

BRIEF REPORT

Forgiveness or breakup: Sex differences in responses to a partner's infidelity

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Infidelities—sexual, emotional, or both—afflict many long-term romantic relationships. When a person discovers a partner's betrayal, a major decision faced is to forgive the partner and remain together or to terminate the relationship. Because men and women have confronted different adaptive problems over evolutionary history associated with different forms of infidelity, we hypothesised the existence of sex differences in which aspects of infidelity would affect the likelihood of forgiveness or breakup. We tested this hypothesis using forced-choice dilemmas in which participants ($N = 256$) indicated how difficult it would be to forgive the partner and how likely they would be to break up with the partner, depending on the nature of the infidelity. Results support the hypothesis that men, relative to women: (a) find it more difficult to forgive a sexual infidelity than an emotional infidelity; and (b) are more likely to terminate a current relationship following a partner's sexual infidelity than an emotional infidelity. The Discussion provides directions for future work on the determinants of breakup and the psychology of forgiveness.

A romantic partner's infidelity can be devastating to both sexes. On discovery of infidelity, the betrayed partner is likely to feel a landslide of unpleasant emotions, including depression, anger, self-reproach and jealousy (Buss, 2000; Buss, Larsen, Westen, & Semmelroth, 1992; Buunk, 1995; Lawson, 1988; Shackelford, LeBlanc, & Drass, 2000).

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The authors thank Viviana Weekes-Shackelford and three anonymous reviewers for helpful comments which improved this article.

Infidelity may be unmatched as a source of relationship dissolution. In a study of 160 cultures, infidelity was the most frequently cited reason for divorce (Betzig, 1989). Breaking up appears to be one common solution to the problem of a partner's infidelity.

Not all couples, however, end their relationship after an infidelity surfaces (e.g., Lawson, 1988). Some question partners intensely about whether they are in love with the affair partner. Some enter couples' therapy in an attempt to discover the root of the problem and patch up the marriage. Some probe for details about the affair in order to determine more precisely the nature of the threat and the duration and other particulars of the involvement. Some end up forgiving the partner.

Given the importance of the critical juncture, there has been surprisingly little empirical work devoted to exploring the conditions under which infidelity leads to forgiveness or breakup, although there has been related work on the strategies used to cope with jealousy and suspicions of infidelity. White and Mullen (1989), for example, identified eight strategies people use to cope with jealousy: improving the primary relationship, interfering with the rival relationship, demanding commitment, derogating the partner or the rival, developing alternatives, denial, self-assessment, and seeking social support. Buunk (1981) used factor analysis to identify four strategies that couples in "open marriages" use to cope with jealousy, such as becoming less dependent on the partner and improving communication. In support of Tesser's theory of self-evaluation maintenance (Tesser & Campbell, 1982), Schmitt (1988) found that individuals derogate actual romantic rivals on traits they believed to be important to their romantic partners, but not on less important traits. Salovey and Rodin (1988) identified three psychological coping strategies—self-reliance (e.g., refraining from anger), self-bolstering (attempting to feel good about oneself), and reducing the importance of the situation (psychological distancing). Finally, some research has been devoted to the tactics people use to retain mates, which range from vigilance to violence (Buss, 1988; Buss & Shackelford, 1997). Although all these results are relevant to forgiveness and breakup, none address which factors affect this critical decision directly.

Although many factors contribute to the complex decision to forgive or break up following a partner's infidelity, work guided by an evolutionary perspective suggests that the decision may hinge on the nature of the infidelity (e.g., Buss et al., 1992; Daly, Wilson, & Weghorst, 1982; Symons, 1979). Among human ancestors, a single instance of sexual infidelity could jeopardise a man's certainty in paternity, with the attendant reproductive risk of investing a couple of decades of effort in a rival man's child rather than his own (see Geary, 2000, for a recent discussion of paternal investment). From an ancestral woman's perspective, a single sexual infidelity committed by her husband would not have carried this magnitude of risk, since her genetic maternity is not thereby compromised and hence her investments would still have been channelled toward her own genetic children. If her husband became emotionally involved with another woman, on the other hand, such affective infidelity would signal the long-term diversion to that other woman of her husband's energy, commitments, and investments, and hence would be more reproductively costly.

If these selection pressures recurred over human evolutionary history, selection could have created decision-rules to forgive or break up depending on specific features of context such as the nature of the infidelity and the sex of the person committing the infidelity. This reasoning led to the hypothesis that we tested in the current research: Men and women will differ in forgiveness for a partner's infidelity, and in the likelihood that

they will terminate a relationship because of a partner's infidelity, depending on the type of infidelity. Specifically, men more than women will find it more difficult to forgive, and will be more likely to break up with, a partner who commits a sexual infidelity. Women more than men will find it more difficult to forgive, and will be more likely to break up with, a partner who commits an emotional infidelity.

Evolutionary psychologists hypothesised two decades ago that men and women would differ psychologically in the weighting given to cues that trigger jealousy (Daly et al., 1982; Symons, 1979). A man's jealousy has been hypothesised to focus on cues to sexual infidelity because a long-term partner's sexual infidelity jeopardises his certainty in paternity, thereby placing him at risk of investing in another man's offspring. A woman's jealousy has been hypothesised to focus on cues to the long-term diversion of a man's commitment, such as his emotional involvement with another woman. The predicted sex differences in the nature of jealousy have been found repeatedly by different investigators—psychologically, physiologically, and to a limited degree cross-culturally (Buss et al., 1992; Buss et al., 1999; Buunk, Angleitner, Oubaid, & Buss, 1996; DeSteno & Salovey, 1996; Geary, Rumsey, Bow-Thomas, & Hoard, 1995; Wiederman & Allgeier, 1993; Wiederman & Kendall, 1999). The current research was designed to build on this earlier work by exploring decision-rules surrounding forgiveness and breakup following an infidelity. In addition, we attempted a replication of the original Buss et al. (1992) results.

METHOD

Participants

Participants were 256 undergraduates (128 men and 128 women) at a large state university in the United States. Participants were drawn from two sources—a large introductory psychology course and an undergraduate campus library. Participants ranged in age from 15 to 25 years, with a mean of 18.9 years ($SD = 1.0$). About 69% of participants were Caucasian, 15% Asian American, 6% African American, and 4% Hispanic. About 6% of participants did not indicate their ethnicity. Participation was voluntary and not rewarded. Prior to completing the survey, participants were told only that the study was designed to learn more about romantic relationships. We did not inform participants prior to participating that we were specifically interested in learning about possible sex differences in reactions to a partner's infidelity.

Materials and procedures

Participants completed a short survey. The first section asked for demographic information, including the participant's sex and age. The second section presented the participant with several forced-choice dilemmas. The first two dilemmas replicated the original dilemmas presented by Buss et al. (1992). For these two dilemmas, the instructions were as follows: "Please think of a serious or committed romantic relationship that you have had in the past, that you are currently having, 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. For each question, please circle only one answer, (A) or (B)." Participants were then presented with the following dilemmas:

Which would upset or distress you more?

(A) Imagining your partner enjoying passionate sexual intercourse with that other person.

(B) Imagining your partner forming a deep emotional attachment to that other person.

Which would upset or distress you more?

(A) Imagining your partner trying different sexual positions with that other person.

(B) Imagining your partner falling in love with that other person.

We presented participants with four additional dilemmas to test the central hypothesis regarding sex differences in forgiveness or breakup in response to a partner's infidelity. The instructions for each of the first two dilemmas were as follows: "Please think of a serious or committed romantic relationship that you have had in the past, that you are currently having, 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. For each question, please circle only one answer, (A) or (B)." Participants were then presented with the following dilemmas:

Which action would be *more difficult* for you to *forgive*?

(A) Your partner has passionate sexual intercourse with that other person.

(B) Your partner becomes deeply emotionally attached to that other person.

For which action would you be *more likely* to *break up* with your partner?

(A) Your partner has passionate sexual intercourse with that other person.

(B) Your partner becomes deeply emotionally attached to that other person.

The instructions for the next two dilemmas were as follows: "Please think of a serious or committed romantic relationship that you have had in the past, that you are currently having, or that you would like to have. Imagine that you discover that the person with whom you've been seriously involved *both* becomes deeply emotionally attached to another person *and* has passionate sexual intercourse with that other person. For each question, please circle only one answer, (A) or (B)." Participants were then presented with the following dilemmas:

Which *aspect* of your partner's involvement would be *more difficult* for you to *forgive*?

(A) Your partner's sexual intercourse with that other person.

(B) Your partner's emotional attachment to that other person.

Which *aspect* of your partner's involvement would be *more likely* to lead you to *break up* with your partner?

(A) Your partner's sexual intercourse with that other person.

(B) Your partner's emotional attachment to that other person.

RESULTS

To identify sex differences, we conducted χ^2 -tests on each of the six infidelity dilemmas. Responses to the first two dilemmas generated clear replications of the original Buss et al. (1992) results. A majority of men (61.9%) indicated that a partner's sexual intercourse with another person was more upsetting than a partner's emotional attachment to another person. In contrast, only 22.0% of women indicated that a partner's sexual intercourse

with another person was more upsetting than a partner's emotional attachment to another person. This distribution of responses is significantly sex-differentiated, $\chi^2(1) = 41.28$, $p < .05$, $\phi = .40$; ϕ is a measure of effect size, also known as the fourfold point correlation coefficient (Cohen, 1988). ϕ is calculated as the square root of (χ^2/n) , where n is the total sample size. According to Cohen (1988): $\phi = .10$ indicates a "small" effect size, $\phi = .30$ indicates a "medium" effect size, and $\phi = .50$ indicates a "large" effect size.

For the second Buss et al. (1992) replication dilemma, 49.6% of men indicated that imagining a partner trying different sexual positions with another person was more upsetting than imagining a partner falling in love with another person. In contrast, only 11.8% of women indicated that imagining a partner trying different sexual positions with another person was more upsetting than imagining a partner falling in love with another person. This distribution of responses is significantly sex-differentiated, $\chi^2(1) = 42.63$, $p < .05$, $\phi = .41$.

The next two dilemmas asked participants to select which type of infidelity—sexual or emotional—would be more difficult for them to forgive. For the first of these two dilemmas, the majority of men (65.1%) indicated that they would find it more difficult to forgive a sexual infidelity than an emotional infidelity, compared with 52.0% of women who indicated that they would find it more difficult to forgive a sexual infidelity than an emotional infidelity. This distribution of responses is significantly sex-differentiated, $\chi^2(1) = 4.42$, $p < .05$, $\phi = .13$.

For the next dilemma, the majority of men (54.8%) indicated that they would be more likely to break up with a partner if she were sexually unfaithful than if she were emotionally unfaithful, compared with only 41.6% of women who indicated that they would be more likely to break up with a partner if he were sexually unfaithful than if he were emotionally unfaithful. This distribution of responses is significantly sex-differentiated, $\chi^2(1) = 4.35$, $p < .05$, $\phi = .13$.

The next two dilemmas asked participants to imagine that their partner had been *both* sexually unfaithful *and* emotionally unfaithful. For the first of these two dilemmas, the majority of men (57.9%) indicated that they would find it more difficult to forgive the sexual (relative to the emotional) aspect of a partner's infidelity when both forms of infidelity had occurred, compared with only 41.3% of women who indicated that they would find it more difficult to forgive the sexual (relative to the emotional) aspect of a partner's infidelity when both forms of infidelity had occurred. This distribution of responses is significantly sex-differentiated, $\chi^2(1) = 7.00$, $p < .05$, $\phi = .17$.

For the next dilemma, 49.2% of men indicated that they would be more likely to break up with a partner in response to the sexual (relative to the emotional) aspect of her infidelity when both forms of infidelity had occurred, compared with 41.3% of women who indicated that they would be more likely to break up with a partner in response to the sexual (relative to the emotional) aspect of his infidelity when both forms of infidelity had occurred. This distribution of responses is not, however, significantly sex-differentiated, $\chi^2(1) = 1.58$, $p = .21$, $\phi = .08$.

A reviewer of this article suggested that we examine whether the sex-differentiated responses obtain, after controlling for effects attributable to ethnicity and to age. To address this possibility, we conducted six logistic regressions (for each of the six dilemmas), with infidelity type or aspect (sexual or emotional) serving as a dichotomous dependent variable. For each logistic regression, we entered as predictors: (a) participant

sex (male, female); (b) participant ethnicity (Caucasian, non-Caucasian; sample size limitations prevented more fine-grained analyses of ethnicity); and (c) participant age. For the first five logistic regressions, participant sex uniquely and significantly predicted selection of infidelity type or aspect. In contrast, neither ethnicity nor age significantly predicted selection of infidelity type or aspect. For the final logistic regression (corresponding to the final χ^2 -analysis presented above), none of the variables significantly predicted which aspect of infidelity was more likely to lead a participant to break up with his/her partner. Thus, the sex-differentiated patterns of responses are not attributable to effects due to ethnicity or to age (all analyses are available from the first author on request).

DISCUSSION

The results of this research support the hypothesis that forgiveness or breakup depends on the sex of the respondent and the nature of the infidelity. Men, relative to women: (a) find it more difficult to forgive a partner's sexual infidelity than a partner's emotional infidelity; and (b) are more likely to break up in response to a partner's sexual infidelity than in response to a partner's emotional infidelity. Conversely, women, relative to men, find it more difficult to forgive and are more likely to break up with a partner who is emotionally unfaithful. These sex differences remain even after controlling for effects attributable to ethnicity and to age.

Over human evolutionary history, both sexes incurred reproductive costs as a result of a partner's sexual infidelity and emotional infidelity. These costs are sex-differentiated, however. A partner's sexual infidelity placed men, but not women, at risk of investing resources in a rival's offspring. A partner's sexual infidelity therefore represents a potentially more costly adaptive problem for men than for women. Modern men have psychological mechanisms that are exquisitely sensitive to a partner's sexual infidelity (Buss et al., 1992; Daly & Wilson, 1988). Women also are sensitive to a partner's sexual infidelity, but accumulating evidence suggests that women become more upset in response to a partner's emotional infidelity, which signals the long-term diversion of a partner's commitment and investment (Buss et al., 1992; Buunk et al., 1996; DeSteno & Salovey, 1996; Geary et al., 1995; Wiederman & Allgeier, 1993; Wiederman & Kendall, 1999).

A reviewer of this article suggested that the use of forced-choice scenarios might represent a methodological limitation. There is a considerable body of research (reviewed in Buss, 2000) documenting that, when given the option of rating upset along an interval scale, both sexes indicate substantial upset in response to a partner's sexual infidelity and in response to a partner's emotional infidelity. Clearly, men and women alike are terribly upset about a partner's infidelity, whether that infidelity is primarily sexual, primarily emotional, or equally sexual and emotional. The specific hypothesis tested in the current research focused on whether men and women might be *differently* upset about one or the other type of infidelity. Given the methodological problem of ceiling effects typically encountered when using a Likert-type format in these contexts, forced-choice methods provide the opportunity to discover actual differences that might otherwise be obscured—in this context, in a kind of "Sophie's choice" of types or aspects of infidelity. Buss, et al. (1992, 1999) provide additional discussion of the appropriateness of the forced-choice design for identifying sex differences in responses to a partner's infidelity.

A clear limitation of the current work is the reliance on imagined scenarios. An important, albeit considerably more difficult extension of this work would involve collecting data from men and women who have experienced a partner's sexual infidelity, emotional infidelity, or both. Are actual breakups more likely to follow a purely sexual infidelity if committed by a woman? Are women less likely than men to forgive a partner who actually falls in love with another, even if sexual intercourse had not occurred? Examining these issues directly poses formidable methodological and ethical challenges, but if these could be overcome, such work would constitute the most direct tests of the current hypothesis.

Another extension of the current research might be to collect data on divorce from publicly accessible records. For states in the United States without a "no fault" divorce clause, a petitioner for divorce must indicate his or her reason for seeking divorce. One such reason is a partner's infidelity (Betzig, 1989). Future work might test whether: (a) men are more likely than women to cite a partner's sexual infidelity; and (b) women are more likely than men to cite a partner's emotional infidelity as the reason for seeking divorce.

A third direction involves exploring a more expansive and complex set of causal conditions involved in forgiveness and breakup following a partner's infidelity. Are stay-at-home moms with dependent children, for example, more likely to forgive a husband's sexual infidelity than currently childless working women? Are men and women who have fewer mating alternatives more likely to forgive both types of infidelity (White & Mullen, 1989)? Future studies could profitably examine these and other causal factors that contribute to decisions to forgive or break up following infidelity.

The current research was designed specifically to test hypotheses about sex differences in two particular responses to a partner's infidelity: forgiveness and breaking up. Clearly, there are many other responses to a partner's infidelity, including, for example, having a retaliatory affair, entering couples' or individual counselling, attempting to make oneself more attractive to one's partner, and murdering one's partner (for a review of this work, see Buss, 2000). In testing the specific hypotheses regarding sex differences in forgiveness and breaking up as a consequence of a partner's infidelity, we have necessarily restricted the range of responses men and women display when they discover a partner's betrayal. Future work might examine whether the sexes differ or are more similar in the many other possible reactions to a partner's infidelity.

The present work tested and found support for evolutionary psychological hypotheses about sex differences in sexual psychology. Although no alternative a priori hypotheses have been offered for these sex differences, several such hypotheses might be fashioned *post hoc*. For example, perhaps the sex differences in forgiveness and breakup for a partner's infidelity can be explained by sex-differentiated socialisation? Perhaps little boys are taught that they should be more upset about a partner's sexual infidelity than about her emotional infidelity, be less forgiving of a partner's sexual infidelity than of her emotional infidelity, and be more likely to end a relationship with a partner who is sexually unfaithful than one in which a partner is emotionally unfaithful. And perhaps little girls are taught the converse. Perhaps, but these sex-differentiated socialisation practices would themselves require an explanation. Why should the sexes be socialised differently? Why, specifically, would boys be taught to be particularly upset about a partner's sexual infidelity? And why would girls be taught to be particularly upset about a partner's emotional infidelity? And why would these sex-differentiated patterns be

observed in every culture for which we have good data (see Buss, 2000, for a review of this work)?

This research was designed to test hypotheses about between-sex differences in reactions to a partner's infidelity. We do not make the claims—nor are the results of this research consistent with the claims—that all men are more upset by a partner's sexual infidelity, that all men find it more difficult to forgive a sexual infidelity, or that all men are more likely to break up with a partner following her sexual infidelity. Similarly, we do not make the claims that all women are more upset by a partner's emotional infidelity, that all women find it more difficult to forgive a partner's emotional infidelity, or that all women are more likely to break up with a partner on discovering his emotional infidelity.

One theoretical avenue for exploring these individual differences pertains to mate value and within-couple discrepancies in desirability (e.g., Clanton & Smith, 1988; Hansen, 1985; Tooby & Cosmides, 1990; White, 1981). Men who are lower in mate value than their partner, for example, may be predicted to be more willing to forgive her for a sexual infidelity. Men higher in mate value than their partner, in contrast, might prove to be exceptionally intolerant of a partner's sexual infidelity and terminate the relationship with dispatch. Clearly, there exist within-sex differences in responses to a partner's infidelity, but these within-sex differences can coexist with between-sex group differences. This research was not designed to test hypotheses about within-sex differences in upset to a partner's infidelity. Relatively little empirical work has investigated this issue (but see Buss, et al., 1992), and it is wide open for empirical analyses.

In conclusion, the current research provides evidence that the sexes differ in responses to a partner's infidelity. Relative to women, men find it more difficult to forgive a partner's sexual infidelity and are more likely to terminate a relationship as a result of a partner's sexual infidelity. Relative to men, women find it more difficult to forgive a partner's emotional infidelity and are more likely to terminate a relationship as a result of a partner's emotional infidelity. These sex differences are consistent with an evolutionary perspective that proposes sex differences in mating psychology that were "designed" by natural selection as solutions to sex-differentiated adaptive problems recurrently confronted over human evolutionary history.

Manuscript received 3 April 2000

Revised manuscript received 21 February 2001

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