Tickling the monster: Jealousy induction in relationships

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ABSTRACT

This study develops a general model of jealousy induction in romantic relationships. The model posits that the goals of jealousy induction predict jealousy-induction tactics, which in turn predict partner responses to jealousy, which in turn predict strategic outcomes. Measures were developed for this study to assess jealousy-induction goals, induction tactics, and strategic outcome (i.e., tactical efficacy). Exploratory factor analysis revealed two types of jealousy-induction goals (i.e., relational rewards, relational revenge), three types of jealousy-induction tactics (i.e., relational distancing, flirtation façade, relational alternatives), and three types of partner response to jealousy (i.e., aggressive, withdrawal, relational compensation). Using relational outcome variables representing tactical efficacy and relational improvement, structural equation modeling demonstrated partial support for the model, but with modifications to several components. Specifically, the jealousy responses did not function as a single latent variable, and were treated as individual indicators. Furthermore, the final model did not fit well statistically, but did fit very well according to the descriptive indices, for both males and females. The model provides a general framework for understanding strategic jealousy induction, and suggests a variety of paths for future work elucidating the role of jealousy in relational development and maintenance.

KEY WORDS: aggression • goals • jealousy induction • jealousy responses • revenge • tactics

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Scholarly interest in the dark side of personal relationships has led to investigations of the conditions under which people intentionally harass, embarrass, or hurt others (e.g., Kowalski, 2001; Spitzberg & Cupach, 1998). Despite a universal need for belonging (Baumeister & Leary, 1995) and a universal pragmatic of politeness (Brown & Levinson, 1987), people are fundamentally inclined to behave in self-serving ways. The dialectic emerges that so often, 'we only hurt the ones we love.' Such are some of the ironies of intimacy. One phenomenon that lies at the nexus of such dialectics is jealousy (Guerrero & Andersen, 1998a, 1998b). Jealousy likely serves multiple functions in the management of relationships and results in a variety of potential relational effects. Jealousy is a common source of relational dissatisfaction, relational conflict, break-up, aggression and violence (Andersen, Eloy, Guerrero, & Spitzberg, 1995; Guerrero & Eloy, 1992; Guerrero, Spitzberg, & Yoshimura, 2004). Consequently, it is important to understand the ways in which jealousy is elicited in relationships, and what functions it plays when it arises. This study posits that people sometimes intentionally attempt to make their partners jealous. A model and measures of this process are developed. After defining jealousy, the model is developed in the following framework: (i) the goals attempted by a partner to evoke jealousy, (ii) the tactics employed, and (iii) the responses incurred.

The nature of romantic jealousy

Jealousy is an intrinsically relational phenomenon (Guerrero, Eloy, Jorgensen, & Andersen, 1993). *Jealousy* is defined as 'a complex of thoughts, emotions and actions that follows loss or threat to self-esteem and/or the existence or quality of the romantic relationship' (White, 1980, p. 222). *Romantic jealousy* is a set of thoughts, emotions and responses following a perceived threat to a romantic relationship by a rival (Guerrero & Andersen, 1998b; Teismann & Mosher, 1978). Jealousy occurs when a person desires to protect a relationship with someone perceived as already possessed, in contrast to envy, which involves the desire for something or someone not currently possessed (Guerrero & Andersen, 1998b).

Jealousy is experienced internally and may be expressed externally. Although jealousy appears in various forms and degrees of intensity, it always results from an interaction between predispositions and a triggering event (Pines, 1998). Several emotions comprise the jealousy complex, including anger, fear, and sadness (Guerrero & Andersen, 1998a; Sharpsteen & Kirkpatrick, 1997). Jealousy is associated with loss of affection, rejection, suspiciousness, insecurity and anxiety (Peretti & Pudowski, 1997). External manifestations of jealousy include crying, retaliating, leaving, using surveillance or even becoming violent (Guerrero & Andersen, 1998a; Pines, 1998). These responses can be both direct and indirect (Guerrero, Andersen, Jorgensen, Spitzberg, & Eloy, 1995). Direct responses confront the partner or rival in face-to-face communication. For

example, a jealous partner might confront the rival to discuss the problem and ask her/him to stop seeing her/his partner. Indirect responses are nonconfrontational. A person might give his or her partner the silent treatment. The responses are also either positively or negatively valenced (Guerrero et al., 1995). That is, both direct and indirect responses can relate positively or negatively to preferred relational outcomes.

In sum, jealousy is an involuntary emotion that typically follows some sort of real or perceived relationship threat. The potentially destructive nature of this threat is well established (Afifi & Reichert, 1996; Peretti & Pudowski, 1997). Indeed, jealousy is the most commonly attributed cause of relational violence (Sugarman & Hotaling, 1989). However, research also suggests that jealousy is sometimes associated with positive relational outcomes (Buss, 2000; Pines, 1998; White, 1980). For example, some partners believe that jealousy is a reflection of how much a partner values and loves them (Staske, 1999). Given this association, it would not be surprising if individuals might intentionally attempt to create jealous feelings in their partners. One study found close to three-quarters of respondents reported attempting to make their partner jealous at some time or another (Sheets, Fredendall, & Claypool, 1997).

The possibility that jealousy may serve functions that are variously productive or destructive to the maintenance of relationships is suggested by relational influences on the experience and expression of jealousy (Guerrero & Afifi, 1999; Staske, 1999). For example, couples that are seriously dating or living together experience and express more jealousy than individuals who are casually dating, married or are opposite-sex friends (Aune & Comstock, 1991; Guerrero et al., 1993). Relationship intensity also affects jealous experiences. For example, jealousy tends to be more prevalent among individuals in love (Mathes & Severa, 1981), who are more emotionally dependent (Guerrero & Andersen, 1998b), and whose partners have invested less time, money, and emotion (White, 1981). These diverse findings are consistent with an evolutionary conception in which jealousy serves functions such as mate guarding, expressing commitment, or attempting to elicit such signs from one's partner (Guerrero et al., 2004).

However, just because jealousy can serve various functions in relationships does not necessarily imply people intentionally seek to fulfill tactical goals through jealousy induction. Although research has demonstrated that people sometimes intentionally attempt to make others feel embarrassed (Bradford & Petronio, 1998; Keltner & Anderson, 2000; Sharkey, 1992), guilty (Miceli, 1992; Sommer & Baumeister, 1997; Vangelisti & Sprague, 1998) and hurt (Vangelisti & Young, 2000), relatively little research has directly examined whether, why or how people might make others jealous.

We begin with the assumption that jealousy induction is a strategic process initiated by a desire to achieve certain strategic goals. As such, we anticipate that jealousy is motivated by certain strategic goals. These goals lead to the selection and use of jealousy-induction tactics designed to elicit jealousy from the partner. If effective, these induction tactics are likely to elicit certain jealousy response tendencies from the partner. Collectively,

these induction and response tendencies are likely to produce positive or negative outcomes in the relationship.

Goals of jealousy induction

Some research has directly examined the goals of jealousy induction, but in most cases, potential goals must be deduced by research on the functions of jealousy expression. That is, if it is found that the experience of jealousy leads some people to engage in compensatory behavior to enhance a relationship, it follows that people may intend that response by attempting to make their partners jealous. Consequently, the functions through which jealousy expression elicits various responses from partners may in turn reflect the goals of jealousy induction.

Several expressive and relatively relational motives have been suggested for jealousy induction. Angry or frustrated people report intentionally creating jealousy to hurt their partner or cause emotional distress (White, 1980). Sheets et al. (1997) found that among those who had attempted to make their partners jealous, a substantial majority '(87%) had done so to gain their partners' attention,' whereas 'less than a quarter (24%) had done so to increase their partners' commitment, and less than a fifth (18%) had used jealousy as a mate-retention strategy' (p. 392). Others may induce jealousy because they want to test the relationship, want more attention, more time or simply to 'be taken out more' (White, 1980, p. 223).

Jealousy may also serve self-expansion goals. People may deliberately induce jealousy to bolster their self-esteem (White, 1980). People who feel inadequate in a relationship or are themselves jealous, suspicious, or fearful may intentionally create jealousy to gain self-esteem and confidence. People who experience these feelings may have a predisposition to be jealous (Mathes & Severa, 1981; Sharpsteen, 1995). Such individuals may even create these feelings in a partner to turn the tables. In this sense, 'inducing jealousy may be understood, in part, as a power tactic' (White, 1980, p. 222). This would help account for why a person's sense of powerlessness mediates reactions to jealousy (Rotenberg, Shewchuk, & Kimberley, 2001) and why jealousy induction is associated with need for control and use of aggression in relationships (Brainerd, Hunter, Moore, & Thompson, 1996). A person involved in a romantic relationship can gain control by leading the partner to believe an attractive alternative exists. The jealous partner must respond to maintain the relationship, thereby enhancing the other's power.

Tactics of jealousy induction

To achieve goals individuals may choose among many communicative tactics. A tactic is a 'single abstract act (e.g., threaten, embarrass, request) used to achieve a certain goal' (Sharkey, 1992, p. 260). Once an individual has focused upon a desired goal, the tactics perceived to be most suitable for attaining the desired goal are utilized.

Research on strategic induction of jealousy is limited but research on events that are likely to prompt feeling jealous is extensive and has

implications for possible strategic induction practices. Tactics that are shown to induce jealousy are likely to reflect tactical resources available to persons intentionally seeking to make their partners jealous. White (1980) identified the following most common tactics for inducing jealousy: talking about past relationships, talking about current relationships, flirting, dating or sexual contact with another, and lying about the existence of a rival. Sheets et al. (1997) identified four clusters of jealousy-evoking situations, each of which has tactical implications: partner shows interest in another, another shows interest in partner, partner talks about or interacts with prior relational partner, and ambiguous scenes (e.g., partner gets especially dressed up to 'see friends'). Pines (1998) found that being unfaithful (e.g., sexually or emotionally spending less time, attention, keeping secrets from your partner, flirting, being caught in a lie, etc.) and being overly intimate/close with a rival elicit feelings of jealousy. Research by Guerrero et al. (1995) indicated that jealousy occurs when a partner kisses or hugs someone else, comments on the attractiveness of another, smiles in a friendly way at another, and works closely with potential romantic partners.

Partner responses to intentional jealousy

People respond to and cope with jealousy in a variety of ways (Buunk & Dijkstra, 2000; McIntosh & Matthews, 1992). Given a range of potential responses to jealousy, intentional induction may well be motivated in part by the informational value the partner's response to jealousy provides. Guerrero et al. (1995) developed an empirically derived taxonomy of responses to jealousy, divided into two broad categories of interactive and behavioral. Responses to jealousy are classified as interactive if the partners in a relationship either engage in face-to-face interaction or focus on avoiding face-to-face interaction. There are six central interactive responses: negative affect expression, including acting anxiously and crying; integrative or solution-oriented communication; distributive or aggressive/negative communication; active distancing; avoidance or denial; and violent communication/threats.

Behavioral responses to jealousy do not need to occur in a face-to-face context. Guerrero et al. (1995) identify five general behavioral responses to jealousy: surveillance, rival contact, manipulation attempts, compensatory restoration, and violent behavior. These five responses can be distinguished by two factors: to whom the responses are directed and whether the response is negatively or positively valenced. Examples of these five types are spying on a partner, confronting the rival, asking a friend to talk to the partner, making oneself more desirable, or actual physical contact.

Intentionally evoking jealousy in a partner can cause many different types of responses. For example, Sheets et al. (1997) found 16% of respondents expected to experience positive reactions to situations in which one's partner attempts to evoke one's jealousy, 60% expected to experience negative reactions and 24% expected to fight with or break up with their partner as a result. However, partner jealousy, in general, revealed a small but significant positive association with relationship stability. Furthermore,

it seems likely that the tactic used and the goal desired moderate the response. For example, Sheets et al. (1997) presented subjects with various jealousy-evoking situations and asked them to assume that their partner had become jealous. Subjects were then asked what their likely reactions would be to their partner's jealousy. Sheets et al. found that reassuring comments in response to partner jealousy were positively related to both expected and actual relationship stability. Studies of intentional induction of other emotions suggest that intentionality attributions may moderate the effect of such induction on the relationship. Sharkey (1992) concluded that when actions causing embarrassment were viewed as intentional, responses to those actions tended to be more hostile. Reactions to hurtful messages suggest a similar pattern (Vangelisti & Young, 2000). The suggestion is that when recognized by the partner as intentional, induction of jealousy would tend to produce negative relational reactions. Thus, it remains to be seen whether a complex phenomenon such as jealousy can be intentionally induced without negative consequences.

A parsimonious model of intentional jealousy induction would suggest a simple causal chain in which a person possesses certain strategic goals for jealousy induction, these goals activate the enactment of tactics of jealousy induction, which produce responses from the partner, which in turn produce certain proximal outcomes for the relationship. The primary goal of the present study is to test the integrity of this model.

In addition, given that strategic jealousy induction is relatively unstudied, we ask the following research question:

RQ1: What are the norms of strategic jealousy-induction goals and tactics?

Finally, jealousy is expected to be influenced by key variables such as biological sex (Guerrero et al., 2004; Sprowl & White, 1989) and relational involvement and commitment (Aune & Comstock, 1991; Guerrero et al., 1993). However, the precise relevance of such variables to jealousy are not only inconsistent in the research on jealousy, they are virtually unexplored in regard to strategic jealousy induction. White (1980) found females more likely to report attempting to induce jealousy than males, however, Brainerd et al. (1996) found no sex differences and Sheets et al. (1997) found no sex differences in responses to jealousy-evoking situations, Therefore, the following research question is asked:

RQ2: What are the effects of sex and relationship status on strategic jealousy induction?

Method

Procedures and participants

Anonymous surveys, including an informed consent agreement, were distributed in communication classes at a large public western university and collected during the next class meeting. The sample consisted of 212 undergraduate communication students aged 17–43 years, with a median of 18 and a mean of

20. Respondents were 58% female and 42% male. Approximately 37% considered themselves as casually dating, 46% as exclusively dating, 4% engaged, 10% single and 1% married. Ethnic composition of the sample was 4% African American, 12% Asian, 13% Hispanic/Mexican American, 66% White, and 5% 'other.' Individuals reported 0–25 romantic relationships since high school, with a median of 2 and a mean of 3.

Measures

Initial review of the jealousy literature indicated there were few measures directly applicable and available to assess the components of the model. Consequently, in addition to literature review to extract potential items for measurement, an initial item-generation study was performed in which students from two introductory communication classes were asked to complete an open-ended survey. The survey provided some introductory orientation in which students were asked to consider instances in which either they attempted to make their partner jealous or their partner attempted to make the respondent jealous. Students were then asked: (1) What did you (or your partner) intend to accomplish in making the other jealous? (2) What behaviors have you (or your partner) used to make your partner jealous? (3) What did your partner (or you) do in response to your attempts to make them jealous? Thirty-eight students provided usable responses to at least one of the questions, and these responses were examined to extract potential items for measurement. These items were added to items culled from existing measures and scholarly discussion of components envisioned by the model. These item pools were then examined to (i) reduce redundancy across items so as to improve representation across the construct, (ii) enhance specificity to avoid overly general items (e.g., 'I made my partner jealous FOR FUN' was too generic without exemplars such as 'to tease him/her, just for the fun of watching it,' etc.), (iii) develop syntactical and stylistic consistency, and (iv) assure conceptual relevance to the respective component of the model.

For the final questionnaire, the general instruction read as follows: 'The purpose of this study is to understand if you have ever desired to intentionally create jealousy in a romantic partner. Specifically, . . . the goals you desired, the tactics you employed to create the emotion, and the response your partner had after the experience.' All items were responded to on a 5-point frequency response scale (never, sometimes, frequently, very frequently, always), except the social desirability measure, which employed the original 5-point response scale from '*definitely true*' to '*definitely false*.' A complete list of the items used in the final questionnaire is available from the second author.

Jealousy goals. Given no available measure of jealousy-induction goals, the item-generation study mentioned earlier and a careful review of existing research were used to generate items. The final list was refined for consistency, nonredundancy, and observability. The measure included 10 Likert-type items, such as 'I have tried to make my partner jealous for revenge' and 'I have tried to make my partner jealous to improve the relationship.' The introductory instructions were: 'The following questions may reflect some of the goals you desired when making your partner jealous. Considering your most recent or current romantic relationship, if you have ever tried to make your partner jealous, indicate the extent to which the following statements accurately reflect your goals.'

Jealousy-inducing tactics. No existing and systematically developed measure of jealousy-inducing tactics could be located in the literature. Research was reviewed for possible items and the same item-generation study as earlier was used to generate an item pool. The final list was refined for consistency, nonredundancy and observability. The measure consisted of 22 Likert-type items, ranging from 'I talk about past relationships' to 'I send flowers to myself.' This section was introduced with the following instructions: 'People may utilize or create many situations to intentionally make their partner jealous. Considering your most recent or current romantic relationship indicate the extent to which the following statements accurately reflect your behavior.'

Partner responses to jealousy. Guerrero et al. (1995) developed a measure of responses to jealousy. However, personal communication with the lead author at the time of this study indicated that the measure was currently under revision. Furthermore, it is a measure of a respondent's responses rather than a respondent's attribution of responses by a partner. Not having access to what was considered a ready final version of an appropriate measure, it was decided to employ the same measurement approach as earlier, relying on review of the Guerrero et al. measure, the pilot study, and literature review for item generation. The final list was refined for consistency, nonredundancy, and observability and produced 49 Likert-type items such as 'When I make my partner jealous, he or she denies that he/she was jealous' and 'When I make my partner jealous, he or she starts spying on me.' These items were introduced by the following instructions: 'The purpose of this measure is to understand how your partner responds to your attempts to make her or him jealous. Considering your most recent or current romantic relationship, please answer the following questions. . . .' Then each item was introduced with the constant phrase: 'When I make my partner jealous, he or she. . . .' Only five respondents (2.4%) indicated they had 'never' used any of the jealousy-induction tactics in their relationship, and these respondents were dropped from subsequent relevant analyses.

Relational outcomes. No existing instrument could be located so literature was reviewed for sample items. The final list consisted of six items such as 'Making my partner jealous was satisfying' and 'Making my partner jealous was unsuccessful.' This brief section was introduced by the generic instruction: 'Please answer the following questions in regard to the times you have attempted to make your partner jealous.'

Social desirability. Given the potential identity implications of admitting to inducing jealousy, Hays, Hayashi, and Stewart's (1989) measure of social desirability was included. They report internal reliability of their measure in the mid to high .60s, and 1-month test–retest reliability in the mid .70s.

Results

Overview

Data analyses proceeded as follows. First, exploratory factor analyses of the measures were conducted to ascertain the best initial structures of the measures for each component of the model. All factor analyses entailed the same

procedures. Principal components analysis was employed, with extraction of components and oblique rotation guided by (i) eigenvalues > 1 and (ii) leveling in the scree plots. Items were defined as loaded if the primary loading was > .50 with no secondary loading > .30, and reliability of the loaded items was acceptable (i.e., > .70). Subsequent extractions proceeded until a satisfactory solution emerged. Second, when multiple factors were identified, they were treated as observed measures of the single latent model component, and the entire model tested through structural equation modeling, using EQS. Third, adjustments to the model were made to achieve optimal fit.

Factor structure of jealousy-induction goals

The 10 jealousy-induction goal items were subjected to principal components analysis with oblique rotation, producing a highly satisfactory Kaiser–Meyer–Olkin coefficient (KMO = .87). Nine components were produced with eigenvalues > 1.0, but the scree plot revealed leveling between the second and third components. The resulting two-component solution accounted for 57.69% of the common variance. The first component (α = .80), labeled *relational reward*, loaded five items: 'test relationship' 'bolster self-esteem,' 'increase my rewards,' 'improve the relationship,' and 'for fun.' The second component (α = .86), labeled *relational revenge*, loaded three items: 'teach her/him a lesson,' 'for revenge,' and 'to punish' (see Table 1).

Factor structure of jealousy-induction tactics

Oblique rotation of the jealousy-induction tactic items (KMO = .88) yielded 16 components with eigenvalues > 1. The scree plot revealed leveling between the third and fourth components. The resulting three-component solution accounted for 52.99% of the variance (see Table 2). The first component (α = .81), labeled *relational distancing*, loaded six items (e.g., 'keep my friends and partner separate,' 'make plans with my friends'). The second component (α = .87), labeled *flirtation façade*, loaded five items (e.g., 'I send flowers to

TABLE 1
Principal components analysis of jealousy goals[a]

Item	Relational rewards	Relational revenge
I have tried to make my partner jealous . . .		
to test the relationship	.87*	
to bolster my self-esteem	.82*	
to increase my rewards	.78*	
to improve the relationship	.66*	
for fun	.58*	
to end the relationship	.31	
to teach him/her a lesson		–.91*
for revenge		–.88*
to punish him/her		–.82*
to control him/her	.38	–.43

[a] Factor loadings < .30 are omitted to facilitate interpretation.
*Item included in final subscale.

myself,' 'I leave fake numbers for her/him to find'). The third component (α = .72) loaded five items (e.g., 'I talk about past relationships,' 'I talk about others,' 'I talk about current relationships.'), and was labeled *relational alternatives*.

Factor structure of partner responses to jealousy induction

Guerrero et al. (1995) originally reported a five-factor structure of jealousy responses. However, the measure has not been validated across samples, and has subsequently been modified by different researchers. Consequently, factor analysis was deemed appropriate for this analysis. The jealousy response items produced nine components with eigenvalues > 1, and a leveling of the scree plot at the fourth factor (KMO = .89). Subsequent extraction and rotation produced a three-component solution, accounting for 45% of the common variance (see Table 3). The first factor loaded 13 antisocial items (α = .90) such as 'throws objects,' 'pushes me,' 'slaps me' and punches 'fist into the wall,' and was labeled *aggressive* responses. The second factor loaded 15 items (α = .91) such as shows 'less affection,' gives me the 'silent treatment,' 'acts rude' and shows 'resentment.' These items seem to reflect an avoidance of relational involvement and were labeled *withdrawal* responses. The third factor loaded seven items (α = .80), including 'tries to be perfect,' 'reach understanding,' show 'more attention to me' and 'apologizes,' suggesting a *relational compensation* factor.

Relational outcomes

To explore the consequences of tactical induction of jealousy, a tactical efficacy dependent variable was developed specifically for this study. Principal components analysis revealed a marginal KMO (.64). Two components displayed eigenvalues > 1, accounting for 57% of the common variance. Oblique rotation revealed no viable structure. However, orthogonal rotation revealed two very distinct simple components. The first component loaded four items concerning success and efficacy (i.e., achieved, satisfying, improved relationship, appropriate), whereas the second component loaded two items tapping lack of success (i.e., backfired, unsuccessful). Reliability analysis revealed that neither component achieved alpha coefficients > .70 until the two-item composite of the two highest loading items on the first component (i.e., achieved goal, satisfying) were retained. The resulting two-item variable was labeled *efficacy* (α = .75). Given that the second component items were insufficiently reliable no further analysis was pursued with these variables. However, the item 'improved relationship in the long run' seemed important to examine as a dependent variable because it represented relational rather than individual efficacy. Therefore, it was treated as a *relationship improvement* dependent variable.

Testing the model

The integrative model (Figure 1) was examined using structural equation modeling. The zero-order correlations of constructs are displayed in Table 4. For the measurement portion of the model, scores on relational reward and relational revenge indicated the latent variable strategic goal orientation. Scores on relational alternatives, distance, and facade indicated the latent variable jealousy-induction tactics. Scores on relational compensation,

TABLE 2
Principal components analysis of jealousy induction tactics[a]

Item	Relational distancing	Flirtation façade	Relational alternatives
I keep my friends and partner separate	.79*		
I make plans to do things with people who are close to me and not him/her	.77*		
I make plans without including him/her	.76*		
I am vague about plans, phone calls, people I am with	.63*		
I say I am too busy to see him/her	.58*		
I make plans to do things with people he/she thinks are a rival	.51*		
I ignore my partner and focus on others	.48		.32
I flirt with others	.48	–.32	
I send flowers to myself		–.88*	
I leave fake numbers around so he/she can find them		–.87*	
I take another person to places that are supposed to be our 'special place'		–.73*	
I leave pictures of me with other people for him/her to find		–.71*	
I have sexual contact with another person		–.67*	
I express attraction to others	.32	–.50	
I don't introduce my partner to others		–.49	
I talk about past romantic relationships			.75*
I talk about other men/women			.69*
I talk about current relationships			.65*
I compare him/her to past relationships			.63*
I tell my partner someone tried to get my number			.60*
I talk about the opposite sex	.30		.47

[a] Loadings < .30 are omitted to facilitate interpretation.
*Item included in final subscale.

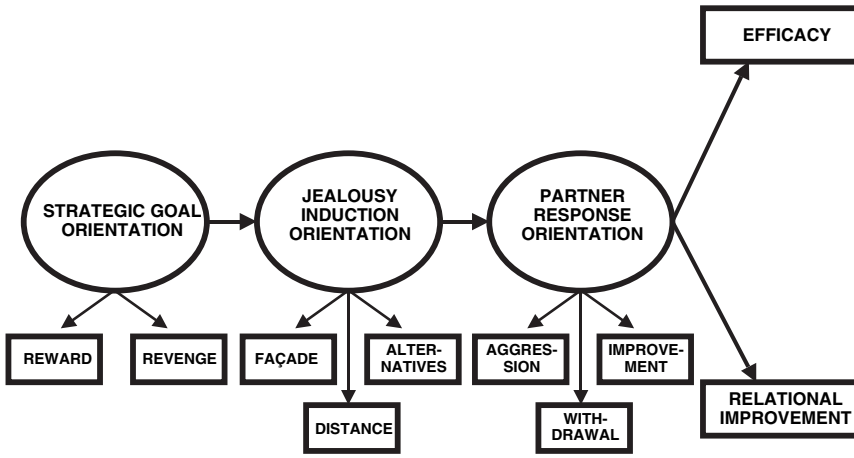
withdrawal, and aggression indicated the latent variable partner response orientation. For the structural portion of the model, direct relations from strategic goal orientation to jealousy-induction tactics and from jealousy-induction tactics to partner response orientation were hypothesized. In addition,

TABLE 3
Principal components analysis of partner jealousy responses[a]

Item	Aggressive responses	Withdrawal responses	Relational compensation
Throws object	.83*		
Pushes me	.82*		
Slaps me	.80*		
Fist into wall	.79*		
Spying	.77*		
Threatens harm	.76*		
Acts like going to hurt me	.76*		
Fight rival	.60*		
Verbal abuse	.58*		
Slams door	.55*		
Send flowers	.55*		
Call rival	.54*		
Call to see where I am	.52*		
Yells	.47	–.39	
Asks me not to call			
Shows less affection		–.80*	
Silent treatment		–.74*	
Acts rude	.31	–.70*	
Resentment		–.69*	
Less contact with me		–.68*	
Sarcastic		–.67*	
Stops calls		–.67*	
Snide comments		–.64*	
Denies jealous		–.60*	
Makes me feel guilty		–.58*	
Accusations	.33	–.57	
Denies jealousy		–.55*	
Attention from others		–.53*	
Pretend to be unaffected		–.52*	
Gets quiet		–.52*	
Vents to me		–.50*	
Starts hating me	.45	–.48	
Mention over and over		–.41	
Storms out		–.33	
Tries to be perfect			.75*
Reach understanding			.68*
Pays more attention to me			.66*
Apologizes			.66*
Spends more time with me			.64*
Looks hurt		–.37	.60
Cries			.58*
Tells me s/he is jealous			.53*
Asks questions		–.35	.50
Acts insecure			.48
Acts depressed/mopes		–.37	.47
Tries to look better			.42
Pouting		–.31	.40
Know plans			.30
Jokes			

[a] Loadings < .30 are omitted to facilitate interpretation.
*Item included in final subscale.

FIGURE 1
Specific structural and measurement model of strategic jealousy-induction goals, strategic jealousy-induction tactics, and partner response orientations.



direct paths from partner response orientation to the efficacy and relational improvement observed variables were hypothesized.

The Comparative Fit Index (CFI; Bentler, 1990) and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) were employed as descriptive indices of overall model fit. The chi-square likelihood ratio test has generally been deemed unsatisfactory in determining model fit (see Tanaka, 1993), but is presented and interpreted for the sake of completeness. CFI values > .90 and RMSEA values < .08 were used as cut-offs to determine model fit. In evaluating the statistical significance of individual model parameters (e.g., factor loadings and structural paths), conventional statistical significance levels ($p < .05$) were employed. The variance accounted for in each dependent variable in the structural model is also presented.

During the course of model testing, specification searches were conducted using the Wald and LaGrange Multiplier Tests, respectively (see Bentler, 1995). If the Wald test suggested that a parameter(s) was not significantly contributing to an evaluated model, these parameters were removed from the model and the revised model was re-estimated. Similarly, the LaGrange Multiplier Test was used to determine if additional parameters (e.g., structural paths) should be added to the proposed model. It should be noted that both of these procedures are strictly exploratory and the results should be interpreted with caution.

The initial model (Figure 1) was first tested on the complete sample. This model fit poorly both statistically ($\chi^2(33, N = 205) = 113.02, p < .05$) and descriptively (CFI = .86, RMSEA = .11). A condition code encountered during the estimation of this model is also indicative of poor fit (see Bentler, 1995). Follow-up analyses indicated the response orientation latent variable was untenable. Specifically, the relations among the indicators of this latent variable were extremely low (rs = .14, .28, .40). The lack of commonality in these

TABLE 4
Zero-order correlation matrix ($N \approx 210$)

Variable	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11
Jealousy-induction goals:											
1. Relational rewards	.80[a]										
2. Relational revenge	.58**	.86									
Jealousy-induction tactics:											
3. Relational alternatives	.37**	.33**	.81								
4. Flirtation façade	.36**	.37**	.46**	.87							
5. Relational distancing	.43**	.36**	.37**	.40**	.72						
Partner responses:											
6. Aggression	.22**	.31**	.32**	.61**	.23**	.90					
7. Withdrawal	.29**	.37**	.50**	.37**	.30**	.48**	.91				
8. Relational compensation	.16*	.12	.12	.18**	.23**	.30**	.17**	.80			
Relational outcome:											
9. Tactical efficacy	.42**	.40**	.38**	.41**	.37**	.36**	.31**	.27**	.75		
10. Relational improvement	.30**	.23**	.23**	.33**	.15*	.25**	.08	.34**	.38**	NA	
Response set:											
11. Social desirability	.27**	.23**	.18**	.15*	.38**	.10	.06	.21**	.16*	.17*	.68

[a] Coefficient alpha reliabilities are reported in the main diagonal.
* $p < .05$; ** $p < .01$.

observed variables suggested partner response orientation should not be modeled as a latent variable, but rather each response measure should be treated as an individual variable. This was accomplished operationally by specifying a direct path from tactical orientation to relational compensation, withdrawal and aggression.

This revised model also did not fit well statistically ($\chi^2(30, N = 205) = 139.41$, $p < .05$) or descriptively (CFI = .81, RMSEA = .13). A specification search suggested model fit could be improved by dropping some structural paths based on the Multivariate Wald Test, and adding some structural paths based on the LaGrange Multiplier Test. The direct paths from relational compensation, withdrawal and aggression to efficacy were removed, and the direct path from aggression to the relational improvement was removed. Two paths were then added to this model: a direct path from the tactical orientation latent variable to outcome efficacy and relational improvement.

Although this revised model did not fit well statistically ($\chi^2(32, N = 205) = 69.84$, $p < .05$), it did fit well descriptively (CFI = .91, RMSEA = .07). The parameters for this model are presented in Figure 2. All of the factor loadings were large and significant. When the structural model is considered, strategic goal orientation was positively related to strategic jealousy-induction tactics ($R^2 = .52$). In turn, strategic jealousy-induction tactics were positively related to partner's relational compensation ($R^2 = .09$), withdrawal ($R^2 = .43$), and aggression ($R^2 = .36$). Moreover, jealousy-induction tactics were positively related to outcome efficacy ($R^2 = .36$). In predicting relational improvement, jealousy-induction tactics and partner's relational compensation were positively related, and partner's withdrawal was negatively related, to this outcome ($R^2 = .30$).

FIGURE 2
Overall structural and measurement model of strategic jealousy-induction goals, strategic jealousy-induction tactics, and partner response orientations as tested.

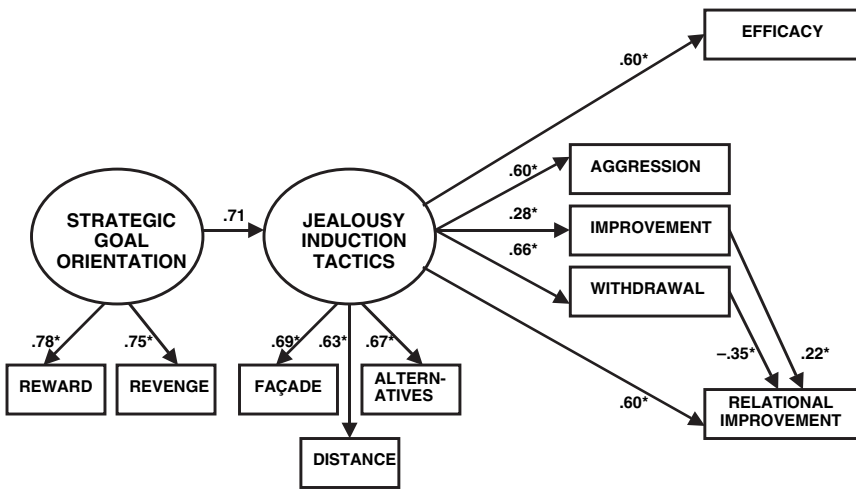


TABLE 5
Jealousy-inducing goals

Goal	Mean	Mode	*SD*	% Never	Sometimes	Frequently	Very frequently	Always
Test the relationship	1.96	1.0	0.98	38.2	37.3	17.5	4.7	2.4
Revenge	1.90	2.0	0.87	36.5	44.5	13.3	4.7	0.9
Bolster self	1.88	1.0	1.06	46.7	31.6	12.7	5.2	3.8
Punish partner	1.80	1.0	0.88	42.5	42.0	9.0	6.1	0.5
For fun	1.71	1.0	0.98	53.8	31.1	7.5	5.2	2.4
Teach lesson	1.67	1.0	0.87	53.3	31.6	9.9	4.7	0.5
Improve relationship	1.67	1.0	0.90	54.2	30.7	9.9	3.8	1.4
Increase rewards	1.65	1.0	0.91	56.6	29.2	9.0	3.3	1.9
End relationship	1.53	1.0	0.99	71.2	14.2	7.5	4.7	2.4
Control	1.50	1.0	0.87	67.5	22.2	5.7	2.8	1.9

RQ1

RQ1 inquired into the normative nature of strategic jealousy-induction goals (Table 5) and jealousy-induction tactics (Table 6). Jealousy induction appears to occur relatively infrequently, with all means and modes below the midpoint of the scale. The most frequently reported goals reflect the ambivalence of the phenomenon (e.g., test the relationship, revenge, bolster self). The most frequent jealousy-induction tactics appear to draw attention to the possibility of a rival (e.g., talk with opposite sex, flirting, talk about current relationships, make plans with friends, talk with others).

RQ2

RQ2 asked what the impact is of sex and relationship status on strategic jealousy induction. The relatively small group sizes in the relationship status variable recommended against separate groups analysis in the SEM because the results would be too unstable. The relationship status question was reduced to three categories: casual involvement (i.e., casually dating), exclusive involvement (i.e., exclusive dating relationship, engaged, married), and other (i.e., 'other'). As there were only 23 respondents in the 'other' category, this category was discarded, and the remaining casual (N = 79) and exclusive (N = 107) categories were analyzed as independent variables, with the remaining constructed variables as dependent variables. Several differences emerged between casually and exclusively involved respondents. Casually involved respondents reported more revenge motives, greater use of façade and distancing tactics, greater partner response of aggression, greater partner withdrawal responses, and yet, higher outcome efficacy (see Table 7). In general, strategic jealousy-induction processes appear more antisocial, and yet more tactically effective, in more casual relationships, compared with more exclusive relationships.

To test the multivariate effects of sex differences, the 'best-fitting' SEM model derived earlier was compared across gender groups. The model fit

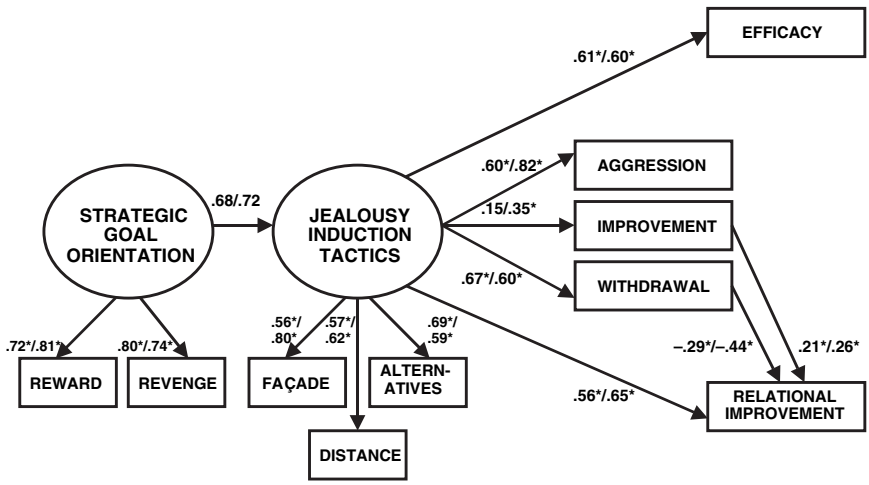
TABLE 6
Jealousy-inducing tactics

Goal	Mean	Mode	*SD*	% Never	Sometimes	Frequently	Very frequently	Always
Talk with opposite sex	2.66	2.0	1.22	13.7	41.5	22.6	8.5	3.7
Flirting	2.40	2.0	1.13	21.2	42.0	19.8	10.4	6.6
Talk current relationships	2.27	1.0	1.22	32.5	31.6	19.3	9.0	7.5
Make plans with friends	2.23	2.0	1.02	25.0	42.0	20.3	10.4	2.4
Talk with others	2.17	2.0	1.06	28.3	42.9	16.5	8.0	4.2
Talk past relationships	2.16	2.0	1.08	27.4	46.7	15.6	3.8	6.6
Keep separate	1.92	2.0	0.97	38.7	39.6	41.6	4.7	2.4
Vague plans	1.87	1.0	0.97	42.5	37.3	13.2	4.7	2.4
Make less time	1.85	1.0	1.01	42.9	41.9	5.7	6.2	3.3
Plans without partner	1.84	2.0	0.89	40.1	43.9	9.0	6.1	0.9
Compare past relationships	1.76	1.0	1.03	52.4	31.6	6.6	6.6	2.8
Other number	1.69	1.0	0.85	50.5	34.9	11.3	1.9	1.4
Too busy	1.62	1.0	0.74	52.4	34.9	11.3	1.4	0.0
Ignore partner	1.53	1.0	0.76	60.0	29.7	7.5	2.8	0.0
Plans with rival	1.44	1.0	0.76	68.4	21.7	7.5	1.9	0.5
No introduce	1.37	1.0	0.66	71.7	21.2	5.7	1.4	0.0
Express attraction	1.26	1.0	0.65	81.6	13.2	2.8	1.9	0.5
Leave photos	1.26	1.0	0.69	84.0	9.0	3.8	3.3	0.0
Sexual contact	1.23	1.0	0.60	84.0	10.8	3.3	1.9	0.0
Special place	1.98	1.0	0.59	87.3	7.5	3.8	0.9	0.5
Fake numbers	1.12	1.0	0.51	93.4	2.8	1.9	1.9	0.0
Send flowers	1.08	1.0	0.38	95.8	1.4	2.4	0.5	0.0

TABLE 7
Contrasts of casual vs. exclusive relationships

	Casual		Exclusive					
Goal	**Mean**	***SD***	**Mean**	***SD***	***t***	***df***	***p***	η^2
Jealousy-induction goals:								
Relational rewards	9.47	3.39	8.93	3.40	1.06	1,175	.290	.0061
Relational revenge	4.57	2.08	4.00	1.42	2.13	1,174	.034	.026
Jealousy-induction tactics								
Flirtation façade	5.34	2.45	4.56	1.16	2.81	1,175	.006	.018
Relational distancing	10.69	3.85	8.97	3.04	3.32	1,175	.001	.043
Relational alternatives	9.28	3.00	8.47	3.01	1.79	1,175	.076	.059
Partner responses								
Aggression	16.33	5.74	14.49	4.53	2.38	1,173	.018	.032
Withdrawal	30.10	9.26	25.01	8.45	3.78	1,172	.001	.077
Relational compensation	12.62	3.78	13.16	4.68	–0.83	1,174	.401	.004
Relational outcome								
Tactical efficacy	4.27	1.73	3.50	1.42	3.23	1,175	.001	.056
Relational improvement	1.71	0.94	1.81	0.94	–0.74	1,174	.458	.003

FIGURE 3
Female/male model of jealousy-induction goals, tactics, and responses.



descriptively well both for females ($\chi^2(32, N = 119) = 58.71$, $p < .05$; CFI = .90, RMSEA = .08) and males ($\chi^2(32, N = 87) = 61.90$, $p < .05$; CFI = .91, RMSEA = .08). The parameter estimates for this model are presented in Figure 3. All factor loadings and structural coefficients are strikingly similar to those

presented for the overall model. Only one difference was notable between the male and female models. The tactical orientation latent variable significantly predicted relational improvement in the male model, whereas it did not in the female model.

Discussion

This research represents a first attempt to model the process of jealousy induction. The model portrays jealousy induction as an intentional, goal-directed strategic process. Two types of goals were identified, reflecting the ambivalence of jealousy in relationships. Relational rewards reflect the desire to improve the relationship, bolster self-esteem, and increase relational rewards. The second type of goal, relational revenge, reflects the desire to punish a partner, the need to get revenge, and the desire to control one's partner. The structural equation model indicates these goals are mediated in their effect on relational outcomes. These goals account for the tactics of jealousy induction, which in turn account directly for relational responses and in part, relational outcomes. Although such cross-sectional data do not permit causal inferences, the model is suggestive of a theoretical model to guide future research.

An unexpected finding resulted from the zero-order relationships of the variables. Specifically, all significant associations among the jealousy goals, jealousy-induction tactics, and partner responses to jealousy were positive, even with efficacy and relational improvement. The most parsimonious explanation is that people who intentionally engage in strategic behavior tend to associate their own tactics with efficacious outcomes. Tactics are selected presumably because they are expected to meet at least minimal standards of effectiveness.

These relationships become more varied at the multivariate level, where withdrawal responses relate negatively to relational improvement (Figures 2 and 3). Given the direct path from the latent tactical orientation variable to relational improvement, tactical orientation may moderate the influence of partner response on relational improvement. This suggests that there are some independent effects of jealousy-induction tactics on relational improvement, which then influence the relationship between partner responses (i.e., compensation or withdrawal) and relational outcomes. Another possibility is that there are group differences that wash out when the groups are combined. The difference in magnitude between female (–.29) and male (–.44) is suggestive of this. Indeed, post-hoc analysis revealed that males reported their female partners as engaging in significantly more withdrawal responses (M = 29.64, SD = 9.90) than females reported their male partners used (M = 25.76, SD = 8.99), $t(1,207) = 2.95$, $p < .004$; $\eta^2 = .04$). This is inconsistent with research in conflict that indicates males are more likely to engage in withdrawal (e.g., Gottman, 1994; Vogel, Wester, & Heesacker, 1999), and suggests the intriguing possibility that males may be less apprehensive than females when engaging issues in

jealousy-induction contexts. From a socio-evolutionary perspective, jealousy induction may be a particularly salient motivating context for males, who could be expected to engage in more aggressive mate-guarding activities. However, avoidance and withdrawal have revealed inconsistent sex differences in the research (Guerrero & Reiter, 1998), and therefore require replication. Collectively, these results point out the potential importance of applying a multivariate approach to jealousy induction rather than relying on simple correlations.

Examining the results of the multivariate analyses, there were two unexpected, but theoretically intriguing, results of the model modifications. First, factor analysis revealed three distinct groups of partner responses to jealousy-induction attempts. Research by Guerrero et al. (1995) had previously indicated two broad groups of jealousy responses, each with its own sub-factors: interactive responses (i.e., negative affect expression, integrative, aggressive, active distancing, violence), and more unilateral behavioral responses (i.e., rival contact, surveillance, manipulation attempts, compensatory restoration, violence). In contrast, three response factors emerged in this study (i.e., relational compensation, withdrawal, and aggression). This structure bears significant resemblance to stable factor structures in the realm of conflict tactics (e.g., Putnam & Wilson, 1982; Spitzberg, Canary, & Cupach, 1994).

Another surprising finding is that aggressive partner responses to jealousy induction appear to have no impact on relational outcomes. It may be that aggressive responses are employed as regulatory efforts that are successful in punishing the induction effort, which is then treated as an isolated incident in the course of the relationship. This interpretation is potentially consistent with an uncertainty reduction perspective (Afifi & Reichert, 1996; Knobloch, Solomon, & Cruz, 2001; Planalp & Honeycutt, 1985), in which aggressive partner responses provide a rather unambiguous sense of a partner's stance toward the jealousy-inducer. So the inducer's uncertainty regarding the partner's orientation to the relationship may be reduced, but at some 'cost' to the inducer, resulting in countervailing outcomes, and a muted overall effect on the course or state of the relationship.

The more influential partner responses appear to be improvement and withdrawal. As anticipated in the rationale, jealousy induction can produce both positive and negative outcomes for the relationship, depending on the way in which jealousy is induced and the way in which the partner responds. If the partner responds by withdrawing from the relationship, the relationship appears to suffer, and if the partner responds in compensatory ways by attempting to improve self or the relationship, then the relationship appears to benefit. Withdrawal and avoidant tactics have often revealed inconsistent relationships with relational outcomes (e.g., Heavey, Christensen, & Malamuth, 1995; Raush, Barry, Hertel, & Swain, 1974; Spitzberg et al., 1994). The 'silent treatment' (Williams, Shore, & Grahe, 1998), mulling and withholding complaints (Roloff & Cloven, 1990) appear negatively related to relational attraction and satisfaction. In contrast,

complex forms of avoidance have shown positive relationships to attraction (Belk & Snell, 1988). Indeed, Buss (2000) reported that women found intentionally ignoring a partner led to increased satisfaction. Women reported that deliberately acting distant made their partner wonder if there were another romantic interest. If a woman distanced herself from her mate to induce jealousy, she would easily recognize its tactical effectiveness when her partner responded in like manner – distancing himself from her. Such moves and countermoves may enact a not-so-subtle choreography in which withdrawal of affection paradoxically signals that the affections of the relationship are alive and well. Clearly, the role that withdrawal and avoidance tactics play in affecting relational outcomes bears further study (Beatty, Valencic, Rudd, & Dobos, 1999).

The separate analysis of the model of jealousy induction by sex indicates that despite several mean differences between male and female endorsement of jealousy-induction tactics and jealousy responses, the structural model provided an equivalent fit across sexes. Several studies have examined sex differences in jealousy (e.g., Aylor & Dainton, 2001; Buss, Larsen, & Westen, 1996; Buss et al., 1999; Sprowl & White, 1989), producing a rather mixed picture of the nature and generalizability of these differences. At least one meta-analysis casts doubt on sex-specific predictions regarding jealousy experiences (Harris, 2003). However, relatively few of these studies have examined sex differences at a multivariate level. This study suggests the basic structure by which jealousy is induced in relationships is essentially identical for both males and females. This conclusion will obviously need replication in larger and more diverse samples. If sex is less important than previously presumed, investigation of other individual difference constructs may well elicit differences in strategic jealousy induction. Two obvious candidates would be love styles (White & Mullen, 1989) and attachment styles (Guerrero, 1998). Manic and ludic lovers (Lee, 1973) should be prone to induce jealousy out of desperation and manipulative inclinations, respectively. Likewise, insecurely and especially preoccupied (Knobloch et al., 2001; Leak, Gardner, & Parsons, 1998; Sharpsteen & Kirkpatrick, 1997) attached persons may be particularly prone to inducing jealousy in their partners due to a sense of unstable desperation to secure the partner's attachment.

Despite the heuristic and integrative benefits of the model, several cautions should be noted in its interpretation. First, it is difficult to know whether North American college students manage jealousy in significantly different ways than other populations. This sample may engage in more egalitarian relationships, and may be more acclimated to gamesmanship orientations to their relatively transitory relationships. Along these lines, 18-year-old college students may possess and engage in a different range of jealousy-induction tactics, with different effects, than older people in more established and familial relational contexts. When relational history and investment erect barriers to relational separation, jealousy induction may take on both playful and malicious overtones. Future research especially needs to investigate older populations in more established

relationships. Second, the measures for this study were newly developed and clearly require further study to demonstrate their reliability and validity in comparison with other relevant measures (e.g., Cayanus & Booth-Butterfield, 2003). Third, and most importantly, this study examined individual perceptions of self and partner. Although this is a common approach to the study of jealousy, it becomes vital that this particular model be replicated in dyadic contexts. Operationalizing how one's partner responds and how the relationship is affected involves more than just one's own perspective. Future research therefore should examine this model of jealousy induction in intact relationships. Furthermore, inclusion of intentionality attributions in such dyadic studies would permit the testing of the potential moderating effect of such perceptions. Such attributions have shown significant effects in the study of the intentional induction of embarrassment and hurtful messages, and may reveal similar effects for jealousy induction.

Most contemporary literature suggests that jealousy is relationally dysfunctional (Mullen, 1991). This study reveals that inducing jealousy may be relationally functional. Perhaps if jealousy is never experienced, 'one must either be very sure that losing a loved one to another is simply impossible, or one must not care very much about the partner in the first place' (Tangney & Salovey, 1999, p. 180). Despite its dark side, jealousy is often a manifestation of a person's investment in and attraction to a partner. In this vein, jealousy may be fulfilling its evolutionary past as an emotion complex adapted to mate guarding and pair bonding (Geary, Rumsey, Bow-Thomas, & Hoard, 1995; Keltner & Anderson, 2000). Yet, as functional as jealousy may be, it clearly does have a darker side as a significant cause of aggression and violence (Barnett, Martinez, & Bluestein, 1995; Dutton, van Ginkel, & Landolt, 1996). As such, jealousy may reflect a potent double-edged sword of relational emotions. Such interpersonal weaponry clearly calls for further research and refinement of the model developed herein.

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