in their jealousy responses, the slope prediction for highly avoidant people is exploratory.

Study 1

Study 1 examined individuals' jealousy patterns as the threat posed by a potential mating rival increased. To examine individual differences in responses to this escalating event, we tested how attachment anxiety and avoidance were associated with the amount of jealousy individuals felt at the earliest and most ambiguous stage of the scenario (i.e., the *intercept* of the jealousy trajectory). We also tested the pattern of increases in jealousy as threat became more intense across the five stages (i.e., the *slope* of the jealousy trajectory). We derived two confirmatory hypotheses and two exploratory hypotheses for anxious and avoidant individuals:

Hypothesis 1 (Confirmatory): Highly anxious individuals should be higher in vigilance. That is, they should have a comparatively lower threshold for detecting relationship threat and report higher jealousy at the beginning (Stage 1) of the REP, as indicated by a positive anxiety effect on the jealousy intercept.

Hypothesis 2 (Exploratory): Highly anxious individuals should show faster escalation, meaning that they should have larger increases in jealousy as threat increases across the five REP stages, as indicated by a positive anxiety effect on the jealousy slope.

Hypothesis 3 (Confirmatory): Highly avoidant individuals should be lower in vigilance. That is, they should

have a comparatively higher threshold for detecting relationship threat and report less jealousy at the beginning (Stage 1) of the REP, as indicated by a negative avoidance effect on the jealousy intercept.

Hypothesis 4 (Exploratory): Highly avoidant individuals should show slower escalation, meaning that they should have lower increases in jealousy as threat increases across the five REP stages, as indicated by a negative avoidance effect on the jealousy slope.

Method

Participants. A total of 677 participants (69% women), all in a current romantic relationship, were recruited on Amazon's Mechanical Turk (MTurk). Their mean age was 36.69 years ($SD = 10.77$), with 62.8% married, 22.0% in a relationship, 14.8% cohabitating with or engaged to their partner, and 0.4% divorced. About 80.6% were White/Caucasian.

Measures and procedure. Participants reported their gender, age, ethnicity, sexual orientation, and confirmed their current relationship status.¹ Participants also indicated whether their partner was most attracted to males, females, or both, and then provided the first name of their romantic partner (which was later inserted into the REP stages to enhance realism). They then completed the Adult Attachment Questionnaire (AAQ; Simpson, Rholes, & Phillips, 1996), a well-validated 17-item measure that assesses attachment orientations to romantic partners in general. The AAQ taps two attachment dimensions: avoidance and anxiety. The avoidance subscale (eight items) assesses the degree to which individuals hold negative views of others and avoid or withdraw from closeness and intimacy in relationships ($\alpha = .86$). The anxiety subscale (nine items) assesses the degree to which individuals hold negative views about themselves as relationships partners and are preoccupied with abandonment, loss, and their partner's commitment ($\alpha = .82$). Prototypically secure individuals score low on both dimensions. Items were answered on a 7-point Likert-type scale (1 = *strongly disagree*; 7 = *strongly agree*).

Participants next started Stage 1 of the REP (see Table 1). The gender of the potential poacher was matched with the gender to which their partner was attracted. After each stage, participants were asked, "How jealous do you feel?" They responded by moving a marker on a sliding scale anchored 0 = *not at all* and 100 = *extremely* (see Table 2 for descriptive statistics for all three studies).

Power analysis. The sample size was adequate to detect a small effect (partial $r = .14$, $f^2 = .02$) at 95% power.

Results

To test our hypotheses, we ran a moderated growth curve analysis in SPSS 22.0. The within-subjects (Level 1) model

Table 2. Studies 1 to 3: Attachment Anxiety and Attachment Avoidance Means and Standard Deviations and Jealousy Means and Standard Deviations at Each Stage of the Response Escalation Paradigm.

	Study 1	Study 2	Study 3
Stage 1	30.53 (<i>SD</i> = 29.51)	33.59 (<i>SD</i> = 28.85)	35.57 (<i>SD</i> = 29.83)
Stage 2	36.57 (<i>SD</i> = 32.36)	24.63 (<i>SD</i> = 29.11)	40.38 (<i>SD</i> = 32.94)
Stage 3	50.08 (<i>SD</i> = 34.21)	24.97 (<i>SD</i> = 28.96)	50.17 (<i>SD</i> = 35.00)
Stage 4	63.77 (<i>SD</i> = 33.59)	30.61 (<i>SD</i> = 30.08)	61.45 (<i>SD</i> = 36.69)
Stage 5	78.25 (<i>SD</i> = 31.00)	35.04 (<i>SD</i> = 36.53)	73.46 (<i>SD</i> = 34.14)
Anxiety	3.20 (<i>SD</i> = 1.18)	3.18 (<i>SD</i> = .99)	3.41 (<i>SD</i> = 1.10)
Avoidance	3.70 (<i>SD</i> = 1.22)	3.23 (<i>SD</i> = 1.17)	3.77 (<i>SD</i> = 1.17)

Note. In Study 2, participants could opt-out of the jealousy scenario. Thus, the jealousy means and standard deviations reflect the jealousy of individuals who chose to remain in the jealousy scenario.

Table 3. Study 1: Moderated Growth Curve Analysis Predicting Jealousy From Anxiety, Avoidance, Response Escalation Paradigm Stage, and the Interactions Between Anxiety and Stage, and Avoidance and Stage.

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	CI _{Lower}	CI _{Upper}
Intercept	27.31	1.22	22.41	.000	24.92	29.70
Stage	12.26	0.31	39.68	.000	11.66	12.87
Attachment anxiety	9.35	1.32	7.09	.000	6.76	11.94
Attachment avoidance	1.61	1.32	1.22	.224	-0.98	4.19
Stage × Anxiety	-0.74	0.33	-2.21	.027	-1.40	-0.08
Stage × Avoidance	-0.05	0.33	-0.14	.888	-0.70	0.61

Note. Attachment anxiety and avoidance are standardized. Response Escalation Paradigm stages are coded from 0 to 4. CI = 95% confidence interval.

included the intercept and jealousy scenario (REP) stage. Stage 1 was coded as 0, Stage 2 as 1, and so forth. Thus, the intercept reflected the jealousy reported at Stage 1, and the slope reflected the increment in jealousy associated with moving up one stage. The between-subjects (Level 2) model for the intercept and slope included attachment anxiety and avoidance, which were standardized. The Level 1 intercept and slope were allowed to vary between-subjects (i.e., they were treated as random) and correlate.

We first examined whether each stage of the REP incrementally increased jealousy in participants generally. Analyses were conducted in two steps. In Step 1, we ran an unconditional growth model that did not include Level 2 moderators of the intercept and slope. As expected, the REP induced increasing jealousy across the five stages ($b = 12.26, p < .001$). There was significant between-subject variability in the intercept and slope, indicating the potential for Level 2 moderators. In addition, there was a significant negative correlation between the intercept and slope ($r = -.46, p < .001$), indicating that individuals who reported higher jealousy at Stage 1 also reported a lower increase in jealousy from stage-to-stage. Because the mean level of jealousy at Stage 5 was only 78.25 out of 100, it is unlikely that this finding is driven by a ceiling effect.

We next tested for the effects of anxious and avoidant attachment on jealousy across the stages. In Step 2, we ran a moderated growth model that included the effects of attachment anxiety and avoidance on the intercept and slope. The effects on the intercept are reflected in the main effects of

anxiety and avoidance, whereas the effects on the slope are reflected in the interactions of anxiety and avoidance with stage (see Table 3). Adding these parameters significantly improved model fit, $\Delta D_{(4)} = 34.2, p < .001$, and explained 9.82% of the between-subject variability in the intercepts, but only 1.1% of the between-subject variability in the slopes.

The trajectories of jealousy for individuals high (+1 *SD*) and low (-1 *SD*) in attachment anxiety (panel A) and avoidance (panel B) are shown in Figure 2. Consistent with Hypothesis 1, highly anxious individuals reported greater jealousy at Stage 1 (i.e., they had higher intercepts). Specifically, individuals high in attachment anxiety (+1 *SD*) reported a jealousy level 18.7 points higher than those low (-1 *SD*) in attachment anxiety in response to an attractive stranger simply approaching their partner.

If each stage escalated individuals' emotional reactions at an atypical rate, highly anxious individuals should experience unequal increases in jealousy as the jealousy scenario (REP) progressed (i.e., the fast escalation pattern), which would be revealed by stronger slope effects (Hypothesis 2). However, their jealousy increased at a slower rate than less anxious individuals, indicating that Hypothesis 2 was not supported. Specifically, the predicted average increase across the REP stages was 11.0 jealousy points for individuals high in attachment anxiety (+1 *SD*) and 13.5 points for those low (-1 *SD*) in attachment anxiety.²

Although highly avoidant individuals were expected to have a higher threshold for threat, as evidenced by lower

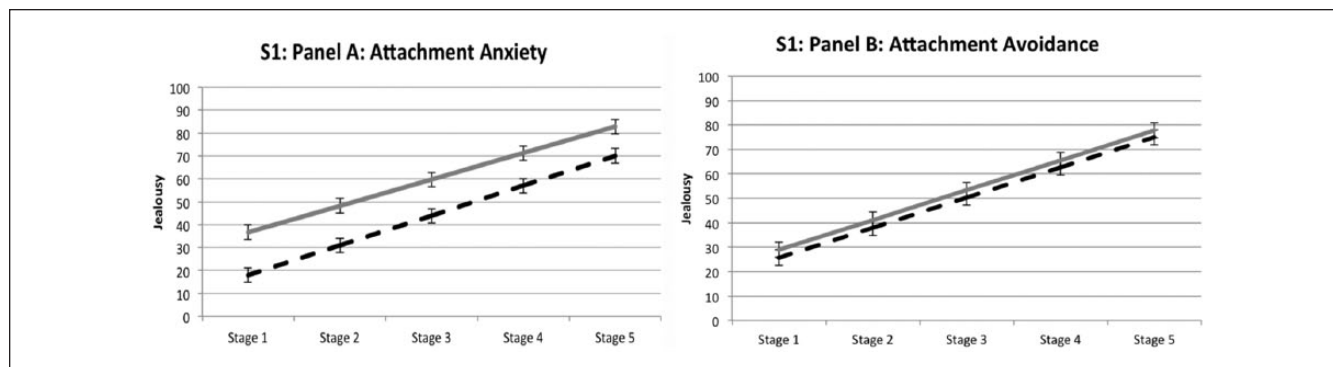


Figure 2. Study 1 model-based linear trajectories for individuals high versus low (± 1 SD) in attachment anxiety (Panel A) and avoidance (Panel B).

Note. Solid lines represent individuals high in attachment anxiety and avoidance, respectively; dashed lines represent individuals low in attachment anxiety and avoidance, respectively. Error bars represent standard errors.

jealousy after the first stage (Hypothesis 3), the difference between highly avoidant and less avoidant individuals at Stage 1 was nonsignificant and Hypothesis 3 was not supported. We also predicted that highly avoidant individuals might show slower increases in jealousy across the stages of the REP (Hypothesis 4). Although the effect of attachment avoidance on the slope was negative, the effect was nonsignificant, indicating that Hypothesis 4 was not supported (see Table 3).

Discussion

Using a dynamic jealousy scenario (the REP), Study 1 revealed that individuals systematically differ in how jealous they feel during mate-poaching attempts depending on their attachment orientations. Highly anxious individuals felt more jealous than less anxious individuals, even in a low-threat situation (i.e., when imagining an attractive opposite-sex person merely talking to their partner at a party). This finding is consistent with the notion that the jealousy systems of highly anxious people are more strongly activated at the detection of *possible* relationship threats (i.e., a hypervigilant response). It is also consistent with their retrospective reports of experiencing stronger and more chronic jealousy in relationships than less anxious individuals (e.g., Guerrero, 1998; Sharpsteen & Kirkpatrick, 1997).

Anxious individuals did *not* display faster escalation of jealousy across the REP. In fact, their level of jealousy increased at a relatively slower rate than it did for less anxious (i.e., more secure) individuals. This exploratory finding may provide insight into the adaptive nature of the emotional reactions of more versus less anxious individuals in jealousy-inducing situations. The REP was designed to be ambiguous in terms of threat at early stages (e.g., Stage 1), after which threat gradually becomes clearer and stronger. Study 1 confirms that highly anxious individuals recognize potential threat at the very start of the REP, but then experience more

gradual increases in jealousy across the five stages. This may have different implications for when highly anxious individuals intervene. In contrast, less anxious (more secure) individuals are significantly less jealous at Stage 1 but then experience relatively faster increases in jealousy. Thus, once it becomes clearer there could be a real threat (i.e., when the poacher first touches the partner), less anxious (more secure) individuals react more adaptively by experiencing relatively stronger jealousy, which may motivate them to take action. We return to this question in Study 2.

There were no effects of attachment avoidance on either the intercept or the slope of jealousy in Study 1. We anticipated that highly avoidant individuals would report less jealousy at Stage 1 of the REP and across the five stages, given their higher threshold for recognizing and responding to most relationship threats. Interestingly, highly avoidant individuals displayed the same jealousy pattern as less avoidant individuals. Based on previous work (e.g., Mikulincer & Shaver, 2005), it seems unlikely that highly avoidant people would respond in exactly the same manner as less avoidant people. One possibility is that some of their other interpersonal tendencies may generate unique emotional and/or behavioral reactions to the jealousy scenario. We return to this possibility in Studies 2 and 3.

Although Study 1 documents the lower threat threshold of highly anxious individuals and reveals that they experience steadily increasing jealousy across the REP, it does not address the emotional or behavioral responses associated with this hypervigilant response pattern. Jealousy is a complex, blended emotion that often includes conflicting emotions and goals (Rydell & Bringle, 2007). Which other emotions do individuals experience as jealousy situations unfold? Study 1 also did not reveal whether there is a “tipping point” that triggers threat-mitigation behavioral intentions. Does anger, for example, push some individuals to want to act immediately once a threat is detected? Does fear keep others from acting until the situation culminates in

possible betrayal? We examine these questions using a different version of the REP in Study 2.

Study 2

In Study 2, we examined behavioral and emotional reactions to the REP jealousy scenario. First, we investigated when individuals would interfere by approaching their partner and the potential poacher. To further examine emotional aspects of jealousy, we also tested whether highly anxious and highly avoidant individuals experience different emotions at the point (stage) when they decide to interfere.

In real-life situations, people do not simply watch as their partner mingles with potential rivals; instead, they can interrupt. Attachment-based differences in interference might explain some past findings involving anxious attachment and jealousy outcomes. For example, highly anxious individuals might wait until later stages to intervene, which could explain why they typically report more jealousy than other people (Sharpsteen & Kirkpatrick, 1997). However, given our Study 1 findings that highly anxious individuals report feeling more jealous, even when exposed to minimal/ambiguous threat (at Stage 1), highly anxious individuals should reach a “threshold of action” and interfere sooner than others.

Hypothesis 5: Highly anxious individuals should interfere at a comparatively earlier stage during the jealousy scenario.

According to Study 1, highly avoidant individuals do not differ from less avoidant individuals in their jealousy responses at Stage 1 of the REP, nor across the stages. This suggests that highly avoidant individuals should interfere at a similar stage as less avoidant individuals. However, past research indicates that highly avoidant individuals usually disengage from threatening situations (Fraley & Shaver, 2000) and distance themselves from their partners when their relationships are threatened (Guerrero, 1998). Thus, highly avoidant individuals might never reach a jealousy threshold that leads them to interfere. Given their strong deactivating tendencies, we predicted that avoidance should delay interference.

Hypothesis 6: Highly avoidant individuals should interfere at a comparatively later stage during the jealousy scenario.

We also tested whether highly anxious and highly avoidant individuals experience different emotions when they do interfere. There are several important similarities between the attachment system and emotional reactions in jealousy-inducing situations. Both the attachment system and jealousy-inducing scenarios activate basic emotions such as fear, anger, and sadness, particularly in relationship-threatening contexts (Sharpsteen & Kirkpatrick, 1997). Highly anxious

individuals report feeling greater sadness, anger, and fear in jealousy situations than other individuals do (Sharpsteen & Kirkpatrick, 1997). However, because they have lower self-worth and fear of abandonment (Bowlby, 1973), highly anxious individuals are likely to experience more passive, inhibition-oriented emotions (e.g., sadness, worry) rather than active, approach-oriented emotions, such as anger (Carver & Harmon-Jones, 2009). They should also feel more jealous when they decide to interfere, considering that they start at higher initial levels of jealousy.

Hypothesis 7: Highly anxious individuals should report comparatively greater sadness, worry, and jealousy when they decide to interfere in the jealousy scenario.

Some prior research suggests that highly avoidant individuals feel more sadness and fear than less avoidant people (Sharpsteen & Kirkpatrick, 1997). Avoidant attachment stems in part from worries about losing autonomy and control in relationships (Bowlby, 1973; Mikulincer, 1998), and highly avoidant individuals react to such concerns by creating more interpersonal distance when they feel threatened (Shaver & Mikulincer, 2002). Anger is an effective distancing emotion (Keltner & Haidt, 1999), and highly avoidant individuals display relatively greater anger during distressing situations (Rholes, Simpson, & Oriña, 1999).

Hypothesis 8: Highly avoidant individuals should report comparatively greater anger when they interfere in the jealousy scenario.

Method

Participants. A total of 168 participants (44.6% women) were recruited on MTurk. Their mean age was 33.30 years ($SD = 11.60$), with 27.5% reporting they were single, 32.0% in a relationship, 27.2% married, 9.4% cohabitating with or engaged to their partner, and 3.9% divorced, widowed, or in another type of relationship. About 76.8% were White/Caucasian.

Measures and procedure. Participants indicated their gender, current relationship status, sexual orientation, and then completed the AAQ (Simpson et al., 1996; anxiety subscale: $\alpha = .80$; avoidance subscale: $\alpha = .80$). They were then given the same instructions as in Study 1 and led through the REP.³ After each stage, participants indicated how jealous, angry, sad, and worried/fearful they felt by moving a marker on a sliding scale anchored 0 = *not at all* and 100 = *extremely*. Participants also reported whether they would stay in the drink line or interfere with the interaction between the partner and poacher. If participants chose to “stay put,” they continued to the next stage of the scenario, answered the same emotion and jealousy questions, and once again chose whether to stay put or interfere.

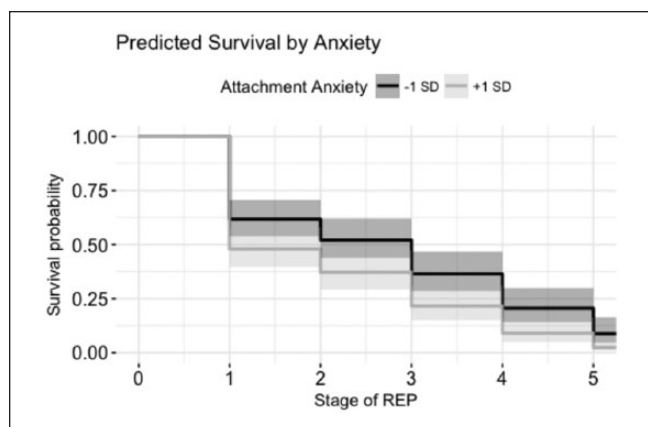


Figure 3. Study 2 predicted survival across the Response Escalation Paradigm for individuals high and low in attachment anxiety (± 1 SD).

Note. The gray and black lines at each stage represent the proportion of individuals high in attachment anxiety and low in attachment anxiety, respectively, who chose to “stay put” and not interfere. The shading around each line represents standard errors. REP = Response Escalation Paradigm.

Power analysis. The sample size was adequate to detect a medium effect (partial $r = .22-.30$, $f^2 = .05-.10$) at 83% to 98% power.

Results

To determine the effects of attachment anxiety and avoidance on interference, we identified the *stage of interference* for each participant, defined as the stage (1-5) at which each participant decided to intervene. (Those who never interfered were given a 6 as their stage of interference). Survival analysis (the Cox Proportional-Hazards Model; Lin & Wei, 1989) was used to determine whether attachment anxiety or avoidance predicted the stage of interference. We predicted that highly anxious individuals would interfere earlier in the jealousy scenario (REP) than less anxious individuals (Hypothesis 5). As predicted, they did (hazards ratio: 1.23, $p = .005$, 95% confidence interval [1.07-1.45]). Specifically, a one standard deviation increase in attachment anxiety was associated with a 23% acceleration in interference. Approximately 50% of highly anxious individuals (+1 SD) were predicted to interfere by Stage 1, whereas 50% of individuals low in anxiety were predicted to interfere by Stage 3 (see Figure 3).

We also expected that highly avoidant individuals would interfere relatively later in the jealousy scenario (Hypothesis 6), but no effects of avoidance on interference emerged.

We also examined whether attachment anxiety and avoidance predicted the extent to which participants experienced each emotion when they decided to interfere (e.g., if a participant interfered at Stage 3, his or her anger at Stage 3 was analyzed). To do so, we ran hierarchical linear regressions predicting each emotion at the stage of interference (jealousy,

anger, sadness, and worry). At Step 1, we entered the standardized attachment anxiety and avoidance scores and the mean-centered stage of interference. At Step 2, we entered the interactions of attachment anxiety and avoidance with stage of interference (see Table 4).

We predicted that highly anxious individuals would report greater sadness, worry, and jealousy when they interfered (Hypothesis 7). As predicted, attachment anxiety was associated with greater sadness, worry, and jealousy, controlling for attachment avoidance and the stage of interference (see Figure 4). Attachment anxiety did not predict higher levels of anger at the stage of interference, nor did it interact significantly with stage of interference to predict anger, sadness, worry, or jealousy (see Table 4).

We also predicted that highly avoidant individuals would report relatively greater anger when they interfered (Hypothesis 8). As predicted, attachment avoidance was associated with greater anger, controlling for anxiety and the stage of interference, and it did not predict any of the other emotions or interact significantly with stage of interference (see Figure 5 and Table 4).

Discussion

In Study 2, we predicted that a hypervigilant response pattern would lead highly anxious individuals to reach a threshold of desired action sooner, but experience more passive emotions when they decided to interfere. When given the option of doing nothing or trying to intervene, highly anxious individuals chose to interfere earlier in the jealousy scenario than less anxious individuals. Given that highly anxious individuals report greater jealousy even after low-level mate-poaching attempts, they should be more strongly motivated to end the threatening situation and curtail the negative emotions associated with it. In some sense, however, highly anxious individuals may not have interfered soon enough, as evidenced by their comparatively higher levels of jealousy, sadness, and worry when they decided to interfere.

Based on their tendency to distance themselves from their partners under threat, we predicted that highly avoidant individuals might also distance themselves during the jealousy scenario by interfering later (if at all). However, there was no difference in the stage of interference for high versus low avoidant individuals. Highly avoidant individuals did, however, feel greater anger at the stage when they decided to interfere.

These results reveal that the experience of jealousy in highly anxious and highly avoidant individuals is distinct. Highly anxious individuals have a lower threshold for detecting relationship threats, feel stronger jealousy when another suitor tries to steal their mate’s attention, and hit an intervention “tipping point” sooner. Highly anxious individuals also feel more sad and worried when they finally decide to intervene. In response to these feelings, what kinds of behaviors do such individuals claim they would

Table 4. Study 2: Unstandardized Regression Coefficients and *t* Values of Hierarchical Linear Regressions Predicting Jealousy, Anger, Sadness, and Worry From Attachment Anxiety, Attachment Avoidance, Stage of Interference, and the Interactions of Attachment Anxiety and Avoidance With Stage.

	Jealousy			Anger			Sadness			Worry		
	<i>b</i>	<i>t</i>	CI _{Lower} CI _{Upper}	<i>b</i>	<i>t</i>	CI _{Lower} CI _{Upper}	<i>b</i>	<i>t</i>	CI _{Lower} CI _{Upper}	<i>b</i>	<i>t</i>	CI _{Lower} CI _{Upper}
Attachment anxiety	5.48	2.15*	0.44 10.52	2.29	0.94	-2.54 7.13	5.72	2.49*	1.19 10.24	10.07	4.09***	5.21 14.93
Attachment avoidance	1.95	0.78	-2.96 6.85	4.84	2.03*	0.13 9.54	1.25	0.56	-3.15 5.66	2.33	0.97	-2.40 7.06
Stage	-1.62	-0.94	-5.05 1.81	6.83	4.10***	3.54 10.12	0.49	0.32	-2.59 3.57	0.75	0.45	-2.56 4.06
Stage × Anxiety	-1.28	-0.73	-4.76 2.20	-0.34	-0.20	-3.70 3.02	-2.79	-1.77	-5.90 0.32	-2.05	-1.20	-5.41 1.31
Stage × Avoidance	2.29	1.40	-0.94 5.52	1.54	0.98	-1.57 4.65	1.73	1.18	-1.15 4.61	1.50	0.95	-1.62 4.61

Note. Main effect coefficients (anxiety, avoidance, stage) are reported from Step 1. Interaction coefficients are reported from Step 2. CI = 95% confidence interval.
p* < .05. **p* < .001.

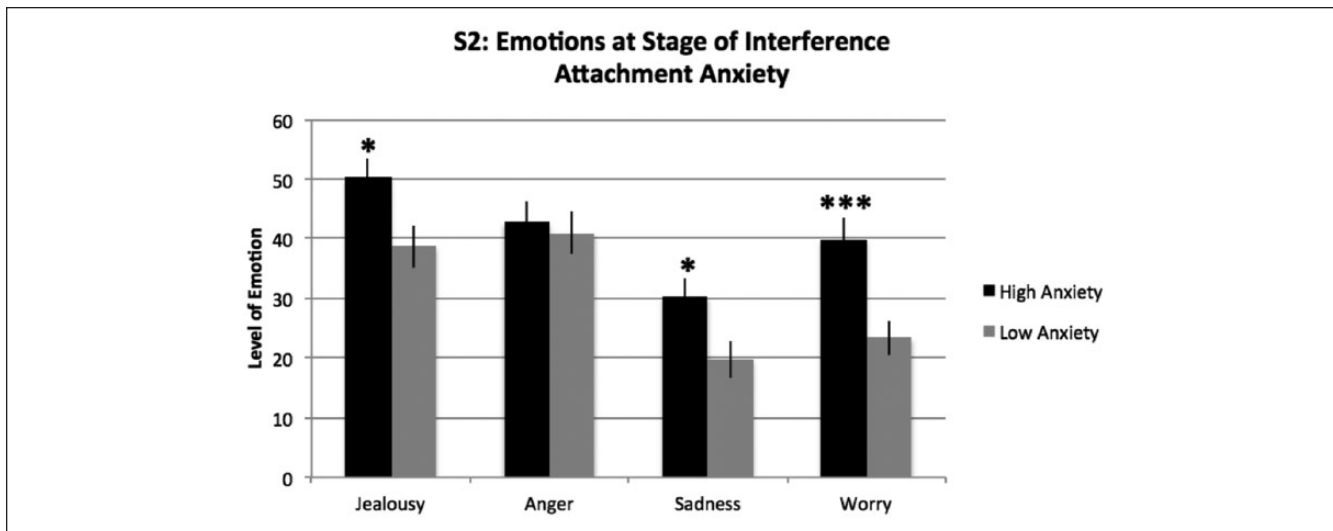


Figure 4. Study 2 emotions at stage of interference in the Response Escalation Paradigm for individuals high versus low (± 1 SD) in attachment anxiety.

Note. Error bars represent standard errors.

* $p < .05$. *** $p < .001$.

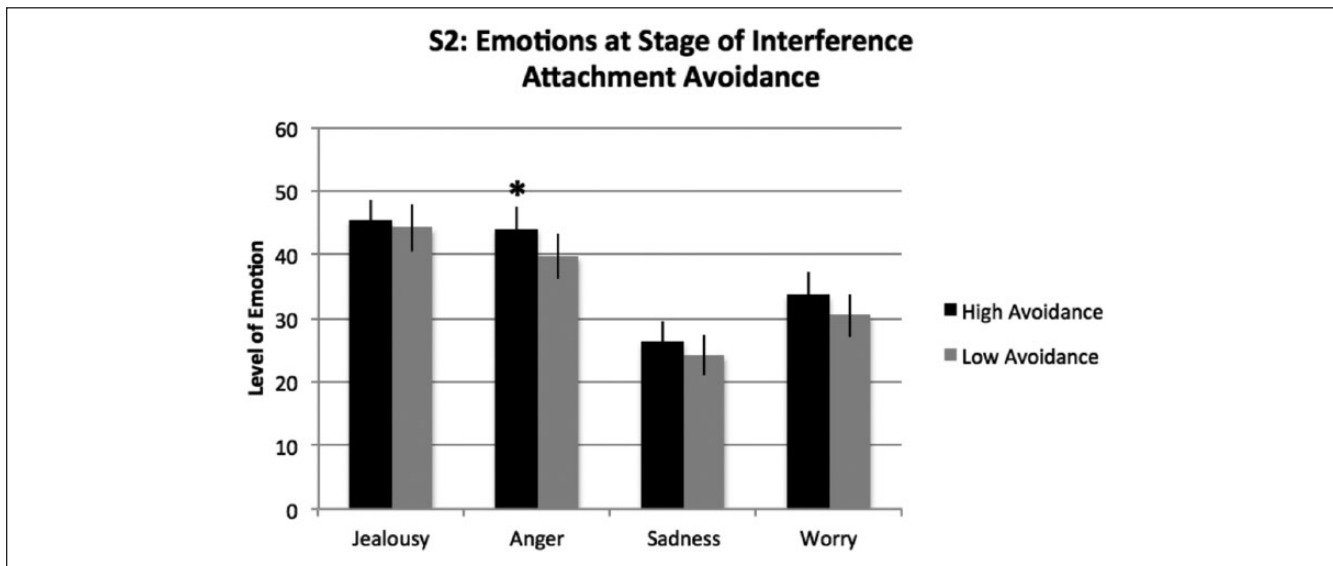


Figure 5. Study 2 emotions at stage of interference in the Response Escalation Paradigm for individuals high versus low (± 1 SD) in attachment avoidance.

Note. Error bars represent standard errors.

* $p < .05$.

engage in to mitigate relationship threat? Prior research using retrospective paradigms suggests that highly anxious individuals are, in fact, more likely to be passive bystanders, watching for signs of rejection from their partners (Guerrero, 1998; Sharpsteen & Kirkpatrick, 1997). To the extent that highly anxious individuals experience greater sadness and worry when they intervene, they should indicate that they would enact behaviors to regulate these

negative emotions in the hope of forestalling further rejection from their partners.

Similarly, what do avoidant individuals do when they decide to interfere in the jealousy scenario (or after the situation ends)? Highly avoidant individuals tend to disregard or dismiss relationship threats, do not experience strong emotional reactivity across the REP, and if they decide to interfere, they report slightly greater anger (but no

differences in other negative emotions) compared with less avoidant individuals. Despite this seemingly mild and somewhat indifferent response to relationship threat, highly avoidant individuals often respond negatively in other stressful contexts, such as by attributing hostility to their partners or suppressing their negative emotions (Mikulincer, 1998). By examining the effects of attachment avoidance on intended behavioral responses to jealousy as it increases and unfolds over time, the current research clarifies some of the inconsistencies of prior single-event, retrospectively recalled jealousy studies.

Study 3

In Study 3, we tested the impact of attachment orientations on behavioral intentions by asking individuals how likely they would engage in certain behaviors at specific stages of the REP jealousy scenario. Mate-guarding behaviors fall into two basic categories (Buss, 1988): partner-focused and poacher-focused tactics. Accordingly, we identified behaviors that individuals could engage in during or after the jealousy scenario. They included surveillance behaviors as well as those defined by their degree of activity (i.e., actively addressing the issue vs. being passive), constructiveness (i.e., acting to support the relationship vs. damage it), and focus (i.e., focusing on the partner vs. the poacher). Activity and constructiveness are basic dimensions that reflect reactions to dissatisfying situations in relationships (Rusbult, Zembrodt, & Gunn, 1982). Surveillance and focus behaviors are more specific to jealousy situations in that jealous individuals can watch or focus on either the poacher (for interfering with their relationship) or the partner (for allowing themselves to potentially be poached).

To investigate reactions at different levels of threat, we randomly assigned individuals to experience the jealousy scenario either through Stage 1 (low intensity threat, where the partner and poacher are just talking), through Stage 3 (medium intensity threat, where the poacher is touching the partner's arm), or through Stage 5 (high intensity threat, where the partner and poacher are kissing). The reason for randomly assigning individuals to different stages was partly based on the design of Study 2. In Study 2, participants could freely interfere at any stage they wanted, meaning that some participants were not exposed to (and did not respond to) later stages. Not allowing them to view the entire jealousy scenario in Study 2 would have reduced the realism of the situation given that different individuals decided to interfere at different stages. However, because we permitted participants in Study 2 to choose when to interfere, their behavioral intentions might also be confounded by the stage at which they chose to interfere. To address these issues, we randomly assigned participants in Study 3 to view different stages of the jealousy scenario to assess behavioral reactions at specific stages. After completing the REP through the stage to which they had

been randomly assigned, participants reported how they would act.

Jealousy paradigms that ask individuals which behaviors they engaged in after experiencing a jealousy-inducing situation do not control the intensity of the situation or individual differences associated with jealousy experiences. For example, the jealousy experiences that highly anxious individuals recall may be lower intensity (e.g., seeing their partner talk to another person), whereas those that less anxious individuals recall may be higher in intensity (e.g., catching their partner engaging in infidelity). Hence, the intensity of the recalled situation, rather than attachment orientations per se, could generate differences in behavior. Without being able to control the intensity of the situation, the findings of previous research are difficult to interpret. However, by examining behavioral intentions after exposure to low, medium, and high intensity threat, we can determine whether individuals behave differently as a function of their attachment orientations.

When anxiously attached individuals recall how they responded to jealousy situations in the past (retrospectively), they are more likely to report watching their partner from a distance and not confronting him or her (Guerrero, 1998; Sharpsteen & Kirkpatrick, 1997). However, when they feel more active emotions such as anger in jealousy situations, highly anxious individuals report behaving in more destructive, dysfunctional ways by directing anger toward the self or attributing malevolent intent to their partners (Mikulincer, 1998; Mikulincer & Shaver, 2005).

Highly anxious individuals are also more likely to have lost partners to mate poachers in the past, so maintaining high vigilance may be more adaptive for them than for less anxious persons (Schachner & Shaver, 2002). Highly anxious individuals engage in surveillance behaviors (e.g., checking their partner's Facebook page) when they feel jealous (Marshall et al., 2013). Because they are hypersensitive to signs of rejection, highly anxious individuals should respond to jealousy scenarios with greater vigilance, but may display more passive than active behaviors. They should, however, direct these behaviors primarily at their partner (rather than the poacher), given their tendency to attribute malevolent intent to their partners.

Hypothesis 9: Regardless of the level of threat (low, medium, or high), highly anxious individuals should be more inclined to engage in vigilant, passive, and destructive behaviors, and behaviors that focus on the partner.

Attachment avoidance is characterized by possessing negative models of others and more positive models of the self (Mikulincer & Shaver, 2016). When confronted with relationship threat, highly avoidant individuals typically protect themselves rather than their partner or relationship (Guerrero, 1998) and blame their partner when jealousy arises (Sharpsteen & Kirkpatrick, 1997).

Hypothesis 10: Regardless of the level of threat (low, medium, or high), highly avoidant individuals should be more inclined to engage in destructive and active behaviors aimed at their partner (rather than the potential poacher).

Method

Participants. A total of 435 participants (51.5% women) were recruited on MTurk. Their mean age was 31.85 years ($SD = 11.76$), with 32.3% in a relationship, 27.4% married, 27.1% single, 9.5% cohabitating with or engaged to their partner, and 3.7% divorced, widowed, or in another type of relationship. About 78.9% were White/Caucasian.

Measures and procedure. Participants reported their gender, current relationship status, sexual orientation, and completed the AAQ (Simpson et al., 1996; anxiety subscale: $\alpha = .80$; avoidance subscale: $\alpha = .83$). Next, they were given the instructions used in Studies 1 and 2 and began the REP. However, instead of viewing all five stages or choosing to either stay put or approach their partner/the poacher after each stage, participants were randomly assigned to view the jealousy scenario through either Stage 1 (poacher starts talking with the partner; $n = 141$), Stage 3 (poacher touches the partner's shoulder; $n = 147$), or Stage 5 (poacher kisses the partner; $n = 147$).

After viewing the jealousy scenario through either Stage 1, Stage 3, or Stage 5, participants were told to "Rate how likely you are to engage in each of the following behaviors after seeing this happen." Twenty-four mate retention behaviors were assessed from the Mate Retention Inventory (MRI; Buss, 1988), which measures the likelihood of engaging in 19 tactics (assessed by 104 specific acts) to retain a partner (see supplemental materials for items and classifications). These behaviors were selected because they were plausible in the REP scenario. Participants indicated how likely they would engage in each behavior on a 7-point Likert-type scale (*very unlikely* = 1, *very likely* = 7).

One of the coauthors then classified each mate retention behavior according to whether or not it reflected vigilance/surveillance (e.g., the item "Stay with my partner for the rest of the night") and also classified the nonvigilance/surveillance behaviors with regard to (a) constructiveness (i.e., Was the behavior constructive or destructive for the relationship?), (b) activeness (i.e., Was the behavior active or passive?), and (c) target-focus (i.e., Was the behavior aimed at the partner or aimed at the poacher?). Within each category (e.g., active), ratings were averaged across all behaviors that fell within that category. For nonvigilance/surveillance behaviors, each participant's ratings on one side of each dimension were subtracted from the other side to assess the relative balance of his or her responses on these dimensions (constructiveness = constructive behaviors minus destructive behaviors; activeness = active behaviors minus passive

behaviors; target-focus = partner-focus minus poacher-focus). The ratings were then averaged to create four behavioral measures: vigilance, constructiveness, activeness, and target-focus (partner vs. poacher). The correlations between the four dimensions ranged from $-.23$ to $.30$.

Power analysis. The sample size was adequate to detect a small effect (partial $r = .15$, $f^2 = .02$) at 88% power.

Results

To test the effects of attachment anxiety and avoidance on behavioral responses, four hierarchical linear regressions were conducted (one for each dependent measure). In each regression, attachment anxiety and avoidance (standardized) were entered at Step 1, along with two effects-coded variables representing differences between the Stage 3 and 5 groups and the grand mean. The Stage 1 group was coded -1 on both variables, the Stage 3 group was coded 1 on the Stage 3 variable and 0 on the Stage 5 variable, and the Stage 5 group was coded 1 on the Stage 5 variable and 0 on the Stage 3 variable. This allowed the stage effects to be interpreted like analysis of variance (ANOVA) main effects. Interactions between the effects-coded variables and anxiety and avoidance were entered at Step 2.

Consistent with Hypothesis 9, highly anxious individuals reported a higher likelihood of engaging in more passive and less constructive behaviors on average (across the stages of the paradigm). They also reported more vigilance behaviors and more partner-focused behaviors (see Table 5). Attachment anxiety also interacted with Stage to affect vigilance. Adding the two interaction terms of anxiety with each of the effects-coded variables significantly increased the explained variance of vigilance, R^2 change = $.013$, $F(2, 426) = 3.073$, $p = .047$, although only the interaction with the Stage 5 effects-coded variable was significant. Attachment anxiety also interacted with Stage to affect constructive behavior. Adding the two interaction terms of anxiety with each of the effects-coded variables significantly increased the explained variance of constructive behavior, R^2 change = $.012$, $F(2, 426) = 3.658$, $p = .027$, although only the interaction with the Stage 5 effects-coded variable was significant (see Table 5). To examine the source of these interactions, we conducted simple-slopes analyses. Attachment anxiety was more strongly related to vigilance behaviors in the Stage 1 ($b = .25$, $p < .001$) and Stage 3 ($b = .17$, $p < .002$) conditions than in the Stage 5 ($b = .04$, *ns*) condition. This indicates that highly anxious individuals are more vigilant after lower-threat mate-poaching attempts, but maintain this vigilance rather than increase it when facing more threatening situations. Conversely, attachment anxiety was unrelated to constructiveness in the Stage 1 condition ($b = -.01$, *ns*), somewhat more so in the Stage 3 condition ($b = -.07$, *ns*), and most strongly in the Stage 5 condition ($b = -.21$, $p = .008$), indicating that highly anxious individuals are more likely to engage

Table 5. Study 3: Unstandardized Regression Coefficients and *t* Values of Hierarchical Linear Regressions Predicting Mate Retention Tactics From Attachment Anxiety, Attachment Avoidance, Condition (Effects-Coded), and the Interactions of Attachment Anxiety and Avoidance With Condition.

	Vigilance			Constructive			Active			Partner-focused					
	<i>b</i>	<i>t</i>	CI _{Lower} CI _{Upper}	<i>b</i>	<i>t</i>	CI _{Lower} CI _{Upper}	<i>b</i>	<i>t</i>	CI _{Lower} CI _{Upper}	<i>b</i>	<i>t</i>	CI _{Lower} CI _{Upper}			
Attachment anxiety	0.16	4.25***	0.08	0.23	-0.09	-0.17	-0.02	-0.06	-3.19**	-0.10	-0.02	0.05	2.15*	0.004	0.09
Attachment: avoidance	0.06	1.67	-0.01	0.13	0.13	-0.21	-0.06	0.02	1.11	-0.02	0.06	0.05	2.09*	0.003	0.09
Stage 3 ECV	0.03	0.70	-0.06	0.13	0.13	0.03	0.22	-0.06	-2.23*	-0.11	-0.01	-0.06	-1.90*	-0.12	0.002
Stage 5 ECV	0.13	2.69**	0.04	0.23	-0.51	-10.25***	-0.41	0.13	4.65***	0.07	0.18	0.29	9.51***	0.23	0.35
Stage 3 × Anxiety	0.02	0.30	-0.08	0.12	0.02	-0.08	0.12	-0.03	-0.90	-0.08	0.03	-0.01	-0.31	-0.07	0.05
Stage 5 × Anxiety	-0.11	-2.15*	-0.21	-0.01	-0.12	-2.18*	-0.01	0.02	0.70	-0.04	0.08	-0.03	-0.85	-0.09	0.04
Stage 3 × Avoidance	0.02	0.28	-0.09	0.12	0.05	-0.06	0.15	-0.04	-1.28	-0.09	0.02	0.02	0.63	-0.04	0.08
Stage 5 × Avoidance	-0.01	-0.25	-0.11	0.09	-0.06	-0.16	0.04	0.00	0.14	-0.05	0.06	-0.03	-1.02	-0.09	0.03

Note. Main effect coefficients (anxiety, avoidance, Stage 3 effects-coded variable, Stage 5 effects-coded variable) are reported from Step 1. Interaction coefficients are reported from Step 2. CI = 95% confidence interval; ECV= Effects-Coded Variable.

p* < .05. *p* < .01. ****p* < .001.

in more destructive behaviors as the jealousy scenario becomes more threatening (note that negative slopes denote more destructive than constructive behaviors).

In addition, we predicted that highly avoidant individuals would report a higher likelihood of engaging in more destructive behaviors, active behaviors, and behaviors aimed at the partner than less avoidant individuals (Hypothesis 10). Partially supporting this hypothesis, highly avoidant individuals did report a higher likelihood of engaging in more destructive behaviors and more behaviors aimed at the partner than less avoidant individuals (see Table 5), but they did not report a greater likelihood of engaging in more active behaviors.

Discussion

Given that anxious attachment is characterized by chronic concerns about partner loss or abandonment, we predicted that highly anxious individuals would be particularly vigilant to cues regarding relationship threats. We also predicted that they would be more passive, more partner-focused than poacher-focused, and would engage in more destructive behaviors in response to the mate-poaching attempt. The results supported these predictions. Higher attachment anxiety was associated with more vigilant, destructive, partner-focused, and passive behavior. Given that higher attachment anxiety was more strongly related to vigilance at the *very start* of the jealousy scenario (at Stage 1), this suggests that highly anxious individuals entered the jealousy scenario on high alert, but risk lashing out in a more destructive way when the scenario became more threatening.

In contrast, attachment avoidance is defined by disregarding relationship threats and valuing control and autonomy. These features led us to anticipate that highly avoidant individuals would be less vigilant to cues signaling relationship threat. We also anticipated that they would engage in more destructive behaviors, more active behaviors, and would be more focused on the partner (rather than the poacher). Partial support emerged for these predictions. Specifically, highly avoidant individuals reported a higher likelihood of engaging in more destructive behaviors and behaviors aimed at their partners, and they were marginally more vigilant, regardless of threat level. These findings suggest that attachment avoidance has effects on behavior following a jealousy-inducing situation that can put avoidant individuals' relationships at risk.

General Discussion

Across three studies, we used the REP to examine previously unanswerable questions about the experience of jealousy. We anticipated that highly anxious and highly avoidant individuals would report different levels of jealousy at the beginning of the REP and across its five stages. In Study 1, highly anxious individuals reacted to even a low-threat mate-poaching

attempt (Stage 1) with higher jealousy, and they increased in jealousy at a steady, albeit slower, rate than less anxious individuals. Highly anxious individuals, in other words, displayed a hypervigilant response pattern in which they detected threat early on, after which their level of jealousy increased at a steady, incremental rate as the threat gradually increased. In contrast, attachment avoidance did not affect the jealousy response pattern.

Because highly anxious individuals experienced significantly greater jealousy at the start of the REP (at Stage 1) and then reported gradual increases in jealousy as threat increased, we anticipated they might reach an emotional "tipping point" and interfere sooner than less anxious individuals. Indeed, highly anxious individuals did interfere relatively earlier in the jealousy scenario in Study 2. What emotional cocktail may have produced the tipping point of interference? Study 2 revealed that highly anxious individuals feel more sadness, worry, and jealousy when they decide to interfere. This suggests that even though highly anxious individuals want to interfere, perhaps to regulate their negative affect, they are not likely to be successful. Although highly anxious individuals interfered early in the paradigm (at Stage 2, when the poacher and partner are laughing and talking), they did not interfere early enough to avoid feeling negative emotions. Previous research has been unable to determine whether highly anxious individuals report greater jealousy because of differences in the specific jealousy situations they recall or because they typically feel more jealous. By examining these questions within a standardized, escalating paradigm like the REP, the current research clarifies that reported differences in jealousy experiences are most likely due to the emotional differences of anxiously attached individuals rather than differences in the situations they have experienced or recalled.

Although we expected that highly avoidant individuals might interfere later in the jealousy scenario, they did not. However, highly avoidant individuals felt more anger when they decided to interfere. Highly avoidant individuals often respond to relationship threat by creating greater interpersonal distance (Shaver & Mikulincer, 2002), and one good way to do so is to feel and express anger (Keltner & Haidt, 1999).

By randomly assigning individuals to low, medium, or high threat levels in Study 3, we could determine whether individuals differ in their responses due to their attachment orientation, the level of threat in the situation, or both. Highly anxious individuals wanted to engage in more destructive and passive behaviors aimed at the partner across all three threat levels. Highly anxious individuals also reported relatively stronger threat responses at lower levels of threat, but less anxious (more secure) individuals began catching up as the threat level increased. It is not surprising that high jealousy and vigilant behaviors go hand-in-hand. Once jealousy is triggered, hypervigilance to signs of relationship threat and possible partner rejection should also be triggered.

Highly avoidant individuals in Study 3 wanted to engage in behaviors that were marginally more vigilant than their less avoidant counterparts. If highly avoidant individuals were motivated to engage in more vigilant behaviors, why didn't they feel more jealous or interfere earlier? One possible explanation is that they recognized the relationship threat, but given their tendency to downplay threats, they did not fully recognize the threat emotionally. Highly avoidant individuals also wanted to engage in more destructive and more partner-focused behaviors, which is consistent with research showing that avoidant individuals typically blame their partners when jealousy arises (Sharpsteen & Kirkpatrick, 1997). To the extent that highly avoidant individuals feel and express greater anger, as revealed in Study 2, their heightened anger could be used in conjunction with destructive behaviors to generate even greater interpersonal distance. These findings suggest that although avoidance had very minor effects on the perception of the situation in terms of level of jealousy or emotional response, high avoidance does impact individuals' behavioral responses to jealousy in ways that are likely to be destructive to their relationship.

Limitations and Conclusions

The current research has some limitations. Some participants may have refrained from reporting their true feelings at a low-threat mate-poaching attempt (at Stage 1). However, there was substantial variation in reported jealousy, negative emotions, and mate retention behaviors in all three studies, suggesting that individuals may not have been overly affected by social desirability concerns. A second limitation is that, in Study 3, we did not ask participants about mate retention behaviors beyond those that were realistic in the REP jealousy scenario. A third limitation is that our REP scenarios were hypothetical and individuals may respond differently in real-life situations.

In conclusion, although prior research has documented the negative impact that jealousy can have on individuals and their relationships, most of it has confounded dispositional and situational factors, and few if any studies have examined jealousy at the beginning of a jealousy-inducing situation as it unfolds. Using the REP, we have untangled theoretically important questions about the experience of jealousy for individuals who differ in attachment orientations. Given the importance of jealousy in predicting myriad relationship outcomes, future research needs to clarify the situational and person-specific precursors to jealous emotions and their accompanying behavioral responses.

Declaration of Conflicting Interests

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Notes

1. We tested for relationship status moderation effects in the studies in which relationship status differed (single vs. partnered; Studies 2 and 3) and for gender moderation effects in Studies 1 to 3. With two minor exceptions, the results did not differ for participants who were versus were not in a relationship. With one isolated exception in Study 3, there was no evidence of gender moderation.
2. We also conducted exploratory analyses to test for curvilinear effects in Study 1 and found a curvilinear effect for attachment anxiety, such that highly anxious individuals increase in jealousy more slowly at lower stages but increase at a higher rate at later stages. See the supplemental material for a detailed description of these results.
3. In Studies 2 and 3, gay, lesbian, or bisexual individuals were instructed to change pronouns/sex for their partner to fit their romantic/sexual preference.

Supplemental Material

Supplementary material is available online with this article.

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