

---

# Sex differences in the contexts of extreme jealousy

---

BRAD J. SAGARIN<sup>a</sup> AND ROSANNA E. GUADAGNO<sup>b</sup>

<sup>a</sup>*Northern Illinois University* and <sup>b</sup>*Arizona State University*

## Abstract

Research on sex differences in jealousy using continuous measures sometimes reveals that women report more intense jealousy than men in response to both sexual and emotional infidelity. Two studies tested whether these findings might have stemmed from sex differences in the interpretation of the upper anchor of the jealousy scales (e.g., “extremely jealous”). In Study 1, women and men offered different types of exemplars when describing situations in which they felt extremely jealous. A significantly greater proportion of women than men reported feeling extreme jealousy in the context of romantic relationships. Additional results demonstrated that women and men confuse the terms “jealousy” and “envy,” although this confusion cannot account for the sex differences in the contexts of extreme jealousy. Study 2 demonstrated that the sex difference in the intensity of reported jealousy disappears if the upper anchor of the scale is modified to include specific contextual information (e.g., “as jealous as you could feel in a romantic relationship”).

Do women feel jealousy more intensely than men? According to Buss (1999), the weight of past evidence would suggest not: “Prior to studies by evolutionary psychologists, dozens of empirical studies explored the psychology of jealousy. The most common finding was that men and women do not differ in either the frequency or the magnitude of the jealousy they experience” (p. 325; see also Buunk & Hupka, 1987; White, 1981). Evolutionary psychologists did not dispute the equivalence of women and men’s overall experience of jealousy, but they theorized that the sexes would differ in the types of infidelity that would elicit

greater jealousy. On the basis of the theory that male sexual jealousy evolved as an adaptive solution to the specter of paternal uncertainty (Daly, Wilson, & Weghorst, 1982; Symons, 1979), numerous researchers have demonstrated that women (relative to men) tend to report greater jealousy in response to an imagined emotional infidelity (compared to an imagined sexual infidelity), using forced choice (Buss, Larsen, Westen, & Semmelroth, 1992; Buunk, Angleitner, Oubaid, & Buss, 1996; Geary, Rumsey, Bow-Thomas, & Hoard, 1995) and continuous measures (Pietrzak, Laird, Stevens, & Thompson, 2002; Sagarin, Becker, Guadagno, Nicastle, & Millevoi, 2003) of jealousy.

Although Pietrzak et al. (2002) and Sagarin et al. (2003) demonstrated the predicted interaction between sex and infidelity type using continuous measures, Sagarin et al. (2003) (as well as DeSteno & Salovey, 1996; Geary et al., 1995) found a surprising additional sex difference: women reported more intense jealousy than men across both types of infidelity—a result seemingly in conflict with prior demonstrations of

---

Some of the findings reported here were initially presented at the May 2001 meeting of the Midwestern Psychological Association in Chicago, IL. We thank Jeremy Heider, Jeffrey Kinderdietz, Leah Peryer, Katie Seidelman, and Sherman Serna for their help with Study 1, Evelyn Comber and Kelly Norris for their help in coding the data, Amy Martin for her help with the literature review and data coding, and Terri Asher for her helpful comments on an earlier draft of this manuscript.

Correspondence should be addressed to Brad Sagarin, Department of Psychology, Northern Illinois University, DeKalb, IL 60115, USA; e-mail: bsagarin@niu.edu.

equivalence of overall jealousy in women and men (Buunk & Hupka, 1987; White, 1981). Geary et al. (1995) speculated that this sex difference stemmed from response bias, and, indeed, Feldman Barrett, Robin, Pietromonaco, and Eysell (1998) found that women report more intense emotions than men when responding on global, retrospective measures. However, if this sex difference in the intensity of reported jealousy (Geary et al., 1995; Sagarin et al., 2003) stemmed from a general response bias (i.e., a general willingness by women to report more intense emotions than men), then it would have appeared in the studies of White (1981), and Buunk and Hupka (1987), as these studies also assessed the construct of jealousy. The divergence across these sets of studies suggests to us a different explanation—that the more intense jealousy reported by women may have stemmed from a previously unobserved sex difference in the interpretation of the jealousy scales. This explanation is discussed below.

### Measuring Jealousy

Geary et al. (1995) and Sagarin et al. (2003) measured jealousy using similar scales. Geary et al. (1995) asked American and Chinese participants to “imagine their partner ‘forming a deep emotional relationship with another person’” (p. 361) and to indicate how hurt, angry, and jealous they would feel on 5-point scales ranging from “not hurt (angry, jealous) at all” to “extremely hurt (angry, jealous)” (p. 361). Later, participants were asked to imagine “their ‘partner enjoying passionate sexual intercourse with another person’” (p. 361) and to complete the same items. In response to both emotional and sexual infidelity, American women reported more intense jealousy than American men, with a greater difference in response to emotional infidelity. Less consistent results were found in the Chinese sample, although Chinese men showed some tendency to report more intense jealousy in response to sexual infidelity than Chinese women.

Sagarin et al. (2003) posed similar scenarios and asked participants to indicate how jealous they would feel on “10-point scales ranging from not at all jealous (0) to extremely jealous (9)” (p. 19). The results mirrored those found in Geary et al.’s (1995) American sample. Female participants reported more intense jealousy than male participants in response to both emotional and sexual infidelity, with a greater difference in response to emotional infidelity. (DeSteno and Salovey, 1996, who found a similar sex difference in the intensity of reported jealousy, did not report the jealousy scale they used.)

White (1981), and Buunk and Hupka (1987), in contrast, used different scales and found different results. White (1981) measured jealousy using a six-item scale, including one item similar to those used by Geary et al. (1995) and Sagarin et al. (2003) (“How jealous do you get of ( )’s relationship with members of the opposite sex?” answered on a 9-point scale ranging from “very jealous” to “not jealous at all”; p. 134) and five items dissimilar to those used by Geary et al. (1995) and Sagarin et al. (2003) (e.g., “Have you ever seriously thought about breaking up with ( ) because of his/her attraction to someone else of the opposite sex?” with response options of “very often,” “often,” “occasionally,” “once or twice,” and “never thought of breaking up”; “How much is your jealousy of ( ) a problem in your relationship?” with the options “the major problem,” “a major problem,” “important but not major problem,” “relatively minor problem,” and “no problem at all” [p. 134]). The six items were combined into one jealousy measure. On this measure, male and female participants showed nearly identical levels of jealousy.

Buunk and Hupka (1987) asked participants from seven nations (Hungary, Ireland, Mexico, The Netherlands, the Soviet Union, the United States of America, and Yugoslavia) how much they agreed with six jealousy-related statements (e.g., “It does not bother me when I see my lover flirting with someone else” and “When

I see my lover kissing someone else my stomach knots up,” p. 15). Participants responded on a scale from “strongly agree” to “strongly disagree.” In all, participants were asked about five behaviors that their partners might engage in with another person (flirting, kissing, dancing, hugging, and sexual relationships) and one behavior that their partner might engage in regarding another person (sexual fantasy). Men and women differed for only two of the six behaviors: kissing elicited significantly greater jealousy among women, whereas sexual fantasy elicited significantly greater jealousy among men. Flirting, dancing, hugging, and sexual relationships elicited similar amounts of jealousy in men and women.

Because all four of these studies (Buunk & Hupka, 1987; Geary et al., 1995; Sagarin et al., 2003; White, 1981) assessed jealousy but only two (Geary et al., 1995; Sagarin et al., 2003) found sex differences in the intensity of reported jealousy, we sought an explanation based on the unique features of these two studies. One prominent feature that distinguished Geary et al. (1995) and Sagarin et al. (2003) from White (1981) and Buunk and Hupka (1987) was the scale used to assess jealousy. Geary et al. (1995) and Sagarin et al. (2003) employed scales anchored at “not at all jealous” and “extremely jealous,” whereas White (1981) and Buunk and Hupka (1987) used heterogeneous six-item jealousy scales. We theorized that the sex differences that emerge when men and women report jealousy using the former scales might stem from systematic differences in the way men and women interpret the scales. Specifically, while all participants are likely to interpret the lower anchor (“not at all jealous”) similarly, as this anchor unambiguously represents a complete lack of the emotion, participants must individually interpret the more ambiguous meaning of the upper anchor (“extremely jealous”). Differences in the interpretation of the upper anchor—particularly, systematic sex differences in interpretation—may then manifest as seeming differences in the intensity of reported jealousy.

Effects of this type have been reported in other contexts. For instance, in a vivid demonstration of this type of effect, Birnbaum (1999) produced the mathematically perplexing result that 9 can be perceived as significantly larger than 221. This was accomplished by employing a between-subjects design. One group of participants were asked “How large is the number 9?” on a 10-point scale from “very very small” to “very very large.” A second group was asked “How large is the number 221?” on the same scale. Nine received an average rating of 5.13, while 221 received 3.10, a statistically significant difference,  $t(83) = 3.52, p < 0.001$ .

In Birnbaum’s (1999) study, the context of the question altered the interpretation of the anchors. Participants judging the size of the number 9 probably used an exemplar for “very very large” such as 10, whereas participants judging the size of 221 may have selected 1000 to represent “very very large.” We suggest that women and men may bring different contexts to the interpretation of the upper anchor of the jealousy scales. Specifically, if (a) men and women access different exemplars when considering examples of extreme jealousy and (b) women access romantic exemplars more often than men, then women (relative to men) may define “extremely jealous” in the context of romantic relationships, whereas men (relative to women) may define “extremely jealousy” in nonromantic contexts. Therefore, when making judgments about romantic jealousy, women may report answers closer to the upper anchor of the scale (“extremely jealous”) because of the greater similarity between the target of judgment and the anchor.

This explanation has two implications, tested in the current research. First, to determine whether women and men interpret the upper anchor differently, Study 1 asked participants to describe a time when they felt extremely jealous. Support for our explanation would be found if a greater proportion of women than men report an exemplar of extreme jealousy that took place in the context of a romantic relationship. This prediction was developed primarily as a test of our proposed mechanism for

the appearance of sex differences in the intensity of reported jealousy, but it is consistent with both evolutionary psychological and sociocultural perspectives on sex differences. In particular, this sex difference may have evolved because of historical differences in the characteristics that women and men sought in each other. Specifically, if women tended to seek evidence of ambition, industriousness, and resource acquisition in men more so than men sought these characteristics in women (Buss, 1989), then men might be more likely than women to conceptualize intense intrasexual competition in nonromantic contexts (because it was these contexts in which men gained advantage over each other in the competition for mates). Alternately, it may be that the societal roles women typically fill orient them toward relationship maintenance, whereas men are more oriented toward career pursuits. Thus, each gender may think about extreme jealousy primarily in the context of his/her societally defined sex roles. Nevertheless, whatever the ultimate origin, it seems plausible that the most salient examples of adversarial intrasexual competition will be in the domains of greatest importance to women and men.

Second, if the sex difference stems from a sexually dimorphic interpretation of the ambiguous upper anchor of the jealousy scale, then altering the upper anchor to remove the ambiguity should also remove the sex difference. Study 2 was designed to test this by examining the effects of an upper anchor less open to flexible interpretation (“as jealous as you could feel in a romantic relationship”).

### Envy Versus Jealousy

It is possible that some of the ambiguity in the interpretation of “extremely jealous” may stem from ambiguity in the lay definition of “jealousy.” Indeed, although psychologists carefully distinguish jealousy (i.e., the emotion that occurs “when a person either fears losing or has already lost an important relationship with another person to a rival,” Parrott, 1991, p. 4) from envy

(i.e., the emotion that occurs “when a person lacks what another has and either desires it or wishes that the other did not have it,” Parrot, 1991; p. 4), the two terms are used somewhat interchangeably in informal speech. This confusion has been empirically demonstrated by Smith, Kim, and Parrott (1988), who found that participants used the word “jealousy” to mean jealousy or envy, although the word “envy” was seldom used to mean jealousy.

To test whether the predicted sex difference in the context of extreme jealousy stemmed from a greater tendency in men than women to confuse jealousy and envy, participants’ examples of extreme jealousy in Study 1 were coded for their adherence to the psychological definitions of jealousy or envy. However, even if participants confuse jealousy and envy (and even if this confusion is more prevalent in men than women), this confusion would represent an inherent aspect of our proposed mechanism. That is, if some participants access exemplars of envy when considering the anchor “extremely jealous,” then those exemplars would guide their responses on the scale.

## Study 1

### Method

#### *Participants*

Participants were drawn from two samples. Sample 1 consisted of 65 undergraduate students (49 women and 16 men,  $M_{\text{age}} = 22.1$ ,  $SD_{\text{age}} = 2.7$ ) at a Midwestern university with a primarily Caucasian student body who completed the questionnaire for extra credit in a psychology class. Sample 2 consisted of 40 people (23 women and 17 men,  $M_{\text{age}} = 26.4$ ,  $SD_{\text{age}} = 7.9$ ) who were approached by a research assistant while walking across a community college campus in the Southwest. Ethnicity and sexual orientation were not assessed for Sample 1. For Sample 2, seven participants were African-American, 17 were Caucasian, 10 were Hispanic, one was Asian, one was Native American, and four reported their

ethnicity as Other. Six participants who reported a nonheterosexual sexual orientation were excluded from the analyses (see Bailey, Gaulin, Agyei, & Gladue, 1994, for a discussion of the complex relationship between sexual orientation and mating psychology and Sheets & Wolfe, 2001, for an explicit demonstration of the moderating influence of sexual orientation on jealousy). An additional five participants were excluded from the analyses because they did not describe a time when they felt extremely jealous (two reported never feeling jealous, two left the question blank, and one reported that he tried not to get extremely jealous).

### Questionnaire

The questionnaire asked participants to think about a time when they felt extremely jealous and to describe in a few sentences what made them jealous. Participants were then asked to categorize the type of situation in which the event occurred, with choices: in school, at work, in a friendship, in a romantic relationship, or other. Because three participants in sample 1 indicated a family relationship when selecting "other," this category was added for sample 2.

### Results and Discussion

Women reported jealousy within romantic contexts (e.g., "I found a letter in my boyfriend's room from a girl. It was a letter in response to a letter he had written her. She said how she fell in love with his eyes when she first saw him and it was obvious she liked him and didn't know he had a girlfriend.") and nonromantic contexts (e.g., "I felt extremely jealous at work while I was in the Army. I was jealous of the other more [sic] stronger female officers. I felt jealous of their level of intelligence, and their strong leadership skills."), as did men (e.g., romantic: "When my ex-girlfriend wanted to go out one night with her old boyfriend and was so persistent on it that it made me feel as though something was going on"; nonromantic: "What made me jealous was that

a friend of mine was able to meet and have a master class with John Abercrombie. That was an event that I was waiting for and due to his composition John Abercrombie chose him."), but the ratio of romantic versus nonromantic contexts differed significantly by sex. Specifically, half of the women (36 of 72, 50%) categorized their anecdote as occurring in a romantic relationship, compared to a relatively small proportion of men (6 of 33, 18%),  $\chi^2(1)=9.54$ ,  $p=0.002$ . These data support the prediction that women and men access different exemplars when considering times they have felt extremely jealous.

Two coders examined the content of the anecdotes to determine what provoked the jealousy. The first coder defined five categories (desired resources, competitive situations related to career, school, or abilities, love interests, current or former romantic partners, and social exclusion), and then both coders assigned anecdotes to each category. Initially, the coders were in agreement on 92 of 105 anecdotes (88%). Differences were resolved through discussion.

Among women and men who categorized their anecdotes as occurring in a romantic relationship, the subject of the jealousy was most often the participant's current or former romantic partner [women: 30/36 (83%); men: 5/6 (83%),  $p=1.00$ , two-sided Fisher's exact test; e.g., "Two of my attractive co-workers were flirting with my boyfriend and asking him to go out with them."]. In contrast, participants whose anecdotes occurred in nonromantic contexts tended to focus on desired resources [women: 10/36 (28%); men: 4/27 (15%),  $\chi^2(1)=1.50$ ,  $p=0.22$ ; e.g., a new car, a vacation, or a large monetary gift] or competitive situations related to career, school, or abilities [women: 6/36 (17%); men: 10/27 (37%),  $\chi^2(1)=3.38$ ,  $p=0.066$ ; e.g., a higher examination score, a job offer, or praise at work]. One sex difference that emerged was a greater tendency for women than men to report negative feelings in nonromantic contexts provoked by social exclusion [women: 10/36 (28%); men: 2/27 (7%),  $\chi^2(1)=4.15$ ,  $p=0.042$ ; e.g., "My friend

moved into an apartment with three other girls. Now she does almost everything with them and doesn't talk to me as much as she use to" and "I was invited to join a friend and her family to go out with them. Then later told that I was uninvited, then later found out she had invited someone else"].

To test whether participants confused the definitions of envy and jealousy, two coders categorized the anecdotes as representing envy or jealousy. The coders were given definitions of envy and jealousy obtained from Parrott (1991):

Envy may be said to occur when a person lacks what another has and either desires it or wishes that the other did not have it. It occurs when the superior qualities, achievements, or possessions of another are perceived as reflecting badly on the self. Envy is typically experienced as feelings of inferiority, longing, or ill will toward the envied person (Neu, 1980; Salovey & Rodin, 1984). Jealousy, on the other hand, may be said to occur when a person either fears losing or has already lost an important relationship with another person to a rival. Jealousy may be experienced in a number of ways, but typically these are thought to include fear of loss, anger of betrayal, and insecurity (Hupka, 1984; Mathes, Adams, & Davies, 1985). (p. 4)

The coders were in agreement on 96 of 105 anecdotes (91%). The remaining anecdotes were categorized by a third coder, who broke eight of the nine ties. Of the 105 anecdotes, 102 were coded as envy or jealousy, two could not be coded due to a lack of information, and one resulted in an unbroken tie between the three coders (uncodable versus jealousy versus envy). Both women and men confused the definitions of envy and jealousy, with less than half of both women [33/70 (47%)] and men [12/32 (38%)] reporting an anecdote that fit Parrott's (1991) definition of jealousy,  $\chi^2(1) = 0.83$ ,  $p = 0.36$ . Two results suggest that this confusion of envy and jea-

lousy cannot account for the sex difference in the context of extreme jealousy, however. First, the proportions of women and men who reported an actual jealousy anecdote did not differ significantly. Second, when only the 45 participants who reported an actual jealousy anecdote were examined, a significantly higher proportion of women [27/33 (82%)] than men [4/12 (33%)] categorized their anecdote as occurring in a romantic relationship,  $\chi^2(1) = 9.65$ ,  $p = 0.002$ .

It appears that women and men access different types of exemplars when asked to describe situations of extreme jealousy. Across two samples, a significantly higher proportion of women than men reported jealousy in the context of romantic relationships. Thus, when responding to scales with an upper anchor such as "extremely jealous," men and women may be using different scales. It should be noted that even if women and men confuse the definitions of envy and jealousy (as our data suggest they do), this confusion is part of the interpretational process we hypothesize underlies the appearance of sex differences in the intensity of reported jealousy.

Study 2 was designed to test whether the sex difference in the intensity of reported jealousy can be eliminated by providing participants with a more specific anchor at the upper end of scale. Two versions of the scale were used—the first with the standard upper anchor ("extremely jealous") and the second with a modified upper anchor designed to include specific contextual information ("as jealous as you could feel in a romantic relationship"). It was predicted that a sex difference in intensity of jealousy would emerge with the use of the standard scale because women and men would interpret differently the upper anchor of the scale. It was also predicted, however, that the sex difference would disappear with the use of the modified scale because the specific contextual information would set precisely the same anchor point for women and men. These predictions were tested with planned contrasts that examined the simple effects of gender within each version of the scale.

**Table 1.** Intensity of Jealousy Reported by Women and Men in Response to Emotional and Sexual Infidelity Using Different Upper Anchors on the Scales

Upper anchor	Sex	Emotional infidelity	Sexual infidelity
Extremely jealous	Women	7.52 ± 1.78	7.14 ± 1.81
	Men	5.38 ± 2.43	7.14 ± 1.61
As jealous as you could feel in a romantic relationship	Women	7.93 ± 1.62	7.57 ± 1.55
	Men	7.42 ± 1.31	8.17 ± 1.19

Note. Intensity of jealousy was reported on a 10-point scale ranging from 0 (“not at all jealous”) to 9 (“extremely jealous” or “as jealous as you could feel in a romantic relationship”). Values are mean ± SD.

## Study 2

### Method

#### Participants

Participants were 62 women and 28 men ( $M_{\text{age}} = 21.3$ ,  $SD_{\text{age}} = 2.5$ ) who completed the survey for extra credit in a psychology class.

#### Questionnaire

The questionnaire requested participants' age and gender followed by the Buss et al. (1992) forced-choice jealousy question:

Please think of a serious committed romantic relationship that you have had in the past, that you currently have, or that you would like to have. Imagine that you discover that the person with whom you've been seriously involved became interested in someone else. What would distress or upset you more (*please circle only one*):

- A) Imagining your partner forming a deep emotional attachment to that person.
- B) Imagining your partner enjoying passionate sexual intercourse with that other person.

Participants were then asked, “When you imagine your partner forming a deep emotional attachment to that other person (choice A above), how jealous do you feel (please circle a number)?” and “When you imagine your partner enjoying passionate

sexual intercourse with that other person (choice B above), how jealous do you feel?” These questions were answered on 10-point scales, with the lower anchor labeled “not at all jealous.” For half the participants, the upper anchor was labeled “extremely jealous.” For the other half, the upper anchor was labeled “as jealous as you could feel in a romantic relationship.”

### Results and Discussion

The forced-choice question yielded the traditional sex difference. A larger proportion of men (15/25 or 60.0%) than women (13/61 or 21.3%) reported that a sexual infidelity would cause more distress,  $\chi^2(1, N = 86) = 12.09$ ,  $p = 0.001$ . This sex difference also appeared on the continuous measures. Women reported greater jealousy in response to an emotional infidelity ( $M = 7.73$ ,  $SD = 1.70$ ) compared to a sexual infidelity ( $M = 7.36$ ,  $SD = 1.68$ ), whereas men reported greater jealousy in response to a sexual infidelity ( $M = 7.62$ ,  $SD = 1.50$ ) compared to an emotional infidelity ( $M = 6.36$ ,  $SD = 2.20$ ) [ $F(1, 76) = 10.35$ ,  $p = 0.002$ ] (Table 1).<sup>1</sup>

The hypothesized effects of gender within each anchor type condition were

1. Listwise deletion was used for missing data within each analysis. Data were missing from three participants on the forced-choice question, five participants on the emotional infidelity continuous measure question, and four participants on the sexual infidelity continuous measure question.

tested with planned contrasts. On the standard scale, women reported more intense jealousy ( $M=7.24$ ,  $SD=1.58$ ) than men ( $M=6.27$ ,  $SD=1.36$ ) [ $F(1, 76)=4.45$ ,  $p=0.038$ ]. This difference, however, did not appear on the modified scale (women:  $M=7.72$ ,  $SD=1.26$ ; men:  $M=7.86$ ,  $SD=0.98$ ) [ $F(1, 76)=0.08$ ,  $p=0.773$ ]. Looked at in another way, the change in the upper anchor significantly impacted jealousy ratings for men (standard:  $M=6.27$ ,  $SD=1.36$ ; modified:  $M=7.86$ ,  $SD=0.98$ ) [ $F(1, 76)=8.15$ ,  $p=0.006$ ] but not for women (standard:  $M=7.24$ ,  $SD=1.58$ ; modified:  $M=7.72$ ,  $SD=1.26$ ), [ $F(1, 76)=1.76$ ,  $p=0.189$ ]. The three-way gender (women versus men)  $\times$  anchor type (standard scale versus modified scale)  $\times$  infidelity type (emotional versus sexual) interaction was not significant [ $F(1, 76)=0.71$ ,  $p=0.403$ ], whereas the two-way gender  $\times$  anchor type interaction was marginally significant [ $F(1, 76)=2.77$ ,  $p=0.100$ ].<sup>2</sup>

## General Discussion

The present studies were designed to resolve seemingly incompatible past findings regarding the comparative intensity of jealousy in women and men. Although the majority of past studies found that “men

and women do not differ in either the frequency or the magnitude of the jealousy they experience” (Buss, 1999, p. 325; see also Buunk & Hupka, 1987; White, 1981), Geary et al. (1995) and Sagarin et al. (2003) found that women reported significantly greater jealousy than men. We proposed that the significant sex difference found in Geary et al. (1995) and Sagarin et al. (2003) might have stemmed from their unique use of a jealousy scale with “extremely jealous” as the upper anchor.

Study 1 demonstrated that women and men access different types of exemplars when asked to describe situations in which they felt extremely jealous. As predicted, a greater proportion of women than men reported extreme jealousy in the context of romantic relationships. This suggests that women and men may interpret differently jealousy scales that use “extremely jealous” as the upper anchor. Therefore, they may be, in essence, using different scales. While within-sex comparisons remain viable, this effect complicates between-sex comparisons.

These results may help explain the unusual findings of Geary et al. (1995) and Sagarin et al. (2003), and they suggest that sex differences in jealousy may extend beyond reactions to emotional versus sexual infidelity (Buss et al., 1992; Daly et al., 1982; Symons, 1979). Women and men also differ in the exemplars they access when remembering incidents of extreme jealousy. These results provide evidence that women and men differ in the types of adversarial intrasexual interactions they consider most important and memorable. Compared to men, women re-member times they have lost (or feared losing) a competition against a rival for a romantic partner. Men, on the other hand, remember times they have lost (or feared losing) a competition against a rival for a desired promotion, benefit, possession, etc. Both women and men fear losing (or failing to gain) what they desire, but the results of the present studies suggest that sexes differ in their perceptions of the domains in which the most important competitions play out.

Not surprisingly, most women and men who reported an example of extreme

2. All analyses exclude one male participant in the “as jealous as you could feel...” *anchor type* condition whose answer to the sexual infidelity continuous measure question was 4.08 standard deviations from the grand mean. Inclusion of this outlier does not change the major results appreciably, but it attenuates the *anchor type* effect for men’s responses to sexual infidelity (“extremely jealous”:  $M=7.14$ ,  $SD=1.61$ ; “as jealous as you could feel...”:  $M=7.54$ ,  $SD=2.54$ ) [ $F(1, 77)=0.33$ ,  $p=0.565$ ]. However, an alternative analysis run to account for a ceiling effect for men in the “as jealous as you could feel...” condition suggests that *anchor type* still had a significant effect on men’s responses to sexual infidelity. Specifically, a significantly higher proportion of men selected the uppermost point on the “as jealous as you could feel...” scale (7/13 or 53.8%) compared to the “extremely jealous” scale (2/14 or 14.3%) ( $p=0.046$ , two-sided Fisher’s exact test).

jealousy that occurred in a romantic context described an incident involving their romantic partner. In contrast, women and men whose anecdotes occurred in a nonromantic context tended to focus on desired resources or competitive situations related to career, school, or abilities. One interesting sex difference that emerged was a significantly greater tendency for women's anecdotes to describe situations involving social exclusion. Women's greater negative reactions to such situations may be related to the greater self-esteem benefits derived from close female friendships (Townsend, McCracken, & Wilton, 1988) and the importance of social inclusion in female friendships (Henrich, Kupermine, Sack, Blatt, & Leadbeater, 2000; Owens, Shute, & Slee, 2000).

Participants in Study 1 confused the definitions of envy and jealousy, with some anecdotes involving a desire for something possessed by a rival (i.e., envy) and other anecdotes involving a fear of loss of an important relationship to a rival (i.e., jealousy), consistent with the findings of Smith et al. (1988). Although psychologists make a clear conceptual distinction between these emotions, the lay use of the word "jealousy" to encompass both envy and jealousy may reflect the fact that these emotions have much in common. Both emotions involve competition with a rival over a desired prize, with envy arising from a desire to obtain the prize and jealousy arising from a fear of losing it.

As discussed earlier, the sex difference in the contexts of extreme jealousy may have evolutionary, cultural, or a combination of evolutionary and cultural roots. From an evolutionary psychological perspective, women's tendency to seek evidence of ambition, industriousness, and resource acquisition in men (Buss, 1989) may have increased in men the perceived importance of competition in the nonromantic contexts in which men could demonstrate these traits. From a sociocultural perspective, women and men may think about extreme jealousy primarily in the context of their societally defined sex roles, with women oriented more toward relationship maintenance and men oriented

more toward career pursuits. The present results are compatible with either of these perspectives. Insight into the origins of this sex difference could be obtained by examining its possible cross-cultural manifestation. Cross-cultural universality of the sex difference would suggest an evolutionary origin. Cross-cultural variability—particularly an attenuation of the sex difference in egalitarian cultures in which women and men share the responsibilities of relationship maintenance and career success—would suggest a cultural origin. The lack of a consistent sex difference in the intensity of reported jealousy in Geary et al.'s (1995) Chinese sample offers some indirect support for a cultural origin.

Fortunately for researchers, this difference can be circumvented by providing participants with more specific anchors at the ends of scales. Study 2 demonstrated that modifying the upper anchor of a jealousy scale (e.g., "extremely jealous") to include specific contextual information (e.g., "as jealous as you could feel in a romantic relationship") erased the sex difference.<sup>3</sup> By providing participants with more information with which to define the range of the

---

3. We contend that the sex difference that emerged on the "extremely jealous" scale represents bias, whereas the lack of a sex difference on the "as jealous as you could feel..." scale accurately represents the lack of a sex difference in the intensity of jealousy that women and men experience. An anonymous reviewer raised the question of whether the bias may, in fact, lie in the "as jealous as you could feel..." scale, in which case the sex difference that emerged using the "extremely jealous" scale would represent a true sex difference rather than bias. However, Buss's (1999) conceptual summary, bolstered by the empirical findings of White (1981) and Buunk and Hupka (1987), suggests that women and men feel jealousy of equivalent intensity. The sex difference in the intensity of reported jealousy appeared on only one measure (the continuous scale with "extremely jealous" as the upper anchor). On the heterogeneous scales used by White (1981) and Buunk and Hupka (1987) (and on the revised scale used in Study 2 of the present paper), women and men did not differ significantly in the intensity of reported jealousy. This converging evidence suggests that the bias appears in the "extremely jealous" scale rather than the White (1981), Buunk and Hupka (1987), and "as jealous as you could feel in a romantic relationship" scales.

scale, this wording may also help to attenuate any tendency of women to report more intense emotions than men (Feldman Barrett et al., 1998). Simply providing a context for the question without specifying the context of the anchors

may be insufficient to alleviate these problems, however, as the questions used by Geary et al. (1995) and Sagarin et al. (2003) clearly implied a romantic context but left the definition of the upper anchors ambiguous.

## References

- Bailey, J. M., Gaulin, S., Agyei, Y., & Gladue, B. A. (1994). Effects of gender and sexual orientation on evolutionary relevant aspects of human mating psychology. *Journal of Personality and Social Psychology*, *66*, 1081–1093.
- Birnbaum, M. H. (1999). How to show that  $9 > 221$ : Collect judgments in a between-subjects design. *Psychological Methods*, *4*, 243–249.
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, *12*, 1–49.
- Buss, D. M. (1999). *Evolutionary psychology: The new science of the mind*. Boston, MA: Allyn and Bacon.
- Buss, D. M., Larsen, R. J., Westen, D., & Semmelroth, J. (1992). Sex differences in jealousy: Evolution, physiology, and psychology. *Psychological Science*, *3*, 251–255.
- Buunk, B. P., Angleitner, A., Oubaid, V., & Buss, D. M. (1996). Sex differences in jealousy in evolutionary and cultural perspective: Tests from the Netherlands, Germany, and the United States. *Psychological Science*, *7*, 359–363.
- Buunk, B. P., & Hupka, R. B. (1987). Cross-cultural differences in the elicitation of sexual jealousy. *Journal of Sex Research*, *23*, 12–22.
- Daly, M., Wilson, M., & Weghorst, S. J. (1982). Male sexual jealousy. *Ethology and Sociobiology*, *3*, 11–27.
- DeSteno, D. A., & Salovey, P. (1996). Evolutionary origins of sex differences in jealousy? Questioning the “fitness” of the model. *Psychological Science*, *7*, 367–372.
- Feldman Barrett, L., Robin, L., Pietromonaco, P. R., & Eysseil, K. M. (1998). Are women the “more emotional” sex? Evidence from emotional experiences in social context. *Cognition and Emotion*, *12*, 555–578.
- Geary, D. C., Rumsey, M., Bow-Thomas, C. C., & Hoard, M. K. (1995). Sexual jealousy as a facultative trait: Evidence from the pattern of sex differences in adults from China and the United States. *Ethology and Sociobiology*, *16*, 355–383.
- Henrich, C. C., Kupermine, G. P., Sack, A., Blatt, S. J., & Leadbeater, B. J. (2000). Characteristics and homogeneity of early adolescent friendship groups: A comparison of male and female clique and non-clique members. *Applied Developmental Science*, *4*, 15–26.
- Owens, L., Shute, R., & Slee, P. (2000). “Guess what I heard!”: Indirect aggression among teenage girls in Australia. *Aggressive Behavior*, *26*, 67–83.
- Parrott, W. G. (1991). The emotional experiences of envy and jealousy. In P. Salovey (Ed.), *The psychology of jealousy and envy* (pp. 3–30). New York: The Guilford Press.
- Pietrzak, R. H., Laird, J. D., Stevens, D. A., & Thompson, N. S. (2002). Sex differences in human jealousy: A coordinated study of forced-choice, continuous rating-scale, and physiological responses on the same subjects. *Evolution and Human Behavior*, *23*, 83–94.
- Sagarin, B. J., Becker, D. V., Guadagno, R. E., Nicastle, L. D., & Millevoi, A. (2003). Sex differences (and similarities) in jealousy: The moderating influence of infidelity experience and sexual orientation of the infidelity. *Evolution and Human Behavior*, *24*, 17–23.
- Sheets, V. L., & Wolfe, M. D. (2001). Sexual jealousy in heterosexuals, lesbians, and gays. *Sex Roles*, *44*, 225–276.
- Smith, R. H., Kin, S. H., & Parrott, W. G. (1988). Envy and jealousy: Semantic problems and experiential distinctions. *Personality and Social Psychology Bulletin*, *14*, 401–409.
- Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford University Press.
- Townsend, M. A., McCracken, H. E., & Wilton, K. M. (1988). Popularity and intimacy as determinants of psychological well-being in adolescent friendships. *Journal of Early Adolescence*, *8*, 421–436.
- White, G. L. (1981). Some correlates of romantic jealousy. *Journal of Personality*, *49*, 129–147.