Asymmetries among homosexual men and women in subjective distress to sexual and emotional infidelity: A critical test of evolutionary hypothesis

Ana María Fernández

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ASYMMETRIES AMONG HOMOSEXUAL MEN AND WOMEN IN SUBJECTIVE
DISTRESS TO SEXUAL AND EMOTIONAL INFIDELITY: A CRITICAL
TEST OF EVOLUTIONARY HYPOTHESES

A Thesis Presented to the
Faculty of California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Psychology:
General/Experimental

by
Ana Maria Fernández

December 2000
ASYMMETRIES AMONG HOMOSEXUAL MEN AND WOMEN IN SUBJECTIVE
DISTRESS TO SEXUAL AND EMOTIONAL INFIDELITY: A CRITICAL
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by Ana Maria Fernandez

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Approved by:

Robert E. Cramer, Chair, Psychology

Gloria Cowan

Fred Newton

11-30-00 Date
ABSTRACT

Sex differences in cues to jealousy among gay men and lesbians were investigated. Hypotheses derived from an evolutionary perspective and from a social learning perspective were tested. Analysis of subjective reports of distress to sexual and emotional infidelity showed that gay men and lesbians were more distressed by emotional infidelity than by sexual infidelity. Further inquiry into the beliefs about the probability of one kind of infidelity implying the other showed that the "double-shot" hypothesis could account for gay men's distress to emotional infidelity. Lesbians' infidelity choice, however, provided partial support for an evolutionary perspective of jealousy. The results revealed that neither theoretical perspective could explain homosexual jealousy entirely.
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INTRODUCTION

The purpose of the present research was to determine the fitness of evolutionary and social learning perspectives in explaining sex differences in the causes of jealousy. In order to compare both perspectives, the methodology used by adherents of evolutionary and social learning perspectives (e.g., Buss, Shackelford, Kirkpatrick, Choe, Lim, Hasegawa, Hasegawa & Bennett, 1999; DeSteno & Salovey, 1996; Harris & Christenfeld, 1996) was replicated. More importantly, a new challenge to an evolutionary approach to jealousy was introduced by testing its predictions on jealousy in a sample that provided a "natural control" for the influential power of beliefs assumed by social learning explanations of sexual asymmetry in cues to jealousy (Symons, 1979). Hence, hypotheses were tested using a sample of gay men and lesbians.

Biology of Sex Differences

An extensive body of research in psychology (Buss, 1994; Singh, 1993), anthropology (Symons, 1979), biology (Carlson, 1998; Khan & Cataio 1984; Masters & Johnson, 1995), and communications (Motley & Reeder, 1995)
consistently report sexual differences in multiple aspects of men and women's behavior. Examination of the biology of mammals and humans (Carlson, 1998; Geary, 1998; Halpern, 1992; Thiessen, 1996), for example, indicates that there are structural and functional bases for behavioral differences among the sexes. The influence of the male hormone Testosterone (TE), for instance, may contribute to patterns of aggression that are more often found in mammalian males. Criminals treated with estrogens that block androgen receptors (impeding the binding of TE) show a consistent decrease in their aggressive behaviors, and the influence of TE dictates very high activity levels in women (Khan & Cataio, 1984).

The morphology of humans is sexually dimorphic. We can differentiate men and women in terms of height, physical appearance, external genitalia and their typical behavior (Masters & Johnson, 1995; Singh, 1993; Thiessen, 1996). In a review of the literature of biological differences among the sexes, Khan and Cataio (1984) noted that mammalian males and females have a number of differences in central nervous system morphology due to the effect of hormones in hypothalamic structures. Cell
structure, synaptic and dendritic organization, and nuclei volume of neurons as well are sexually dimorphic. Sex differences are not limited to animal biology. Human males and females, for example, differ in the average size of their corpus callosum (the neural connection between the left and right hemispheres of the brain). The size of the corpus callosum has been related to superior verbal skills in women and an advantage in spatial ability for men (Carlson, 1998; Geary 1998). Men and women also seem to be distinct in their expression and maintenance of social behaviors. On average, females excel in interpersonal relationships and cooperation, for example, whereas males tend to be competitive and individualistic (Archer, 1996; Eagly & Wood, 1999; Thiessens, 1996).

Biology may also play a role in sexual orientation. Le Vay (1991) described an area of the anterior hypothalamus of the brain responsible for male-typical sexual behavior: the interstitial nucleus of the anterior hypothalamus (INHA). Cell volume of the INHA appears to be related to sexual orientation. Analysis of the brains of 16 heterosexual males, 6 heterosexual women, and 19
homosexual men revealed that the INHA3 is sexually dimorphic. Le Vay (1991) found the volume of the INHA3 was significantly higher in heterosexual men than in homosexual men and heterosexual women.

Another study of brain differences associated with sexual orientation looked at differences in the bed nucleus of the stria terminalis (BST), a region related to sexual behavior and the masculinization of the brain (Zhou, Hofman, Gooren, & Swaab, 1995). Gonadal steroids affect the size and number of the BST cells during development. Zhou et al. (1995) described a correlation between BST size and transexuality. Their findings indicated that the BST of homosexual and heterosexual men didn't differ but was larger than that of heterosexual women. However, the volume of the BST of male-to-female transexual individuals was significantly smaller than the BST of males and females in general (Zhou et al., 1995).

In another realm, Allen, Gorski & Roger (1992) reported various dimorphic functions and structures that are related to sexual orientation. For example, homosexual men have lower levels of lutenizing hormone (LH) than heterosexual men, but their LH levels are
higher than those of heterosexual women. The anterior commissure (AC) of the brain, an area that is related to handedness, was 18% larger in heterosexual men than in heterosexual women; heterosexual men’s AC volumes were 34% larger than that of homosexual men. Allen et al. (1992) suggest that differences in the AC among homosexuals and heterosexuals might be related to sex-differences in brain lateralization and handedness. Left-handedness occurs more frequently among homosexual men.

Finally, in a review of the literature of psychological structural-functional relationships in brain research, Swaab and Hofman (1995) concluded that the human hypothalamus has a crucial role in sexual orientation. Their study of differences in the suprachiasmatic nucleus (SCN) of the hypothalamus revealed that the SCN was two times smaller in heterosexual males than in gay men.

Evolutionary Psychology of Human Mating

The field of Evolutionary Psychology provides a “new paradigm” (Buss, 1995; Tooby & Cosmides, 1992) to investigate and understand sexual dimorphism in humans. Taking into account the biological inheritance of humans,
it is not surprising for evolutionary psychologists to find differences between men and women. Buss and Schmitt (1993) proposed that a theory of sexual strategies can account for sexual differences in the present by looking at the adaptive problems men and women had to solve in our evolutionary past. The authors remark that, "humans' mate preferences and mating decisions are hypothesized to be strategic products of selection pressures operating during ancestral conditions" (p. 205). In theory, adaptive problems dating back to the Pleistocene era have shaped the present psychological machinery of our species. Symons (1979) distinguished sexual from natural selection in that the latter results from the differential abilities of individuals to adapt to their environments while the former results specifically from the differential ability of individuals to acquire mates. Mating and sexuality are fundamental aspects of human evolution, but men and women do not share equally these two aspects of their reproductive endeavors.

Human males are biologically prepared to reproduce with minimal effort, and mating is a relatively simple motivation for men. Females, in contrast, must invest
their time and their biological resources to successfully reproduce. Hence, mating is more costly for women. Their investment in offspring is very high, due to internal gestation and a very long child-rearing period. Women, therefore, looked for cues that a mate possessed resources that he was willing to share and was committed to the relationship. In order to successfully raise a child in the ancestral past women had to find partners that were committed and could provide resources in the long-term. Men were selected to solve different problems. For example, because a man could not be 100% certain that his partner’s offspring was his, he had to solve the problem of paternity certainty (Buss, 1994; Buss & Schmitt, 1993; Symons, 1979).

This asymmetry between the sexes produces a trade-off between what men and women give and take in their reproductive efforts. In a now classic study investigating sex differences in receptivity to sexual offers (Clark III & Hatfield, 1989), more than 60% of the men but none of the women accepted an invitation to go to bed with a stranger of the opposite sex. More than half of the women, however, did agree to go on a date with an
opposite-sex stranger. Females are, in theory, choosy and cautious when choosing a mate. They are predicted to give limited sexual access only to potential mates who signal that they may stay around and be able to take care of her and her child. Therefore, although males could hypothetically impregnate any woman, the female mating strategy serves to limit their access to the opposite sex. Because a man knows that a woman will not allow sexual access unless there is evidence of his willingness to invest, he is, in theory, motivated to invest his resources in a woman that he judges is worth the effort (Buss & Schmitt, 1993; Wiederman & Allgeier, 1992).

The investigation of sex differences has been the focus of evolutionary psychology research for the last 20 years, and a detailed analysis of the evolution of human sexuality (Symons, 1979) clarified the asymmetries between the sexes. Male and female sexuality focuses on solving historically recurring adaptive problems. Males, for example, have a strong drive to seek access to multiple females, and they have a psychological apparatus that facilitates their mate seeking endeavors by an apparent easiness of sexual arousal, often by the mere
physical sight of women. Women, in contrast, have been shaped by evolution to have a long, and costly reproductive cycle from conception to a child's independence. Therefore, their reproductive efforts and mating strategies are oriented to attain support and commitment from men. Women's interest, therefore, is selectively triggered by cues that indicate personality traits related to commitment.

Ellis and Symons (1990) found that sexual fantasies (which are theoretically more revealing than actions about men's and women's psychological mechanisms) are sexually dimorphic. The authors found that 43% of women and only 12% of men fantasize about a stable partner. Women fantasize about a partner's emotions and feelings towards them, with caressing being a crucial aspect of the fantasy. Men fantasize about multiple partners; they imagine strangers in sexual contexts more often than do women, and men report being sexually aroused at least once a day.

In the area of mating and human desires, an evolutionary analysis of sex differences has provided a substantial body of evidence about what women and men
want in a romantic partner. Singh (1993) discovered that men’s emphasis on female attractiveness made evolutionary sense. Looking at the waist-to-hip ratio of beautiful women throughout history, Singh found that the female shape is not a culturally biased measure of a woman’s attractiveness, but rather waist-to-hip ratio is a physiological cue to a woman’s health, fertility, and the absence of pregnancy. Although men’s waist-to-hip ratio is also connected to health, their reproductive capacity is not fully determined by their waist-to-hip ratio. Male attractiveness is more frequently associated with social status and dominance, and not as often with physical cues.

Mate selection is critical in determining the validity of an evolutionary approach to sex differences. Men and women should differ in those aspects in which they have encountered different adaptive problems (Buss, 1994; Symons, 1979). Consequently, differences in mate selection are an insight into biologically relevant evidence of sex differences. Buss (1994) identified universal aspects of human desire in 37 cultures. His findings are far reaching for psychology, because no
previous systematic research has targeted such a diverse sample. Looking at the most important characteristics men and women look for in a mating context, Buss found that after an agreement between the sexes on their preference for kindness and intelligence in a mate, women worldwide tend to prefer good financial prospects and ambition and industriousness in a partner (a cue to a mate’s ability to provide long-term support). Men, on the other hand, put a premium on the physical attractiveness of their mates (a cue to a woman’s health and fertility).

Townsend (1989) recognized that women’s lower income in the general population might be a moderating variable in previously reported sex-differences in mate selection criteria. Hence, he compared the effects of socioeconomic status and sex in choice of a marital partner. He asked medical students (who have considerably higher financial prospects than the average person in the population) to indicate their standards for choosing a spouse. His findings supported evolutionary hypotheses. Despite an above average expected income, women look for men who will earn more and have a higher status. Men, however, are eager to marry women who are less ambitious and
successful. A comparison sample of undergraduate students resulted in the same sex differences (see Townsend, 1989 for details). Similarly, Wiederman and Allgeier (1992) asked college students to qualify desired traits in a prospective partner. Their findings showed that 84.2% of males and only 66.6% of females rated "good looks" as an important trait in partner choice. And 70.6% of women, but just 36.6% of men considered "good financial prospect" as a desirable trait in a mate. These results support an evolutionary approach to mating, showing that women put more value than men do on a partner's financial prospects. Men, more so than women, emphasize the value of physical attractiveness in a future mate.

Kenrick, Sadalla, Groth and Trost (1990) compared student's criteria for choosing a partner at different levels of romantic involvement. They observed that females were consistently more selective than men, and they looked for a partner's commitment and status at low levels (dating) as well as at higher levels of involvement (marriage). Males, on the other hand, have very low standards when looking for a date, but their standards increased considerably when selecting a
committed partner. A significant interaction between gender and level of involvement supported the predictions of an evolutionary analysis of mate selection criteria. Their results confirmed that women's demands on men were high at each level of commitment, and that men's criteria for choosing a long-term mate are very selective as well. Differences in the specific traits that men and women look for in mating were also evident. Men emphasized a partner's attractiveness whereas women based their selection on traits related to a partner's "resource allocation" (Kenrick et al., 1990).

**Evolutionary Psychology of Jealousy**

Jealousy has been defined as "an emotional state that is aroused by a perceived threat to a valued relationship or position" (Buss, Larsen, Westen & Semmelroth, 1992, p.251). Jealousy appears to be elicited by threats to the mating strategies men and women have developed throughout evolutionary time (i.e., men's desire for sexual exclusivity (paternity certainty) and women's aspiration to find a committed partner; Buss, et al., 1992; Buss & Schmitt, 1993). Hence, jealousy is related to the most important adaptive problems men and
women had to solve throughout evolution. Male jealousy appears to be readily triggered by a partner’s sexual infidelity (a cue to paternity uncertainty), while female jealousy is triggered by emotional infidelity (a cue to the possible loss of commitment from a partner).

In Kinsey, Pomeroy and Martin’s (1953) investigation of divorces more than half of the men in the sample and less than a fourth of the women reported that a partner’s extramarital sex was a major cause of their marriage breakup. Similarly, several laws in a variety of cultures punish sexual infidelity from a woman without a parallel stipulation for men, and it has been shown that male efforts to control female sexuality are an overly represented motive of male homicides in the US as well as in Greece (Chimbos, 1998; Daly & Wilson, 1982). In a survey of Canadian young adults’ perceptions of marital problems, Boisvert, Ladouceur, Beaudry, Freeston, Turgeon, Tardif, Roussy, and Laranger (1995) found that jealousy was a significant problem in the marriages of these young adults, and that most people in the sample agreed that pre-marital counseling on the subject of jealousy would be helpful for newly wed couples.
A fascinating prediction from an evolutionary perspective is the asymmetric elicitation of jealousy in men and women. In an investigation of the incentive value of mating partners, Paul and Galloway (1994) found that sexual infidelity decreased a woman's mating value and was likely to cause a man's withdrawal from courtship. Male's sexual infidelity, on the contrary, elicited females' efforts to retain a partner and defeat a rival.

Buss et al. (1992) developed a forced-choice, prospective self-report methodology to test the evolutionary predictions about sex differences in the kind of infidelity that would elicit the most jealousy. Men and women were asked to imagine a romantic partner, (a) forming a deep emotional attachment to another person, and (b) enjoying passionate sexual intercourse with another person, and then to indicate which scenario would be the most distressing. They found that 83% of the women and only 19% of the men reported distress to emotional infidelity, and 60% of the men but only 17% of the women were distressed by a partner's sexual infidelity. Similarly, physiological measures of distress to both forms of infidelity revealed that electrodermal
activity, pulse rate, and brow contraction (electromyographic activity) was higher for males forming an image of a partner’s sexual infidelity, and women’s physiological measures of distress where higher in response to imagery about a partner’s emotional infidelity.

Extensions of the Buss et al. (1992) research on jealousy revealed that in the Netherlands, Germany, Korea and Japan (Buss et al. 1999; Buunk, Angleitner, Oubaid, & Buss, 1996) sexual infidelity is more distressing to men than to women, whereas emotional infidelity is more distressing to women than to men. Similarly, Abraham, Cramer, Fernandez and Mahler (2000) found the same patterns of sexual asymmetry in jealousy for African-American students. For example, 49% of the African-American women and 26% of the men reported more distress to emotional infidelity. Sexual infidelity was more distressing for 74% of the African-American men compared to 51% of the women.

Sex-Linked Beliefs and Jealousy

Presently, the study of jealousy has generated an ongoing controversy between scholars adhering to
evolutionary psychology and those claiming that culturally acquired sex-linked beliefs cause the sex differences in jealousy (Buss, Larsen & Westen, 1996; Buss & Shackelford, 1997; Buss et al., 1999; Cramer, Abraham, Johnson & Manning-Ryan, in press; Cramer, Manning-Ryan, Johnson, & Barbo, 2000; DeSteno & Salovey, 1996; Harris & Christenfeld, 1996; Pines & Friedman, 1998). An evolutionary perspective predicts that differences in jealousy among men and women are the result of evolved mate selection strategies. According to a social learning approach to romantic jealousy, however, "sex differences in jealousy are influenced by social norms that define for both men and women the situations that trigger jealousy and the appropriate responses" (Pines & Friedman, 1998, p.54).

Adherents to the social learning interpretation of the sex differences view the reported sexual asymmetries in jealousy as the result of a methodological flaw in the forced-choice procedure developed by Buss et al. (1992). DeSteno and Salovey's (1996) double-shot hypotheses (see also "the logical beliefs hypothesis", Harris & Christenfeld, 1996), for example, attribute the sex
differences in jealousy to the proposition that "individuals select as more distressing the type of infidelity they believe more implies the occurrence of the other" (p. 376). Because women have learned to believe that when emotional infidelity occurs, men are also likely to be sleeping with the rival, they are particularly distressed by emotional infidelity. Men, on the other hand, have learned to believe that when women are having sex they are also likely to be in love. Hence, in the force-choice format sexual infidelity is selected as the more distressing. DeSteno and Salovey (1996) propose that the non-independence of sexual and emotional infidelity cause the illusion of a sex-difference in infidelity choice. Harris and Christenfeld (1996) also add, "we suggest instead that men and women may be equally upset by each type of infidelity and that the crucial difference may lie in how much they think that each form of infidelity signals the other" (p.364).

DeSteno and Salovey (1996) replicated the forced-choice methodology and found the previously observed sexual asymmetry in distress to emotional and sexual infidelity. In addition, they asked men and women to
estimate the likelihood of two situations. Participants were asked to "assume that the initials B.F. referred to a typical member of the opposite sex" (p.368). Then they considered (a) "If B. F. develops a deep emotional attachment to someone of your gender, how likely is it that B. F. and this individual are now, or soon will be, sleeping together?" and (b) "If B. F. has slept with someone of your gender, how likely is it that B. F. is forming, or will form, a deep emotional attachment to this individual?" (p.368). In support of the double-shot hypothesis, women indicated that emotional infidelity signaled sexual infidelity more so than the reverse. For the men, however, each infidelity implied the other equally. Harris and Christenfeld (1996) provided additional support for the social learning perspective.

Evolutionary Psychologists Respond to Criticisms

Addressing the criticisms of an evolutionary perspective of the sexual differences in jealousy, Buss, Larsen, and Westen (1996) and Cramer, Abraham, Johnson, and Manning-Ryan (in press) used a novel strategy to test the double-shot hypothesis. That is, the researchers developed a methodology to test the alternative analysis.
against the evolutionary hypotheses. In addition to asking participants to respond to the forced-choice scenarios (Buss et al., 1992) and to DeSteno and Salovey's (1996) scenario, Buss et al. (1999) and Cramer et al. (in press) combined the infidelities to remove the possibility of generating sex-linked logical inferences between sexual and emotional infidelity. Cramer et al. (in press), for example, asked participants to "imagine your partner forming a deep emotional attachment to another person and also enjoying passionate sexual intercourse with that person." Participants were then asked to indicate which component of the combined infidelity was the most distressing? The researchers found the previously reported sex differences in subjective distress to sexual and emotional infidelity. A total of 40.6% of the women but only 13.3% of the men were more distressed by a partner's emotional infidelity when sexual infidelity had also occurred, and 86.7% of the men but only 59.9% of the women were more distressed by the sexual component of the combined infidelities. Buss et al. (1999) reported additional support for the evolutionary hypotheses.
Another critical test of the predictive scope of the evolutionary and social learning perspectives was offered by Cramer, Manning-Ryan, Johnson, and Barbo (2000). They juxtaposed sexual and emotional infidelity as well as other sex-linked violations-of-trust and asked students to indicate which infidelity or violation would cause the most distress. The other violations-of-trust, for instance, included a change in a partner’s attractiveness. Such a violation was predicted to violate men’s expectations regarding a mate’s appearance. However, a partner’s loss of economic security was predicted to be in conflict with women’s mating strategies. Results from the forced-choice methodology indicated that men were more distressed than women by sexual infidelity, a partner’s weight gain, and a partner’s inability to have sex. Women were more distressed than men by emotional infidelity, a partner losing their savings, and a partner’s loss of a job. Furthermore, the double-shot hypotheses was tested by estimating the conditional probabilities of each violation-of-trust implying the other one was true as well. Cramer et al. (2000) summarized their results by
arguing that "an explanation of sex differences in distress that focused on the within-sex learned relatedness of sexual and emotional infidelity, and the other sex-linked violations, was neither reliable nor an inclusive alternative to an evolutionary perspective" (p.109). Women, for example, did not logically infer that a partner’s loss of a job implied that he was also being sexually unfaithful. Thus, absence of a logical relationship between other sex-linked violations-of-trust fails to explain the sexual dimorphism predicted by evolutionary theory.

More recently, Buss et al. (1999) utilized four different strategies to test evolutionary hypotheses against the social learning analysis of the sex differences in jealousy. First, using the original forced-choice methodology, sex differences were consistent with previous results (Buss et al., 1992). Men were more distressed than women by a partner’s sexual infidelity, while women reported more distress than men to a partner’s emotional infidelity. And when the participants responded to mutually exclusive infidelities (the instructions explicitly referred to sexual but not
emotional infidelity, and vice versa), women were more distressed than men by emotional infidelity when sexual infidelity was not a factor, and more men than women were distressed by a partner's sexual involvement in the absence of emotional involvement. In addition, the respondent's sex predicted the choice of infidelity that was more distressing, while beliefs about the probability of both infidelities occurring simultaneously did not. Finally, Buss et al. (1999) replicated the previous procedures and results in two other cultures (Korea and Japan), strengthening evolutionary accounts of sex differences in jealousy.

Research Goals

In addition to investigating sex differences in jealousy from an evolutionary and social learning perspective, a supplementary challenge to an evolutionary perspective was introduced by using a sample of gay men and lesbians. The choice of a homosexual sample to inquire further into the mechanisms that differentiate the activation of jealousy in men and women is informed by evolutionary psychology and research in sexuality. Symons (1979), for example, explained that "the fact that
homosexual men behave in many ways like heterosexual men, only more so, and lesbians behave like heterosexual women, only more so, indicates that some aspects of human sexuality are not so plastic" (p. 304-305). An evolutionary analysis of jealousy predicts that gay men and lesbians should not differ much in their behavior from heterosexual men and women. Gay men are promiscuous in comparison to heterosexual males, while lesbians tend to form long-lasting relationships more so than heterosexual women. Symons (1979) argues that homosexual expression of sexuality brings about insight into the psychology of the sexes without the constraints imposed by the opposite sex.

Similarities between gay and heterosexual male desires regarding romantic partners follows from an evolutionary analysis. Gay and heterosexual men, for example, seek younger partners in advertisements (Hayes, 1995). Kenrick, Keefe, Bryan, Barr, and Brown (1995) also found similar age preferences in mate choice among gay and heterosexual men. They observed that gay and heterosexual men were interested in younger partners than themselves, and that the more men aged the more their
preference for youth increased. Jealousy among gay men is an important cause of conflict in their romantic relationships (Berman, 1996) just as it is in heterosexual relationships (Daly & Wilson, 1982). Heterosexual women and lesbians are in some aspects similar and in other aspects slightly different. Women, regardless of sexual orientation, liked partners older than themselves, but lesbians tended to prefer younger partners as they aged (Kenrick et al., 1995).

Bailey, Gaulin, Agyei, and Glaude (1994) studied sex differences among homosexuals and heterosexuals in various aspects of mating psychology. Relevant to the present research was their finding of the previously reported sex differences in distress to sexual and emotional infidelity. That is, women were more distressed than men by emotional infidelity, and more men than women were distressed by sexual infidelity. Gay men, on the other hand, reported less sexual jealousy than heterosexual men. Bailey et al. (1994) suggested that a challenge for evolutionary research is to determine the time in which differentiation of brain mechanisms that are sexually dimorphic occurs. They hypothesize that
"some aspects of mating psychology might be gender
typical even in individuals with gender atypical sexual
orientation" (p. 1084); those aspects that differentiate
earlier may be similar among heterosexuals and
homosexuals.

Because the present research was informed by an
evolutionary perspective, all primary tests involved
comparisons among gay men and lesbians.

Hypothesis 1. Biologically based patterns of
psychological distress would not be affected greatly by a
phenomenological factor such as sexual identity or
cultural influences (Buss & Schmitt, 1993). Hence, the
same patterns of sexual asymmetry in jealousy found among
heterosexuals in a homosexual sample were predicted. Gay
men were expected to be more distressed than lesbians by
imagining a partner's sexual infidelity. Lesbians were
expected to be more distressed than gay men by emotional
infidelity.

Hypothesis 2. Participants presented with Buss et
al.'s (1996) and Cramer et al.'s (2000) combined
infidelity procedure, in which both sexual and emotional
infidelities were assumed to have occurred, are predicted
to show the same pattern of sex differences in jealousy.
Hence, lesbians will be more distressed than gay men by
the emotional aspect of the combined infidelity. Gay men
will report more distress than lesbians to the sexual
aspect of the combined infidelity.

**Hypothesis 3.** Establishing the sexual and emotional
infidelities as mutually exclusive will not influence the
observation of sex differences in response to the
infidelities. Gay men, therefore, will be more distressed
than lesbians by a partner's sexual infidelity not
accompanied by emotional infidelity. Lesbians will report
more distress than gay men to a partner's emotional
infidelity, in the absence of sexual infidelity.

**Hypothesis 4.** As noted above, the double-shot
hypothesis (De Steno & Salovey, 1996) and the logical-
beliefs hypothesis (Harris & Christenfeld, 1996) have
been used as alternative explanations for the sexual
asymmetries in distress to emotional and sexual
infidelity in heterosexual relationships. In theory,
women are more distressed than men by emotional
infidelity because women have learned that men can have
sex and not be in love, but if a man is in love, he very
likely is also having sex. Men have learned that the opposite is true for women. Women who fall in love are not necessarily having sex, but women who are having sex, are very likely also in love. Hence, men are more distressed than women by sexual infidelity.

Hypothesis 4 is based on the assumption that gay men and lesbians make the same logical inferences as heterosexual women and men regarding sex and love. However, applying the double-shot hypothesis to infidelity in homosexual relationships yields different predictions compared to the ones derived for heterosexual relationships. The different predictions result from men and women possessing "common knowledge" about men and women, and sex and love. In short, it was assumed that men believe, as women believe, that a man can have sex without being in love and that a man who is in love is very likely also having sex. Furthermore, it was assumed that women believe, as men believe, that a woman can be in love without having sex and that a woman who is having sex is very likely also in love (see Buss et al., 1999).

Based on the logic of the double-shot hypothesis emotional infidelity should be especially distressing for
gay men because such an infidelity yields a "double-shot" of emotional and sexual unfaithfulness. In contrast, sexual infidelity should be especially distressing for lesbians because sexual infidelity yields a "double-shot" of sexual and emotional infidelity. Hypothesis 4 predicted, based on the double-shot hypothesis, that gay men will be more distressed than lesbians by emotional infidelity, and that lesbians will be more distressed than gay men by sexual infidelity. Hypothesis 4 is precisely the opposite of the first three hypotheses, and therefore, is incompatible with an evolutionary perspective.

METHOD

Participants

A total of 45 gay men (6 of which indicated a bisexual orientation) and 41 lesbians (7 of which indicated a bisexual orientation) recruited at various gatherings in the Los Angeles - San Bernardino area, participated in the study. Participants' age ranged from 19 to 52 years, with a mean of 32.01 for gay men and 30.98 for lesbians. The sample included 54 Caucasians (25
males and 29 females), 13 Hispanics (7 males and 6 females), 6 African Americans (3 males and 3 females), 6 Asians (5 males and 1 female) and 6 participants of other, non-White origin. The gay men in the sample had an average of 2 partners in the previous year, while the lesbians had an average of 1 partner in the previous year. Most participants were single, 47.7% not in a serious relationship (21 males and 20 females), and 34.9% in a serious relationship (17 males and 13 females).

Materials

Demographic questionnaire. Participants were asked to indicate their age, sexual orientation, relationship status, sexual experience, and ethnicity (see APPENDIX A).

Forced-choice scenario. The forced-choice strategy designed by Buss et al. (1992) was replicated. Participants were asked to imagine a committed relationship in which they discovered their partner became interested in someone else. Then they were asked to indicate which one of the following two scenarios (A or B) was most distressing: 1) (A) "Imagine your partner forming a deep emotional attachment with that person" or
(B) "Imagining your partner enjoying passionate sexual intercourse with that person" and 2) (A) "Imagining your partner trying different sexual positions with that other person" or (B) "Imagining your partner falling in love with that other person" (see Appendix A).

Combined infidelities. Participants were asked to imagine a partner engaging in sexual and emotional infidelity. Participants were asked to indicate which aspect of the infidelity was more upsetting: (A) "The sexual intercourse with that other person" or (B) "The emotional attachment to that other person" (see Appendix A).

Mutually exclusive infidelities. Four items adopted from Buss et al. (1999), asked participants to select the most distressing aspect of a partner’s infidelity when only sexual or emotional infidelity occur independently of each other. In the first scenario participants chose between: (A) "Imagining your partner forming a deep emotional attachment (but not a sexual relationship) with that person" or (B) "Imagining your partner enjoying a sexual relationship (but not becoming emotionally attached) with that person." The second item, asked
participants to indicate which was the most distressing: (A) "Imagining your partner having sexual intercourse with that person, but you are certain that they will not form a deep emotional attachment" or (B) "Imagining your partner forming a deep emotional attachment to that person, but you are certain that they will not have sexual intercourse." On the third item, participants selected the most distressing among: (A) "Imagining that your partner is still sexually interested in the former lover, but is no longer in love with this person" or (B) "Imagining that your partner is still emotionally involved with the former lover, but is no longer sexually interested in this person." The last combined item asked participants to select which was the most distressing: (A) "Imagining your partner having sexual intercourse for just one night with another person, with no chance of any emotional involvement" or (B) "Imagining your partner becoming emotionally involved with another person, with no chance of any sexual intercourse." (see Appendix A)

Beliefs about sexual and emotional infidelity.

Participants answered 12 questions regarding the
likelihood of sex implying emotional infidelity and vice versa on a 9-point scale anchored with the phrases 1 = definitely will not and 9 = definitely will. The instructions were similar across all the items, varying only the target of the question. For the first two questions, the target was a typical homosexual man, and for the following two the target was a typical homosexual woman. Participants were then asked 2 questions about their beliefs regarding a partner’s sexual and emotional infidelity implying each other type of infidelity, respectively. Two items targeted the participants themselves. Finally, the last two items replicated DeSteno and Salovey’s (1996) original conditional probabilities targeting a typical man and a typical woman (see APPENDIX A).

Procedure

Participants in this study received a consent form, a demographic survey, the measures, and a debriefing statement. They were asked to complete the survey at the site, individually, and return it to the experimenter when complete. The consent form stated that the purpose of the study was to “explore the relationships of
homosexual individuals and the issues that concern romantic relationships in general." Only participants who indicated a homosexual or bisexual sexual orientation were included in the study. After completing the questionnaire, the debriefing statement provided more detail about the purpose of the study: "we are trying to extend the current findings on heterosexual relationships and integrate the findings on homosexual relationships to obtain a complete account of relationship scenarios and the causes of jealousy."

RESULTS

Emotional and Sexual Infidelity

The results of chi-square tests failed to support the three hypotheses derived from an evolutionary perspective (see APPENDIX B, Table 1). That is, tests of which infidelity, emotional or sexual, caused the most distress revealed no sex differences among gay men and lesbians across the seven infidelity items. Most of the gay men (66.6%) and the lesbians (75.6%) were more distressed by emotional infidelity than by sexual infidelity when the infidelities were presented in the forced-choice format (Hypothesis 1), $\chi^2(1, N = 86) = .832,$
Similarly, 82.2% of the gay men and 85.4% of the lesbians were more distressed by imagining a partner falling in love with someone else than by imagining a partner trying different sexual position with someone else, \( \chi^2(1, N = 86) = .156, p > .05 \). When the infidelities were presented in a combined format (Hypothesis 2), 79.5% of the gay men and 77.5% of the lesbians were more distressed by the emotional component of the infidelity than by the sexual component, \( \chi^2(1, N = 86) = .052, p > .05 \).

Four items rendered the emotional and sexual infidelities mutually exclusive (Hypothesis 3). More gay men (68.9%) and lesbians (78%) were distressed by imagining a partner forming a deep emotional attachment but not a sexual relationship with another person, than by the reverse, \( \chi^2(1, N = 86) = .919, p > .05 \). More gay men (68.9%) and lesbians (68.3%) reported being distressed by imagining a partner forming a deep emotional attachment to another person not having sexual intercourse than by imagining the reverse, \( \chi^2(1, N = 86) = .004, p > .05 \). More gay men (68.9%) and lesbians (80.5%)
were distressed by imagining a partner still being emotionally involved with a former lover but no longer sexually interested in that person, than by the reverse, $\chi^2(1, N = 86) = 1.52$, $p > .05$. In the last item, 66.7% of the gay men and 65.9% of the lesbians were more distressed by imagining a partner becoming emotionally involved with another person with no chance of any sexual intercourse, than by imagining a partner having a one night sexual encounter with no chance of any emotional involvement, $\chi^2(1, N = 86) = .006$, $p > .05$.

Within-sex differences for the infidelity causing the most distress were consistent with the observations reported above. Chi-square tests on the infidelity choice causing the most distress revealed that gay men and lesbians were more distressed by emotional infidelity than by sexual infidelity across all seven items (see APPENDIX B, Table 2).

Beliefs About Typical Gay Men and Lesbians

Separate mixed-factor analyses of variance were conducted on the conditional probabilities of emotional involvement given sexual involvement (APPENDIX B, Table
Panel A shows that both gay men and lesbians believed that forming a deep emotional attachment was more likely to lead to sexual involvement when gay men, rather than lesbians, were involved, $F(1, 81) = 19.98, p < .001$. No main effect for sex-of-participant, $F(1, 81) = 1.68, p > .05$, or interaction, $F(1, 81) = 1.04, p > .05$, was found.

Panel B shows that gay men and lesbians held similar beliefs about the conditional probabilities of having sex and the likelihood that an emotional attachment will soon form. That is, the participants reported higher probabilities that sex would lead to emotional attachment when lesbians were involved, than when gay men were involved, $F(1, 81) = 81.24, p < .001$. Sex-of-participant did not yield a significant result, $F(1, 81) < 1$.

However, the interaction between the sex-of-participant and the sex-of-target was significant, $F(1, 81) = 6.87, p < .01$. In terms of the likelihood that sexual involvement
leads to emotional attachment among gay men, gay men reported that such a pattern was more likely than lesbians did. The opposite beliefs were found when the likelihood that sexual involvement leads to emotional attachment involved lesbians. Lesbians believed that sex was more likely to lead to love than gay men did.

The results reported above, especially the observed sex-of-target main effect, do not support the previously advanced argument that men and women have acquired sex-linked knowledge about the opposite sex (De Steno & Salovey, 1996; Harris & Christenfeld, 1996). Tests of the assumptions Hypothesis 4 is based on, nevertheless, require a more detailed analysis of the conditional probabilities. As assumed, gay men believed that a typical gay man who is in love is more likely to be having sex, than the reverse ($M = 7.30$ vs. $M = 4.67$, $t(44) = 7.16$, $p < .001$). Lesbian participants supported the gay men’s beliefs about typical gay men ($M = 7.55$ vs. $M = 4.10$, $t(39) = 8.23$, $p < .001$). Both gay men and lesbians agreed that, for a typical lesbian, falling in love and then having sex was not more likely or less likely, than the reverse ($t_s < 1$).
Beliefs About Typical Heterosexual Men and Women

Separate mixed-factor analyses of variance were conducted on the conditional probabilities of emotional involvement given sexual involvement (APPENDIX B, Table 4, panel A), and sexual involvement given emotional involvement (APPENDIX B, Table 4, panel B). In both analyses the between factor was sex-of-participant and the repeated factor was sex-of-target (i.e., a typical heterosexual man or woman). No main effects or interactions were found when the conditional probabilities linking emotional attachment leading to sexual involvement were analyzed (Panel A, $p > .05$).

A significant main effect for sex-of-target was found (Panel B) when the conditional probabilities of sexual involvement leading to emotional attachment were analyzed, $F(1, 78) = 40.72, p < .001$. Gay men and lesbians believed that sexual involvement was more likely to lead to emotional attachment when heterosexual women, rather than heterosexual men, were involved. Neither the sex-of-participant nor the interaction was statistically significant ($p > .05$).
Gay men and lesbians, consistent with the assumption of Hypothesis 4, agreed in their beliefs that a typical heterosexual man who falls in love is probably also having sex, more so than the reverse. For gay men: $M = 6.55$ vs. $M = 4.24$, $t(42) = 5.05$, $p < .001$; for lesbians: $M = 6.79$ vs. $M = 4.13$, $t(37) = 5.19$, $p < .001$. For a typical heterosexual woman, falling in love and having sex were not logically linked by either gay men or lesbians ($t_s > 1$).

**Beliefs About a Partner**

The conditional probabilities of the participants' romantic partner's emotional attachment leading to sexual involvement and sexual involvement leading to emotional attachment were analyzed (see APPENDIX B, Table 5). Sex-of-participant was the between factor and belief sequence (i.e., emotion leads to sex; sex leads to emotion) was the repeated factor. The results revealed that gay men and lesbians believe that emotional attachment was more likely to lead to sexual involvement rather than the reverse, $F(1, 84) = 3.41$, $p < .07$. A significant interaction was also found, $F(1, 84) = 19.14$, $p < .000$. An inspection of the cell means revealed that gay men
believed that their romantic partner's emotional attachment was more likely to lead to sexual involvement rather than the reverse; lesbians believed just the opposite. That is, for lesbians a partner's sexual involvement is likely to lead to emotional attachment rather than reverse.

Gay men reported, consistent with the assumptions of Hypothesis 4, that if their partners were in love they would be more likely to be having sex than the reverse (M = 6.02 vs. M = 3.80, t(44) = 4.63, p < .001). Support for the assumptions of Hypothesis 4 was also found in the lesbian sample when a romantic partner's behavior was rated. That is, lesbians believed that a partner who was having sex was more likely to be in love than the reverse (M = 5.83 vs. M = 4.93, t(40) = -1.70, p < .05).

Beliefs About Yourself

The conditional probabilities of the participant's own emotional attachment to another person leading to sexual involvement, and sexual involvement with another person leading to emotional attachment were analyzed (see APPENDIX B, Table 6). Sex-of-participant was the between factor and belief sequence (i.e., emotion leads to sex;
sex leads to emotion) was the repeated factor. The results revealed that gay men and lesbians believed that their own emotional attachment to another person was more likely to lead to sexual involvement rather than the reverse, $F(1, 84) = 25.49, p < .001$. A significant interaction was also observed, $F(1, 84) = 11.81, p < .000$. The interaction can be interpreted by recognizing that for gay men, their emotional attachment to another person was seen as more likely to lead to sexual involvement rather than the reverse. For lesbians the belief sequence did not predict different conditional probabilities.

Consistent with the assumptions of Hypothesis 4, gay men reported that if they were in love they would be more likely to be having sex than the reverse ($M = 6.93$ vs. $M = 3.98$, $t(42) = 6.95, p < .001$). In the lesbian sample falling in love and having sex were not predictably linked when their own behavior was evaluated ($M = 5.98$ vs. $M = 5.42$, $t(40) = 1.01, p > .05$).

DISCUSSION

In the present study, an evolutionary psychology perspective and social learning, represented by the double-shot hypothesis, were juxtaposed to predict and
explain sexual dimorphism in cues to jealousy. Previous research involving jealousy among heterosexual men and women led to very different explanations for identical observations of sexual dimorphism in cues to jealousy. Evolutionary psychologists and adherents of the double-shot hypothesis both predicted that emotional infidelity would be more distressing for females than for males, and that sexual jealousy would be more distressing for males than for females. Nevertheless, evolutionary psychology explains differences in jealousy in terms of evolved sexual differences, and social learning contends that acquired beliefs, rather than evolved mechanisms, account for the sexual asymmetries in jealousy.

Evolutionary theorists, for example, rely strongly on the influences of biology and evolution to account for the shape of the human mind. They propose that historically recurring adaptive problems have resulted in the psychology of the sexes being dimorphic. In theory, male psychology is shaped to quickly react to cues that indicate a partner’s sexual infidelity because it threatens paternity certainty, a man’s opportunity to pass his genes to future generations. Women on the other
hand, react more to emotional unfaithfulness because such a threat to a partner's commitment could lead to a decreased likelihood of raising a healthy child. Therefore, sex differences in cues to jealousy are related to evolved biological differences that trigger the emotion of jealousy in men and women (Buss, 1994; Symons, 1979).

Social learning theorists, in contrast, interpret the sex differences in jealousy as the result of cultural socialization practices shaping the psychology of men and women in unique ways. This alternative analysis argues that the sex differences in jealousy result from the particular attributions the sexes make in response to sexual and emotional infidelity. According to the double-shot hypothesis, for example, women have learned to react with strong jealousy to a partner's emotional infidelity because women believe a man's emotional attachment implies the co-occurrence of sexual involvement. In contrast, men who are having sex are not necessarily also in love. Since men have learned that when women engage in sexual intimacy they are probably also in love, men experience jealousy more strongly in response to sexual
infidelity (De Steno & Salovey, 1996; Harris & Christenfeld, 1996).

Arguably, a romantic relationship involving two people of the same-sex can serve as a "natural control" for studying social processes like jealousy. From an evolutionary perspective, the sex differences found among heterosexual men and women should also be observed among gay men and lesbians (Hypotheses 1, 2, and 3). In homosexual relationships, however, beliefs about a partner can be differentiated from beliefs about the opposite sex, and therefore, predictions about jealousy derived from social learning are expected to be different (Hypothesis 4). Therefore, the sample used in the present study provided a critical test of the two perspectives in terms of accounting for sex differences in cues to jealousy.

**Hypothesis 1**

The test of Hypothesis 1 involved distress judgments using the original forced-choice scenario (APPENDIX B, Items 1 and 2). From an evolutionary perspective on jealousy, it was predicted that gay men would be more distressed than lesbians by sexual infidelity. In
contrast, lesbians were predicted to be more distressed than gay men by emotional infidelity. The results failed to support the predicted sex differences. Gay men were not more distressed than lesbians by sexual infidelity, and lesbians were not more distressed than gay men by emotional infidelity. In fact, both gay men and lesbians found emotional infidelity more distressing than sexual infidelity.

Hypothesis 2

The results of tests of Hypothesis 2 were consistent with the analyses of Hypothesis 1. When the infidelities were presented in a combined format (APPENDIX B, Item 3), gay men were not more distressed than lesbians by the sexual component. In addition, lesbians were not more distressed than gay men by the emotional component of the combined infidelity. Within-sex comparisons indicated that both gay men and lesbians found the emotional component more distressing than the sexual component.

Hypothesis 3

When the sexual and emotional infidelities were rendered mutually exclusive (APPENDIX B, Items 4-7), the distress results failed to support Hypothesis 3. Gay men
were not more distressed than lesbians by sexual infidelity in the absence of emotional infidelity. Lesbians were not more distressed than gay men by emotional infidelity in the absence of sexual infidelity. Finally, gay men and lesbians were more distressed by emotional infidelity in the absence of sexual infidelity, than by the reverse.

The previously reported sex differences in cues to jealousy among heterosexual men and women were not replicated using a homosexual sample. Tests of Hypotheses 1, 2 and 3 revealed that gay men like lesbians were more distressed by emotional infidelity than by sexual infidelity. These differences were observed across the forced-choice, combined and mutually exclusive infidelity formats. For the lesbian sample, however, this pattern of results is consistent with the "strong hypothesis" advocated by Hupka and Bank (1996). These authors argued that comparing men and women represented "weak" hypotheses and that the within-sex comparisons represented "stronger" hypotheses regarding subjective distress to emotional and sexual infidelity.
Although the results failed to support hypotheses regarding sex-differences in jealousy derived from an evolutionary perspective, the results are, nevertheless, consistent with some reported research using heterosexual men and women. That is, the significant sex differences in heterosexual jealousy have often been driven by a strong tendency among females to be more distressed by emotional infidelity than men are distressed by sexual infidelity (see Buss et al., 1992; Buss, Larsen & Westen, 1996; Buunk et al., 1996; Cramer, Abraham, Fernandez & Mahler, 2000; De Steno & Salovey, 1996). Consistent with the heterosexual women measured in the previously reported research, lesbians in the present sample reported significantly more distress to emotional infidelity than to sexual infidelity.

Interestingly, gay men in the present study responded very similar to heterosexual Dutch, German and Chinese men (Buunk et al., 1996; Geary, Rumsey, Bow-Thomas & Hoard, 1995). That is, like gay men, these heterosexual men were more distressed by emotional infidelity than by sexual infidelity: 75% of Dutch men, 70% of German men and 75% of Chinese men. Despite these
within-sex differences, however, cross-cultural evidence supporting the predicted sex differences in cues to jealousy was reported. One explanation for the smaller magnitude in the sex differences found among international men and women rested on culturally based egalitarian attitudes (Buunk et al., 1996). A post-hoc explanation of the present results could therefore be that gay men and lesbians share more egalitarian attitudes than do heterosexual men and women in the United States. Future research should be conducted to investigate the moderating effects of egalitarian attitudes on sex differences in subjective distress to emotional and sexual infidelity.

Hypothesis 4

Hypothesis 4 was the present study's most unique prediction. It was predicated on the assumption that the double-shot hypothesis is essentially accurate regarding what men and women have learned about the relationship between sex and love. Hypothesis 4 was based on the additional assumption that gay men share with women the belief that a man who is in love is also likely to be having sex: the “double shot.” In addition, Hypothesis 4
was based on the additional assumption that lesbians share with men the belief that a woman who is having sex is also likely to be in love: the "double shot." Hence, gay men were predicted to be more distressed than lesbians by emotional infidelity. For lesbians, exactly the opposite was hypothesized. Lesbians were predicted to be more distressed than gay men by sexual infidelity.

The results of the study yielded partial support for the extension of the double-shot hypothesis, but unfortunately no support for Hypothesis 4. The predicted sex differences were not observed. Indeed, the results described above indicated that gay men and lesbians did not differ in their reported subjective distress to emotional or sexual infidelity. Both gay men and lesbians were more distressed by emotional infidelity than by sexual infidelity.

**Beliefs about typical gay men and lesbians.** Consistent with the extension of the double-shot hypothesis, gay men and lesbians strongly believed that a typical gay man who is in love is also likely to be having sex, more so than the reverse. Hence, the extension of the double-shot hypothesis is consistent
with the within-sex finding that gay men’s subjective
distress to a partner’s emotional infidelity was stronger
than to a partner’s sexual infidelity.

Lesbians and gay men’s beliefs about typical
lesbians did not conform to the double-shot hypothesis
extension. No systematic relationship for beliefs
regarding the likelihood that sex leads to love or that
love leads to sex was found among the participants.
Hence, lesbians’ beliefs about the relationship between
love and sex, at least for the typical lesbian, cannot be
linked to their within-sex choice of emotional infidelity
being more distressing than sexual infidelity.

Beliefs about heterosexual men and women. Gay men
and lesbians shared the same beliefs about the likely co-
occurrence of sexual and emotional involvement in
heterosexual men and women. The participants believed
that a typical heterosexual man who is in love is also
likely to be having sex, more so than the reverse. No
systematic beliefs about the relationship between sex and
love was found for the typical heterosexual woman.

Beliefs about a partner. Consistent with the
extension of the double-shot hypothesis, gay men believed
that their partner’s emotional involvement with another man was more likely to include sex than his sexual involvement was likely to include love. Gay men’s beliefs about their partners can easily be applied to their reports that emotional infidelity was more distressing than sexual infidelity. Also consistent with the extension, lesbians believed that a partner’s sexual involvement with another woman was more likely to include love than her emotional involvement was likely to include sex. Unfortunately, their reports regarding which infidelity was the most distressing did not conform to the pattern of these beliefs.

Beliefs about yourself. The beliefs of gay men, once again, conformed to the extension of the double-shot hypothesis. They believed that their own emotional involvement with another man was more likely to include sex than their sexual involvement was likely to include love. In contrast, lesbians did not predictably link their beliefs about their own emotional and sexual involvement with another woman.

In summary, the results revealed that gay men and lesbians shared beliefs about the relationship between
love and sex involving homosexual and heterosexual men. Consistent with the extension of the double-shot hypothesis, the participants believed that men who are in love are more likely to also be having sex, more so than the reverse. Gay men, in contrast with lesbians, reported the same beliefs about a partner's infidelity and about their own infidelity. Lesbians reported no systematic beliefs about the relationship between love and sex when a typical lesbian, a typical heterosexual woman, or she herself was involved. However, consistent with the extension of the double-shot hypothesis, lesbians believed that a partner's sexual involvement was more likely to include love than her emotional involvement was likely to include sex. Additional research could validate the similarities and clarify the differences in beliefs about love and sex observed among gay men and lesbians.

An Alternative Explanation

Lesbians responded to a partner's imagined infidelities in a manner consistent with the previously reported responses of heterosexual women. However, the within-sex distress responses of gay men did not conform to the previously reported responses of heterosexual men.
in the United States. Gay men reported more distress to emotional infidelity than to sexual infidelity across all item formats. Although gay men believed that, for men, it is more likely that love includes sex (the double-shot) than sex includes love, there may be an alternative explanation for the distress results based on the psychology of gay males. Perhaps, gay men's higher distress to emotional infidelity than to sexual infidelity was the result of their strong acceptance of extra-dyadic sexual behavior.

Bringle (1995) notes, "homosexual and heterosexual men do differ in the desire for sexual exclusivity, with homosexual men reporting more permissive attitudes and behaviors" (p. 314). It is possible that the choice of an alternative life style or the biological predisposition to homosexuality or both may have an impact in the psychology of gay men's jealousy, diverting it from the heterosexual males' focus on sexual fidelity. For example, gay men in a relationship may not easily achieve high levels of commitment, and therefore they may feel less threatened by sexual infidelity. Indeed, Bringle (1995) reported that the only variable related to
increased sexual jealousy among gay men was the
respondent's relative involvement in the relationship
(i.e., dependency). Future research on the cues to
jealousy in gay males is required to clarify the
contributions of an evolutionary perspective, the double-
shot hypothesis, and an alternative explanation that
focuses on the acceptance of sexual openness and the
detachment of love and sex.
APPENDIX A

Informed Consent

This study is being conducted by Ana Maria Fernandez under the supervision of Professor Robert Cramer. In this study you will be asked to answer some general questions about relationship scenarios. The research is designed to explore the relationships of homosexual individuals and the issues that concern romantic relationships in general.

This research has been approved by the Department of Psychology Human Subjects Review Board. The study involves answering a brief demographic survey and a questionnaire and should take about 15 minutes to complete.

Any information you provide will be anonymous. At no time will your name be requested throughout the study. All data will be reported in group form only. At the study’s conclusion you may receive a report of the results.

There are no foreseeable risks to you for participating in the study.

If you have any questions regarding the study or if you would like a report of the results, please contact Professor Robert Cramer at (909) 880 - 5576.

Your participation in this research is voluntary. You are free to withdraw, without penalty, or remove any data you have provided, at any time during this study. You are free to skip any question you prefer not to answer.

By placing a mark in the space below, I acknowledge that I have been informed of, and understand, the nature and purpose of this study, and freely consent to participate. By this mark I further acknowledge that I am at least 18 years of age.

Give your consent to participate by marking a check ✓ here ___

Today’s date is __________________________
Demographic Questionnaire

1. Your Sex (Please Circle)  Male  Female

2. Age (in years)  ________

3. Sexual Preference (Please Check One)
   Homosexual  ________
   Bisexual     ________
   Heterosexual ________

4. Relationship Status (Please Check One)
   Single, not in a serious relationship  ________
   Single, in a serious relationship     ________
   Married                               ________
   Divorced                             ________
   Other                                ________

5. Please indicate the number of partners you have had in the previous year
   0 partners  ________
   1-2 partners ________
   3-6 partners  ________
   7-15 partners ________
   15 or more partners ________

6. Indicate the race/ethnicity you most identify with (Please Check One)
   African-American  ________
   American Indian   ________
   Asian             ________
   Caucasian         ________
   Hispanic          ________
   Other Non-White   ________
   Pacific Islander  ________
Infidelity Items

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.

1. What would upset or distress you more? (Please circle letter A or B):

   A. Imagining your partner forming a deep emotional attachment with that person.

   B. Imagining your partner enjoying passionate sexual intercourse with that person.

2. What would upset or distress you more? (Please circle letter A or B):

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

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

   Imagine that your partner both formed an emotional attachment to another person and had sexual intercourse with that other person.

3. Which aspect of your partner’s involvement would upset you more? (Please circle letter A or B):

   A. The sexual intercourse with that other person.

   B. The emotional attachment to that other person.
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.

4. What would upset or distress you more? (Please circle letter A or B):
   
   A. Imagining your partner forming a deep emotional attachment (but not a sexual relationship) with that person.
   
   B. Imagining your partner enjoying a sexual relationship (but not becoming emotionally attached) with that person.

5. Which would upset or distress you more? (Please circle letter A or B):
   
   A. Imagining your partner having sexual intercourse with that person, but you are certain that they will not form a deep emotional attachment.
   
   B. Imagining your partner forming a deep emotional attachment to that person, but you are certain that they will not have sexual intercourse.

6. Which would upset or distress you more? (Please circle letter A or B):
   
   A. Imagining that your partner is still sexually interested in the former lover, but is no longer in love with this person.
   
   B. Imagining that your partner is still emotionally involved with the former lover, but is no longer sexually interested in this person.
7 Which would upset or distress you more? (Please circle letter A or B):
A. Imagining your partner having sexual intercourse for just one night with another person, with no chance of any emotional involvement.

B. Imagining your partner becoming emotionally involved with another person, with no chance of any sexual intercourse.
Beliefs Items – Gay Men Format

The following questions will ask you about how likely a typical homosexual man is to act in certain ways. Assume that the letters C. G. refer to a typical homosexual man. Please circle the number that best indicates your answer.

8. If C. G. develops a deep emotional attachment to another man, how likely is it that C. G. and the man are now, or soon will be, having sex?

Definitely 1 2 3 4 5 6 7 8 9 Definitely will will not

9. If C. G. has had sex with another man, how likely is that C. G. is forming, or soon will form, a deep emotional attachment to the man?

Definitely 1 2 3 4 5 6 7 8 9 Definitely will will not

The following questions will ask you about how likely a typical homosexual woman is to act in certain ways. Assume that the letters B. F. refer to a typical homosexual woman. Please circle the number that best indicates your answer.

10. If B. F. develops a deep emotional attachment to another woman, how likely is it that B. F. and the woman are now, or soon will be, having sex?

Definitely 1 2 3 4 5 6 7 8 9 Definitely will will not

11. If B. F. has had sex with another woman, how likely is that B. F. is forming, or soon will form, a deep emotional attachment to the woman?

Definitely 1 2 3 4 5 6 7 8 9 Definitely will will not
The following questions will ask you about how likely your romantic partner is to act in certain ways. Please circle the number that best indicates your answer.

12. If your partner develops a deep emotional attachment to another man, how likely is it that your partner and the other individual are now, or soon will be, having sex?

definitely 1 2 3 4 5 6 7 8 9 definitely will
will not

13. If your partner has sex with another man, how likely is it that your partner and the other individual are now, or soon will be, in love?

definitely 1 2 3 4 5 6 7 8 9 definitely will
will not

The following questions will ask you how likely you are to act in certain ways. Please circle the number that best indicates your answer.

14. If you develop a deep emotional attachment to another man, how likely is it that you and this other individual are now, or soon will be, having sex?

definitely 1 2 3 4 5 6 7 8 9 definitely will
will not

15. If you have sex with another man, how likely is it that you and this other individual are now, or soon will be, in love?

definitely 1 2 3 4 5 6 7 8 9 definitely will
will not
The following questions will ask you about how likely a typical heterosexual man is to act in certain ways. Assume that the letters C. F. refer to a typical heterosexual man. Please circle the number that best indicates your answer.

16 If C. F. develops a deep emotional attachment to a woman, how likely is it that C. F. and the woman are now, or soon will be, having sex?

definitely 1 2 3 4 5 6 7 8 9 definitely will will not

17 If C. F. has had sex with a woman, how likely is that C. F. is forming, or soon will form, a deep emotional attachment to the woman?

definitely 1 2 3 4 5 6 7 8 9 definitely will will not

The following questions will ask you about how likely a typical heterosexual woman is to act in certain ways. Assume that the letters B. G. refer to a typical heterosexual woman. Please circle the number that best indicates your answer.

18 If B. G. develops a deep emotional attachment to a man, how likely is it that B. G. and the man are now, or soon will be, having sex?

definitely 1 2 3 4 5 6 7 8 9 definitely will will not

19 If B. G. has had sex with a man, how likely is that B. G. is forming, or soon will form, a deep emotional attachment to the man?

definitely 1 2 3 4 5 6 7 8 9 definitely will will not
Debriefing Statement

This research was designed to study the causes of jealousy in homosexual relationships. We are trying to extend the current findings on heterosexual relationships and integrate the findings on homosexual relationships to obtain a complete account of relationship scenarios and the causes of jealousy.

All responses will be analyzed in a group form in order to insure the complete anonymity of your responses. At no time will your responses be linked to you specifically.

The results of this study will be available approximately the spring of 2001. If you have any questions regarding this study or if you would like to obtain the results, please contact Professor Robert Cramer at (909) 880-5576.

For methodological purposes, please do not discuss the nature of this study with other potential participants. Doing so can invalidate your responses.

Your participation is greatly appreciated.
APPENDIX B

Table 1

Frequency of Infidelity Choices Causing the Most Distress
Among Gay Men and Lesbians

<table>
<thead>
<tr>
<th>Item</th>
<th>Format</th>
<th>Gay Men</th>
<th></th>
<th>Lesbians</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Emotion</td>
<td>Sex</td>
<td>Emotion</td>
<td>Sex</td>
</tr>
<tr>
<td>1</td>
<td>Emotional Attachment or Sexual Intercourse</td>
<td>30</td>
<td>15</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Sexual Positions or Falling in Love</td>
<td>37</td>
<td>8</td>
<td>35</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Combined Sex and Love</td>
<td>35</td>
<td>9</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Emotional Attachment but not a Sexual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relationship or the Reverse</td>
<td>31</td>
<td>14</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Sex without Love or Love without Sex</td>
<td>31</td>
<td>14</td>
<td>28</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>Sexually Interested but no longer in Love</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>or the Reverse</td>
<td>31</td>
<td>14</td>
<td>33</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>Sex for one night without Emotional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Involvement or the Reverse</td>
<td>30</td>
<td>15</td>
<td>27</td>
<td>14</td>
</tr>
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</table>
Table 2
Percentage of Gay Men and Lesbians Choosing Infidelity Causing the Most Distress

<table>
<thead>
<tr>
<th>Item</th>
<th>Format</th>
<th>Emotion</th>
<th>Sex</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Emotional Attachment or Sexual Intercourse</td>
<td>66.6</td>
<td>33.4</td>
<td>5.0*</td>
</tr>
<tr>
<td>2</td>
<td>Sexual Positions or Falling in Love</td>
<td>82.2</td>
<td>17.8</td>
<td>18.69**</td>
</tr>
<tr>
<td>3</td>
<td>Combined Sex and Love</td>
<td>79.5</td>
<td>20.5</td>
<td>15.36**</td>
</tr>
<tr>
<td>4</td>
<td>Emotional Attachment but not a Sexual Relationship or the Reverse</td>
<td>68.9</td>
<td>31.1</td>
<td>6.42*</td>
</tr>
<tr>
<td>5</td>
<td>Sex without Love or Love without Sex</td>
<td>68.9</td>
<td>31.1</td>
<td>6.42*</td>
</tr>
<tr>
<td>6</td>
<td>Sexually Interested but no longer in Love or the Reverse</td>
<td>68.9</td>
<td>31.1</td>
<td>6.42*</td>
</tr>
<tr>
<td>7</td>
<td>Sex for one night without Emotional Involvement or the Reverse</td>
<td>66.7</td>
<td>33.3</td>
<td>15.24**</td>
</tr>
</tbody>
</table>
Table 2. cont.

<table>
<thead>
<tr>
<th>Item</th>
<th>Format</th>
<th>Emotion</th>
<th>Lesbians</th>
<th>Sex</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Emotional Attachment or Sexual Intercourse</td>
<td>75.6</td>
<td>24.4</td>
<td>10.76**</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sexual Positions or Falling in Love</td>
<td>85.4</td>
<td>14.6</td>
<td>20.51**</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Combined Sex and Love</td>
<td>77.5</td>
<td>22.5</td>
<td>12.10**</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Emotional Attachment but not a Sexual Relationship or the Reverse</td>
<td>78.0</td>
<td>22.0</td>
<td>12.90**</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sex without Love or Love without Sex</td>
<td>68.3</td>
<td>31.7</td>
<td>5.49*</td>
<td></td>
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<tr>
<td>6</td>
<td>Sexually Interested but no longer in Love or the Reverse</td>
<td>80.5</td>
<td>19.5</td>
<td>5.0*</td>
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<tr>
<td>7</td>
<td>Sex for one night without Emotional Involvement or the Reverse</td>
<td>65.9</td>
<td>34.1</td>
<td>4.12*</td>
<td></td>
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</tbody>
</table>

Note. *p < .05. **p < .01.
### Table 3
Beliefs About Conditional Probabilities of Emotional and Sexual Involvement as a Function of Sex of Participant and Sex of Target

<table>
<thead>
<tr>
<th>Participants</th>
<th>Gay Men</th>
<th>Lesbians</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SE)</td>
<td>M (SE)</td>
</tr>
<tr>
<td>A. Love leads to sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gay Men</td>
<td>7.30 (.31)</td>
<td>7.55 (.38)</td>
</tr>
<tr>
<td>Lesbians</td>
<td>6.07 (.29)</td>
<td>6.78 (.30)</td>
</tr>
<tr>
<td>Marginal Means</td>
<td>6.69</td>
<td>7.16</td>
</tr>
</tbody>
</table>

| B. Sex leads to love | Marginal Means |         |          |
| Target               |         |          |
| Gay Men              | 4.67 (.31) | 4.10 (.32) | 4.39 |
| Lesbians             | 6.42 (.30) | 7.28 (.31) | 6.85 |
| Marginal Means       | 5.55     | 5.69     |

Note. Scores ranged from 1 to 9.
Table 4

Beliefs About Conditional Probabilities of Emotional and Sexual Involvement as a Function of Sex of Participant and Sex of Heterosexual Target

<table>
<thead>
<tr>
<th>Participants</th>
<th>Gay Men</th>
<th>Lesbians</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SE)</td>
<td>M (SE)</td>
</tr>
</tbody>
</table>

A. Love leads to sex

<table>
<thead>
<tr>
<th>Target</th>
<th>M (SE)</th>
<th>M (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterosexual Men</td>
<td>6.55 (.37)</td>
<td>6.79 (.39)</td>
</tr>
<tr>
<td>Heterosexual Women</td>
<td>6.45 (.35)</td>
<td>6.42 (.33)</td>
</tr>
<tr>
<td>Marginal Means</td>
<td>6.50</td>
<td>6.61</td>
</tr>
</tbody>
</table>

B. Sex leads to love

<table>
<thead>
<tr>
<th>Target</th>
<th>M (SE)</th>
<th>M (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterosexual Men</td>
<td>4.24 (.34)</td>
<td>7.55 (.36)</td>
</tr>
<tr>
<td>Heterosexual Women</td>
<td>6.07 (.34)</td>
<td>6.78 (.35)</td>
</tr>
<tr>
<td>Marginal Means</td>
<td>5.13</td>
<td>5.16</td>
</tr>
</tbody>
</table>

Note. Scores ranged from 1 to 9.
Table 5

Beliefs About Conditional Probabilities of a Partner's Emotional and Sexual Involvement as a Function of Belief Sequence

<table>
<thead>
<tr>
<th>Participant</th>
<th>Belief Sequence</th>
<th>Emotion to Sex</th>
<th>Sex to Emotion</th>
<th>Marginal Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Belief Sequence</td>
<td>M (SE)</td>
<td>M (SE)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emotion to Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sex to Emotion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gay Men</td>
<td>6.02 (.43)</td>
<td>3.80 (.35)</td>
<td></td>
<td>4.91</td>
</tr>
<tr>
<td>Lesbians</td>
<td>4.93 (.45)</td>
<td>5.83 (.37)</td>
<td></td>
<td>5.38</td>
</tr>
<tr>
<td>Marginal Means</td>
<td>5.48</td>
<td>4.82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Scores ranged from 1 to 9.
Table 6

Beliefs About Conditional Probabilities of the Participant's Own Emotional and Sexual Involvement as a Function of Belief Sequence

<table>
<thead>
<tr>
<th>Belief Sequence</th>
<th>Emotion to Sex</th>
<th>Sex to Emotion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SE)</td>
<td>M (SE)</td>
</tr>
<tr>
<td>Participant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gay Men</td>
<td>6.93 (.37)</td>
<td>3.98 (.36)</td>
</tr>
<tr>
<td>Lesbians</td>
<td>5.98 (.38)</td>
<td>5.42 (.37)</td>
</tr>
<tr>
<td>Marginal Means</td>
<td>6.45</td>
<td>4.70</td>
</tr>
</tbody>
</table>

Note. Scores ranged from 1 to 9.
REFERENCES CITED


