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Jealousy: Evidence of strong sex differences using both forced choice and continuous measure paradigms

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ABSTRACT

Despite some controversy about sex differences in jealousy, data largely support that sex differences studied with the forced choice (FC) paradigm are robust: Men, relative to women, report greater jealousy in response to sexual infidelity than in response to emotional infidelity. Corresponding sex differences for continuous measures of jealousy typically have been less robust in the literature. A large sample of Norwegian students (N = 1074) randomly responded to either FC or continuous measure questionnaires covering four infidelity scenarios. Large, comparable, theoretically-predicted sex differences were evident for both FC and continuous measures. Relationship status, infidelity experiences, and question order manipulation (activation) did not consistently influence the sex differences for either measure, nor did individual differences in sociosexual orientation or relationship commitment. These large sex differences are especially noteworthy as they emerge from a highly egalitarian nation with high paternal investment expectancy, and because they contradict social role theories that predict a diminution of psychological sex differences as gender economic equality increases.

1. Introduction

Evolutionary psychologists have hypothesized that romantic jealousy is an evolved adaptation designed to protect the bond between mates, fend off mate poachers, and retain access to reproductively-relevant resources possessed by the mate (Buss, 2013; Buss, Larsen, Westen, & Semmelroth, 1992; Daly, Wilson, & Weghorst, 1982; Maner & Shackelford, 2008). Jealous emotions are activated by cues to a partner's infidelity or defection, such as time and resource investment in other relationships. If these threats did not elicit jealous emotions in men and women (i.e., indifference) the reproductive costs would be high. Thus, jealousy is considered to be a basic and necessary emotion for reaping the value inherent in high-investment mating relationships (Buss, 2013; Buss et al., 1999).

Evolutionary theory only expects the sexes to differ in domains where the sexes have met different adaptive problems over evolutionary time (Buss, 1995; Kennair, 2002; Neuberg, Kenrick, & Schaller, 2010; Symons, 1979). Different threats to relationships have posed different adaptive problems for men and women. Sex differences in the psychological design of jealousy are predicted by sex differences in adaptive problems such as paternity certainty for men and father investment for women (Buss & Haselton, 2005; Trivers, 1972). Internal female fertilization leads to the male-specific problem of paternity uncertainty. Consequently, men relative to women have been predicted to possess a psychology that is more strongly activated by the sexual components of a partner's infidelity. Although no woman ever faced the adaptive problem of maternity uncertainty due to a partner's infidelity, women have risked the diversion of a partner's time, attention, energy, effort, and resources, all of which could get channeled to a rival woman and her offspring. Consequently, women relative to men have been predicted to have jealousy design features that are more strongly activated by cues to emotional infidelity—a key predictor of the diversion of those resources (Buss & Haselton, 2005; Daly et al., 1982; Symons, 1979). Two major measurement paradigms have been applied to assess sex differences in what aspect of infidelity that activates jealousy. On the one hand, robust sex differences supporting the evolutionary hypothesis are shown when using forced choice measures, whereas the use of continuous measures has shown less consistent results. This has spurred some controversy.

Within *the forced choice methodology* (Buss et al., 1992, 1999) participants are confronted with one or more hypothetical infidelity scenarios. They must choose one of two options regarding which aspect of the infidelity that upset or distress them most (make them most jealous), either the sexual or the emotional. DeSteno, Bartlett, Braverman, and Salovey (2002) have argued for the alternative *continuous measures* as a more ecological valid alternative to the forced choice methodology. They claim that the forced choice paradigm does not reflect real life decision making; producing artificial sex differences. They suggest that people are seldom put in a position where we are forced to choose

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between what is most distressing, either sexual infidelity or emotional infidelity.

1.1. Findings using forced choice measures

Carpenter (2012) reported a moderate overall sex difference in sexual jealousy responses supporting the evolutionary hypothesis in a meta-analysis covering 54 papers. This general finding is further sustained in three recently published American studies (Brase, Adair, & Monk, 2014; Frederick & Fales, 2014; Zengel, Edlund, & Sagarin, 2013). Although sex differences are found across cultures (Buss, 2013), Carpenter (2012) reported that men, relative to women, found sexual infidelity more distressing than emotional infidelity in American samples compared with samples outside the USA. On the other hand, three Scandinavian studies all report large sex differences in jealousy responses (Bendixen et al., 2015; Kennair, Nordeide, Andreassen, Strønen, & Pallesen, 2011; Wiederman & Kendall, 1999).

Some studies have shown that relationship experience produces stronger sex differences in jealousy responses (Buss et al., 1992; Murphy, Vallacher, Shackelford, Bjorklund, & Yunger, 2006), although current marital status does not appear to moderate sex differences in jealousy responses (Zengel et al., 2013). Recently, Frederick and Fales (2014) found that the sex effect is held up across different levels of income, relationship length, and history of infidelity experiences.

Stronger sex differences are reported for actual infidelity experiences than for hypothetical scenarios in a large American national sample (Zengel et al., 2013). Additionally, responding to hypothetical infidelity scenarios may be affected by prior infidelity experiences when these are activated through question order manipulation. Bendixen et al. (2015) found that women and men responded more sex-typically to forced choice infidelity scenarios when prior infidelity experiences where activated.

Research on individual differences associated with jealousy responses, possibly accounting for differences between men and women's responses is scarce. Sprecher, Felmlee, Metts, Fehr, and Vanni (1998) reported that relationship commitment was positively related to the degree of distress after break-up. Brase et al. (2014) found that sex differences in response to six forced choice hypothetical scenarios were not accounted for by attachment style, sexism, masculinity–femininity, culture of honor, or sociosexuality (showing preference for short-term mating strategies).

1.2. Findings using continuous measures

Carpenter's (2012) meta-analysis also covered 42 studies using continuous measures. He concluded that both men and women rated the sexual infidelity as more distressing than emotional infidelity without examining whether men, relative to women, report greater jealousy in response to sexual infidelity than in response to emotional infidelity. The latter was done by Sagarin et al. (2012) in their meta-analysis of 47 independent samples. They reported overall small-to-moderate theory-supportive sex effects. Somewhat stronger sex effects were reported in more recent papers, when responses were specified as jealousy or distress/upset, when a forced choice question (before or after the forced choice) was included, and when response scales included seven or more points. Albeit the overall sex difference in jealousy responding was smaller for continuous than for forced choice measures, the sex difference did not differ for actual infidelity versus to hypothetical scenarios, and it held up cross-culturally. Sagarin et al. (2012) demonstrated that the sex difference was not an artifact of the forced choice methodology.

1.3. The current study

Using a large sample of Norwegian students we wanted to perform a rigorous test comparing sex differences in jealousy responses by randomly allocating forced choice or continuous measures to participants from the same population, testing whether the sex difference in jealousy responses is robust across measurement methods. Moreover, to study sex differences in jealousy responding in one of World's most gender egalitarian cultures (Bendixen, 2014; Grøntvedt & Kennair, 2013) is particularly important as evolved preferences and sex differentiated traits may be expressed to a larger degree in egalitarian cultures (Buss et al., 1992; Lippa, 2010; Schmitt, Realo, Voracek, & Allik, 2008).

1.3.1. Aims and hypotheses

The first aim is simply to replicate the established sex-difference in sexual jealousy using four of the forced choice scenarios from Buss et al. (1999).

H1. When confronted with infidelity dilemmas we expect a larger proportion of men, relative to women, to find the sexual aspect of infidelity more distressing than the emotional aspect (Bendixen et al., 2015; Buss et al., 1992, 1999; Kennair et al., 2011).

H2. A current intimate partner activates jealousy responses differently in men and women. Therefore, current relationship status will affect sex differences in responses to the infidelity scenarios. More specifically we predict that sex differences for partnered participants are stronger than for single participants (Buss et al., 1992; Murphy et al., 2006).

H3a. Prior actual infidelity experiences do not affect sex differences in jealousy responses. Regardless of actual infidelity experiences, relative to women, men will find the sexual infidelity aspect more distressing than the emotional infidelity aspect (Frederick & Fales, 2014; Sagarin et al., 2012, but see Zengel et al., 2013).

H3b. Activation of prior infidelity experiences accentuates sex-typical differences in jealousy responses. We predict sex differences in jealousy to be particularly strong for participants having been reminded of past infidelity experiences (Bendixen et al., 2015).

H4. Sex difference in jealousy responses to infidelity scenarios is not an artifact of the forced choice paradigm. We predict that the sex differences in responding to forced choice infidelity scenarios are reproduced in samples using continuous measures when the samples are drawn from the same population.

Research question: Following Brase et al. (2014) line of research we finally wanted to investigate the effect of relationship commitment and preference for short-term sexual strategies (sociosexuality) on sex differences in jealousy responses.

2. Methods

2.1. Participants and procedure

The final sample covered 1074 heterosexual participants aged 30 and younger (639 women, 435 men) at the Natural-, Social-, and Human sciences. Average age of the women and men was 21.1 ($SD = 1.9$) and 21.5 ($SD = 2.1$), respectively. Opposite sex sexual attraction was used for selecting heterosexuals for analysis ('men only', 'mostly men', 'both sexes equally', 'mostly women', 'women only'). Four percent of the sample indicated same-sex attraction or equally strong attraction to both sexes. When asked if they were "romantically involved in a serious committed relationship" the majority reported 'No' (women 51.2%, men 64.1%).

Students were informed about study, invited to participate, and completed questionnaires in breaks between lectures. Participation was voluntary, and completely anonymous. No course credit was given for participation.