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RESEARCH ARTICLE

Factors that Influence People's Beliefs About Men's and Women's Jealousy Responses

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Abstract

This study examines what beliefs people hold about other men's and women's reaction to infidelity and how related these beliefs are to one's own jealousy response and to various socio-cultural influences. This novel approach was examined in a Facebook snowball sample ($N = 1213$) who responded to three infidelity scenarios regarding what aspect of infidelity (emotional or sexual) they believed would make men and women more jealous and then what aspect would make themselves more jealous. The results suggest that both men and women believed men would be more upset by the sexual aspect of infidelity and that women would be more upset by the emotional aspect (i.e., falling in love). Own jealousy responses in men and women were strongly associated with beliefs about same-sex responses to infidelity and showed moderate association with beliefs about opposite-sex responses. Self-reported perceptions of cues to infidelity and knowledge from various sources about what (1) may be cues to infidelity and (2) may be typical reactions to infidelity were unrelated to beliefs about men's and women's jealousy responses and to own jealousy responses. We discuss whether beliefs about men's and women's jealousy responses may be culturally transmitted or more likely involve a dual model consisting of (a) reflection of own jealousy responses with (b) some cross-sex insights into jealousy reactions in men and women. The findings suggest that there may be evolved psychological adaptations for jealousy beliefs that extend to others of same and opposite sex.

Keywords Jealousy · Infidelity · Beliefs · Gender differences · Socio-cultural · Evolutionary psychology

Introduction

Infidelity may involve sexual activities outside a dyadic relationship but also emotional unfaithfulness or disloyalty toward one's committed partner (Moller & Vossler, 2015). Jealousy is a "complex emotional state activated when there is a threat to a valued social relationship" (Buss, 2013, p.155), and evolutionary hypothesized sex differences in own jealousy responses are shown to be robust (Edlund & Sagarin, 2017). However, the extent that people have insight into *other* people's jealousy reactions and what factors may account for such insight remains largely unknown. In this paper, we examine what beliefs people hold regarding men's and women's reactions to infidelity and to whether these beliefs stem from socio-cultural influences such as exposure to media or socialization agents, or from other more personal experiences, or whether their beliefs stem their own evolved jealousy reactions.

Looking first at people's own jealousy responses, studies using a variety of methods have repeatedly shown that men and women get upset over different aspects of their partner's infidelity (Edlund & Sagarin, 2017). Women report more jealousy imagining their partner falling in love or getting emotionally involved with in someone else relative to imagining their partner having sex with somebody else. Most people actually react more strongly to the emotional aspect of the infidelity (Buss, 2013; Frederick & Fales, 2016). Still, relative to women, men report more jealousy imagining sexual infidelity than imagining emotional infidelity in their partner (Buss, 2013; Edlund & Sagarin, 2017; Sagarin et al., 2012).

Despite several attempts to explain these sex differences as methodological artefacts or influences by social factors and experience (e.g., Carpenter, 2012; Harris, 2003a), sex

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differences in jealousy are found to be moderate to strong across measurement paradigms (forced choice vs. continuous measures) and are unaffected by having relationship experience, having experienced infidelity, and having children (Bendixen et al., 2015a, 2015b; Frederick & Fales, 2016). However, studies suggest men's and women's jealousy responses to become more similar as they grow older, and sex differences often not found in samples of sexual minority people or the effects are reversed (Dijkstra et al., 2001; Frederick & Fales, 2016; Harris, 2003b; Sheets & Wolfe, 2001).

The evolutionary psychology perspective claims that although both men and women face similar adaptive problems, or threats, to intimate relationships, men and women face different adaptive problems regarding partner infidelity and investment in common offspring (Buss, 2013). Women's fitness is influenced by her mate's investment in her and her children especially in environments that demand biparental investment (Buss et al., 1992). The minimal investment in common offspring for human females is far larger than for males (Trivers, 1972). This has profound effects on women's willingness to mate and the adaptive problems they might be facing in case of partner infidelity. Because of internal fertilization in women, there is no question about motherhood. Men on the other hand can be deceived and invest in offspring that might not be their own. From an evolutionary point of view, this has a considerable fitness cost for men, leaving fewer offspring due to the resources being allocated to another man's child and not to one's own offspring. To reduce the probability of his partner becoming pregnant with another man, one should expect men to be relatively more concerned and emotionally preoccupied about sexual infidelity than one's partner falling in love (Buss, 2013). Given this, men are expected to react with greater distress to infidelity that involves sexual behavior than to infidelity that involves feelings of love toward other men.

In popular culture such as music, infidelity or adultery is more often depicted as sexual, describing cheaters as having sexual encounters "affairs" rather than developing extra-pair emotional attachment (Alexopoulos & Taylor, 2020). In popular television programs, sexual infidelity is slightly more often depicted than emotional infidelity (Alexopoulos & Gamble, 2022). However, in both popular music and television programs, men are more often depicted as the cheater sex. Similar quantitative analysis has not been performed on media coverage of political sex scandals that typically involve cheating, but we might expect that typical cases would involve men sexually cheating on their committed partner simply because men far more often than women hold positions of power, reflecting a more typical androcentric perspective. It is possible that this male cultural bias affects people's beliefs about infidelity and jealousy reactions. However, this has not yet been subject to study.

From a socio-cultural point of view (Eagly & Wood, 1999), both men's and women's own reactions to infidelity, and possibly their beliefs and knowledge about other people's jealousy reactions, are assumed to be culturally transmitted through media exposure, socialization agents, and possibly through personal experiences with infidelity or jealousy. Hence, people's insight into men's and women's reactions to infidelity is culturally transmitted through the influence of family, peers, education, or popular media. Further, people may also have acquired knowledge about behavioral cues that imply infidelity through the same processes.

Modelling Beliefs About Men's and Women's Jealousy Responses

It is not obvious that men and women have insight into the jealousy reactions of persons of the opposite sex. Beliefs about the jealousy reactions in one's own sex are more straight-forward. One can use oneself as a reference and intuitively anchor those beliefs in one's own jealousy reactions. This has some resemblance to the cognitive bias *anchoring* (Gilovich et al., 2002), except the reference point is oneself rather than an external entity. However, given the expected sex differentiated jealousy response regarding infidelity type, simple self-reference may fail when it comes to beliefs about reactions in the opposite sex: Women would discount how upset men would be over sexual infidelity, and men would discount how upset women would be over emotional infidelity. This may be considered a self-referential process, where one might understand own sex better than other sex because one uses how oneself to process jealousy content and responds emotionally to infer jealousy responses in others irrespective of their sex.

A priori, it is hard to predict that beliefs about jealousy responses in men and women will be either primarily predicted by own response (i.e., anchoring) or maybe a reflection of the empirically reported sex differences. The latter could be called the *Dual Model*, where one holds beliefs that are prototypical with regard to men's and women's reactions to infidelity, or based upon direct or vicarious experiences, or transmitted cultural beliefs. Alternatively, these may also be somehow biologically based (i.e., evolved) insights into sexual psychology of men and women. Some research suggests that men and women are aware of the sexual psychology of the opposite sex when it comes to partner preferences, such as in evaluating the effectiveness of self-promotion or flirting tactics that men and women apply (Bendixen & Kennair, 2015; Kennair et al., 2022; Schmitt & Buss, 1996). This awareness may also extend to opposite-sex beliefs about jealousy. In a study of forgiveness following infidelity in close relationships, Bendixen et al. (2017) found that both men and women assumed low likelihood of being forgiven following own

hypothetical transgression, but also that men tended to underestimate the threat of emotional infidelity represents in women. Still, it is not clear how accurate or biased people's beliefs about other persons' jealousy reactions are.

In addition to the above, because sexual minority men and women do not differ in their jealousy responses (Frederick & Fales, 2016; Harris, 2003b), the accuracy of these beliefs may be influenced by sexual orientation as well. This may occur due to differences both at the biological or the socialization level of analysis.

The Current Study

In this paper, we will examine factors that may influence people's beliefs about men's and women's reactions to emotional and sexual infidelity. Do people have insight into other people's jealousy reactions, and if yes, what factors may account for such insight? We aim to study people's beliefs about the jealousy reactions in other men and women using forced choice scenarios similar to those applied for own (self-reported) jealousy. Although sex differences in own jealousy are not found to be systematically influenced by relationship and infidelity experiences, attachment styles, gender-role beliefs, relationship values, and beliefs about infidelity, beliefs about other people's jealousy responses may still be influenced by socio-cultural factors and socialization reflected in subjective reports of knowledge about this phenomenon. Such knowledge may contain cues and typical reactions to infidelity in men and women. We also want to study people's perception of behavioral cues to infidelity in a relationship and whether this perception has any effect on people's beliefs about other people's jealousy responses. Further, we examine the extent that people anchor their beliefs about men's and women's reactions in their own jealousy response and to what extent they have insight into the opposite-sex' reactions to infidelity. Specifically, we ask if people have better insight into the jealousy responses of their own sex relative to the opposite sex.

The Following Hypotheses are Tested

H1: If knowledge about men's and women's reactions to infidelity is culturally transmitted in a systematic way, we would expect this knowledge to be associated with people's beliefs about what makes other men and women jealous.

H2: If beliefs about other's jealousy responses primarily is a result of one's own cognitive jealousy processing and emotional responses, we expect that men's and women's reports about other's responses should correspond to their own response regardless of the other being a man or a woman. We denote this *The Self-Referential Model*. This model assumes that people hold *general* beliefs about men's and women's jealousy reactions and that these beliefs should correlate substantially.

H3: If men and women have insight into the jealousy psychology of same-sex and opposite-sex persons, we expect that both men and women would differentiate their beliefs about other men and other women's jealousy responses. Consequently, beliefs about men's and women's jealousy responses will mirror those of self-reported sex differences. We denote this *The Dual Model*.

We will explore the effect of sexual minority status on beliefs about men's and women's jealousy responses, but we expect sex differences in own jealousy responses to be non-significant among sexual minorities (Frederick & Fales, 2016; Harris, 2003b; Sheets & Wolfe, 2001).

Methods

Participants and Procedure

A snowball sample responded to an online questionnaire named "Beliefs about infidelity." A group of psychology students' ($N = 65$) posted information about the study and a link to the survey on their personal Facebook profiles. Everyone who received the information were encouraged to respond and to send the link to their network of Facebook friends. When activating the link to the survey, all participants received information about the study and their rights. No personal identification was recorded when responding (also not IP addresses).

A total of 1251 gave their active consent and returned the questionnaire. Participants younger than 18 and older than 50 (1.3%) were removed.[1] The mean age of the remaining sample ($N = 1231$) was 24.1 (SD = 4.9). Median age was 23 and 92% of the sample was aged 30 and below. Cleaning procedures resulted in the exclusion of an additional 18 individuals.[2] The final sample ($N = 1213$) covered 853 women (70.3%) and 360 men. Their sexual orientation was predominately heterosexual (86.2%), with several who identified as sexual minority people (homosexual, 3.1%; bisexual, 7.0%; pansexual, 1.8%). In addition, 1.2% identified as polyamorous, and 0.8% as asexual. More women ($N = 119$, 14.1%)

[1] Participants below 18 were removed for ethical reasons. Participants above 50 were removed for theoretical reasons (reproductive changes alter jealousy psychology post menopause). The exclusion of these participants had no effect on the results.

[2] These individuals were removed following careful analyses of outliers and extremes (studentized residuals, influential cases, and leverage) from initial multiple regression analyses of beliefs about men's and women's jealousy responses, respectively.

than men ($N = 30$, 8.3%) identified as sexual minority in this sample: $\chi^2(1, N = 1206) = 7.67$, $p = 0.005$. Most of the sample were students (72%), and 60.7% of the sample were currently partnered (63.3% women, 54.6% men). The number of life-time committed relationships ranged from 0–9 with a mean of 1.7 for both men and women.

Measurements

In the online questionnaire, demographics were presented first, followed by a section on perceptions of cues to infidelity. The jealousy section covered scenarios about what respondents believe would make a man jealous first, followed by identical scenarios of what would make a woman jealous, and finally what would make themselves jealous. The final section included questions on possible knowledge sources of jealousy and personal experiences with unfaithful partners.

Perceptions of Cues to Infidelity

Our measure of cues to infidelity among couples was derived from Hanson Sobraske et al. (2014). Rather than measuring individual's sensitivity to cues to infidelity in their current partner as in the original questionaire, the instructions read: "Imagine heterosexual intimate relationships among your friends and acquaintances. To what extent do you consider each of the following acts to be a sign of infidelity?" For each of the 23 behaviors (for details, see Appendix), participants responded to a 5-point rating scale: 1 (*not at all*), 2 (*to a very small extent*), 3 (*to some degree*), 4 (*to a strong degree*), and 5 (*definitely*). Exploratory Factor Analyses of the items suggest one common factor. The internal consistency was good (Cronbach's $\alpha = 0.90$) with an average inter-item correlation of $r = 0.29$. The item scores were averaged into a scale for analysis.

Jealousy Beliefs

For measuring beliefs about what makes men and women more jealous, we applied three forced choice scenarios from (Buss et al., 1999) infidelity dilemmas questionnaire. The scenarios have previously been translated to Norwegian and applied by Bendixen, Kennair and Buss (2015); Bendixen, Kennair, Ringheim et al. (2015). Each scenario was reframed as the respondent's *heterosexual friends and acquaintances*. The scenarios cover the following dilemmas: (1) emotional attachment but no sexual intercourse versus sexual intercourse but no emotional attachment, (2) trying different sexual position versus falling in love, (3) given both emotional attachment and sexual intercourse, which aspect of the infidelity would upset more? Question order was presented with scenarios involving a man being cheated first, then a woman being cheated. Responses to the scenarios were coded 0 (*the emotional infidelity more upsetting*) and 1 (*the sexual infidelity more upsetting*). In considering the low number of items and average inter-item correlations for the beliefs ($r = 0.43$ and $r = 0.34$ about men and women, respectively), internal consistency was considered acceptable ($KR\text{-}20_{men} = 0.69$, $KR\text{-}20_{women} = 0.60$). The item scores were averaged to form scales reflecting beliefs about men's and women's responses. The scale scores reflect the proportion of scenarios (from 0 to 100%) in which the sexual aspect was reportedly more upsetting than the emotional aspect of the imagined infidelity. Higher scores are associated with greater discomfort with sexual infidelity relative to emotional infidelity.

Own Jealousy Responses

The content for the three scenarios for own jealousy responses was identical to those used to measure beliefs and identical to scenarios used in a prior Norwegian study ((Bendixen, Kennair, & Buss, 2015). Reliability was acceptable ($KR\text{-}20_{self} = 0.68$) with an average inter-item correlation of 0.42. Scoring and scaling were identical to those of jealousy beliefs.

Socio-cultural Influence (Sources of Knowledge)

We constructed a measure of participant's subjective level of knowledge of (1) what may be cues to infidelity and (2) what may be typical reactions to infidelity. The questions posed were as follows: "From which sources have you gained knowledge about possible cues to infidelity?" and "From which sources have you gained knowledge of the typical reactions to infidelity?" The participants responded to eight possible influences (family of origin, friends, teaching, personal experience, TV/movies, social media/internet, music, and literature) and rated their level of knowledge for each of the eight on a 4-point rating scale with alternatives 1 (*not at all*), 2 (*little*), 3 (*some*), and 4 (*much*). We examined the extent to what these different sources could reflect one underlying construct to cues and typical reactions, respectively. They did not, but the four items on TV/media/music and literature were internally consistent ($\alpha = 0.77$ for both "cues" and "typical reactions"). We averaged the scores for these four items to form two separate media influence scales (cues and typical reactions, respectively). The remaining items were analyzed separately.

Personal Experience with a Cheating Partner

To measure experiences of having been cheated upon, we posed the following question: "Did your partner cheat on you in your current or in a former relationship?" Response alternatives were Yes/No.

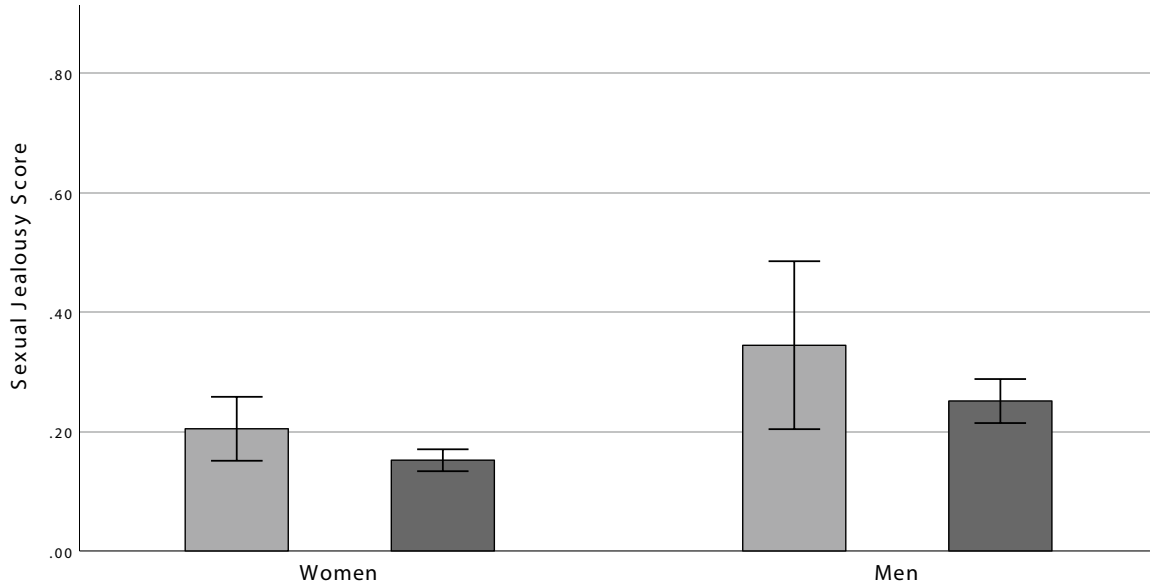

Fig. 1 People's beliefs about women's responses to their partner's infidelity. Darker bars = heterosexual respondents. A score of 0.5 indicates equally upset by the sexual and the emotional aspect of the infidelity. Lower scores indicate being relatively more upset by the emotional aspect

Analyses

All analyses were performed using Stata/MP 17.0 (StataCorp., 2021).

Results

Beliefs about Men's and Women's Jealousy Responses

To examine what people believe would make women jealous, we applied a 2 (participant sex) × 2 (sexual orientation) ANCOVA with age as covariate to control for age differences across the four groups.[3] The model was significant, $F(4,1198) = 9.99$, and accounted for 2.9% of the variance in beliefs. As evident from Fig. 1, the effect of sex was significant, $F(1,1198) = 15.08$, $p < 0.001$, with men scoring slightly higher than women ($d = 0.22$). Further, the effect of sexual orientation was significant, $F(1,1198) = 5.85$, $p = 0.016$, $d = 0.14$ (minority higher). The sex × sexual orientation interaction effect was not significant, $F(1,1198) < 1$, and the beliefs were not significantly affected by age, $F(1,1198) = 3.10$, $p = 0.079$, $r = 0.067$.

When we applied the same analysis to beliefs about men's jealousy responses, the model was not significant, $F(4,1199) < 1$. Neither participant sex, sexual orientation, their interaction, nor age reached significance. Figure 2 illustrates the lack of group differences.

When we performed pairwise comparisons (*t*-tests) of the participants' beliefs about men vs. women's jealousy reactions, we found that heterosexual women ($d = 1.06$), heterosexual men ($d = 0.78$), and sexual minority women ($d = 0.89$) all believed that men markedly more than women would be upset by the sexual aspect of their partner's infidelity. In contrast, sexual minority men ($n = 30$) differentiated less strongly between what aspect of the infidelity that would make men and women jealous ($d = 0.38$). Notably, the participants' beliefs about jealousy reactions in men and women showed small correlations, $r = 0.13$ ($r_{women} = 0.10$; $r_{men} = 0.16$).

Own Jealousy Responses

Looking next at the participant's own reports, the model $F(4,1200) = 40.94$, accounted for 11.7% of the variance in jealousy responses. The effect of participant sex was significant, $F(1,1200) = 25.87$, $p < 0.001$, with men being relatively more upset by the sexual aspect than women. There was also a main effect of sexual orientation: $F(1,1200) = 6.35$, $p = 0.012$, suggesting that heterosexuals scored higher than sexual minority persons, and a sex × sexual orientation interaction effect, $F(1,1200) = 6.71$, $p = 0.010$. The latter suggests that heterosexual men scored higher than any of the other groups (see Fig. 3). A *t*-test showed that the sex difference in heterosexual participants was large, $t(1054) = 12.44$, $p < 0.001$, $d = 0.83$ (men, $MM = 0.469$; women, $MM = 0.200$). In contrast, the sex difference among

[3] The results were not affected by including age as a covariate.

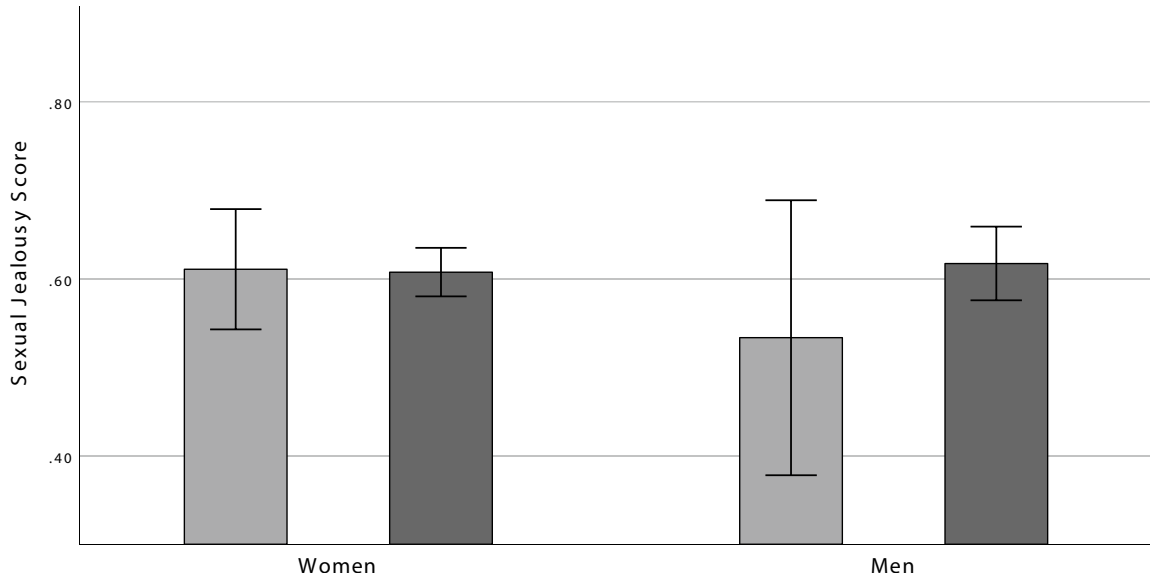

Fig. 2 People's beliefs about men's responses to their partner's infidelity. Darker bars = heterosexual respondents. A score of 0.5 indicates equally upset by the sexual and the emotional aspect of the infidelity. Lower scores indicate being relatively more upset by the emotional aspect

sexual minority participants was small and nonsignificant, $t(147) = 1.35$, $p = 0.18$, $d = 0.28$ (men, $MM = 0.290$; women, $MM = 0.203$). There was no effect of age on own jealousy responses.

How well do beliefs about other men's and women's jealousy reactions concur to men's and women's own jealousy responses? Are their beliefs accurate at the group level or are they biased or stereotypical (accentuated) relative to their own responses? To examine this, we ran paired-samples *t*-tests for heterosexual men and women and for sexual minority men and women separately. Heterosexual men's beliefs about other men were moderately accentuated in the male stereotypical direction, $t(329) = 8.34$, $p < 0.001$, $d = 0.45$. Also, sexual minority men's beliefs were accentuated in the male typical direction, $t(29) = 3.43$, $p = 0.002$, $d = 0.62$. Heterosexual women reported beliefs about other

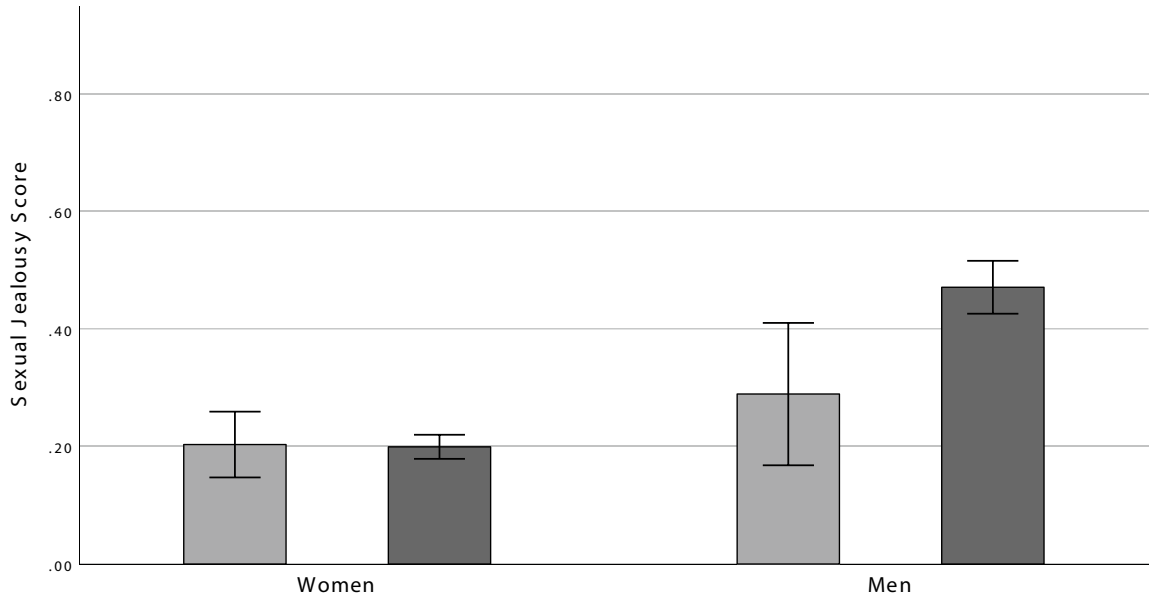

Fig. 3 Women and men's own jealousy responses. Dark gray = heterosexual respondents

women being slightly more upset by the emotional aspect of the infidelity than themselves, i.e., accentuated in the female stereotypical typical direction, $t(725) = -4.38$, $p < 0.001$, $d = -0.16$, while sexual minority women's beliefs about other women did not differ from their own jealousy reactions, $t(118) = 0.05$.

Perceptions of Infidelity Cues

Men and women highly agreed on what types of behavior would serve as the most distinct cues to infidelity (see Table 1). The participants were most sensitive to behaviors involving having a sexual relationship with somebody, kissing, creating a dating profile, staying overnight with somebody else, saying that one wants to be in another relationship or that one loves somebody else, and having dinner with an ex. More women than men found several of these to "definite" cues to infidelity. Behaviors that very few (or nobody) found to be clearly indicative of infidelity included watching online porn, helping somebody of the opposite sex with renovation of their house, suggesting novel sexual activities, and paying extensive attention to somebody of the opposite sex. Across all 23 possible cues to infidelity, women reported slightly higher scale scores than men ($d = -0.22$), which suggest women have a somewhat lower threshold for perceiving these acts as infidelity than men. Relative to the difference among heterosexual men and women ($d = -0.25$), sexual minority participants did not report any sex difference in their perception of cues to infidelity ($d = -0.03$).

Knowledge from Social Influences and Personal Experiences

Of the possible sources of social influence, family of origin and education were the least likely sources of knowledge of what may be (1) *cues* to infidelity on the one hand and (2) *typical reactions* to infidelity on the other with mean scores between 1.65 and 2.08 (on a scale from 1 (not at all) to 4 (much)). The most likely source was peers ($M_{cues} = 3.01$ and $M_{reactions} = 3.00$). Knowledge from personal experience ($M_{cues} = 2.48$ and $M_{reactions} = 2.40$) and from various media ($M_{cues} = 2.64$ and $M_{reactions} = 2.66$) was more often reported as a source than education.

Predictors of Beliefs About Men's and Women's Jealousy Responses

Before predicting the respondents' beliefs about what makes men and women more jealous, we examined separately for men and women all possible and relevant factors that could be associated with such beliefs. These included lifetime number of committed relationships, age, perceptions of infidelity cues, peer influences, media influences, personal experiences including being cheated on by current or former partner, and finally own jealousy responses. We also examined the bivariate associations among all possible predictors (Tables 2 and 3). Across all sources of knowledge, only the media items ("cues" and "typical reactions") showed any significant associations with jealousy beliefs, and only so for female respondents' beliefs about women's reactions. As shown in Tables 2 and 3, equivalent items measuring knowledge of "cues" and "typical reactions" were largely overlapping. As could be expected, having experienced being cheated upon was clearly associated with number of lifetime committed relationships and with both items on knowledge from "personal experience" for both men and women. However, having experienced being cheated upon was *not* associated with own jealousy responses. Further, knowledge of cues and typical reactions from personal experience did not show any correlations with the other knowledge indicators, except for peers (r's ranging from 0.06 to 0.23), a result that probably reflects some sharing of personal experiences with friends.

Furthermore, perceptions of cues to infidelity showed inconsistent associations with sources to knowledge of cues to infidelity for both men and women. For men, the media scale on cues correlated $r = 0.15$ with perceptions of cues to infidelity ($r = 0.05$ for women). Knowledge from own experiences and having been cheated upon showed some association with perception of infidelity cues for women, but not for men. The lack of strength and regularity of these associations suggests that knowledge from external sources and personal experiences has very little bearing on people's perception of infidelity cues. Number of committed lifetime relationships was moderately associated with having been cheated upon and stronger so than age, but the association with own jealousy reaction and beliefs about other's jealousy reactions was absent except for women's beliefs about men's reactions ($r = 0.08$).

For men, own jealousy responses correlated strongly with beliefs about other men's jealousy responses, $r = 0.67$. For women, the association between own and other women's responses was $r = 0.43$. In comparison, the associations between own responses and beliefs about opposite-sex responses were markedly smaller ($r = 0.21$ for men and $r = 0.18$ for women).

Informed by the bivariate associations above, we ran a path model with sex as a grouping variable to predict two belief outcomes: same-sex and opposite-sex (see Fig. 4). We included only age, perceptions of infidelity cues, media knowledge of typical reactions to infidelity, and being cheated on as primary predictors in the model. We added

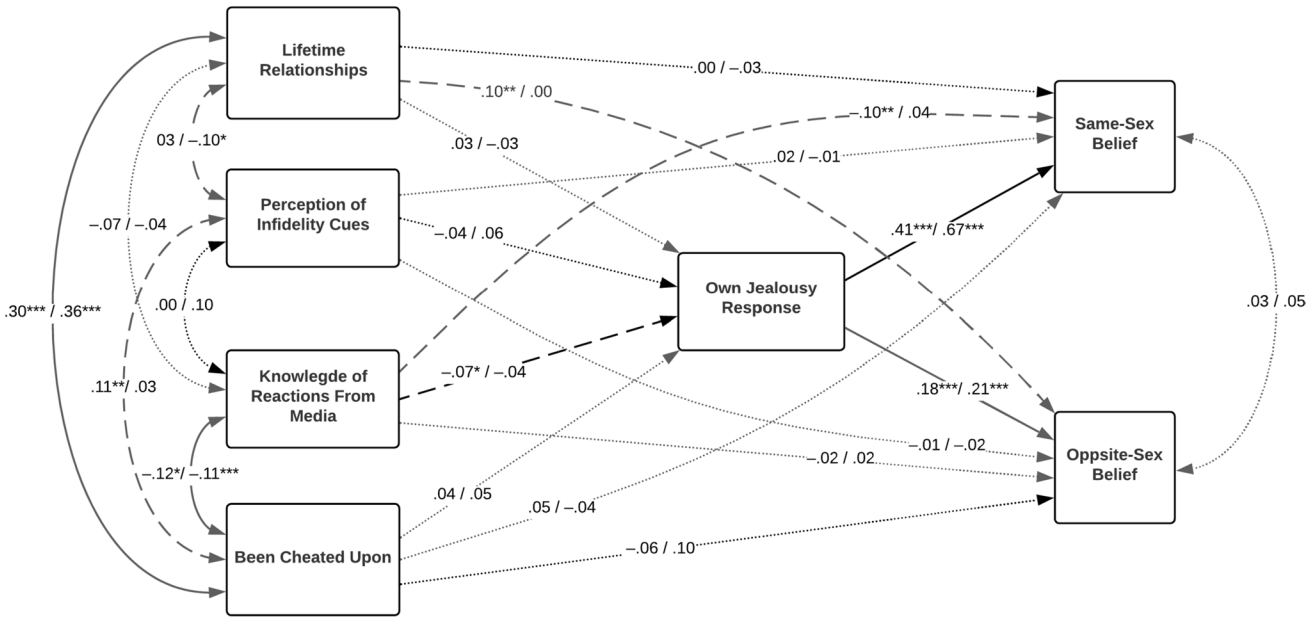

Fig. 4 Path model for predicting beliefs about jealousy reactions in same- and opposite-sex persons. Coefficients for each path are presented as women/men. Solid bold lines indicate significant effects for both men and women. Dashed lines indicate effects for one sex only. Dotted lines indicate no effect. *$p < .05$; **$p < .01$, ***$p < .001$

own jealousy response as a secondary predictor to the model. Parameter invariance (Wald) tests were performed to compare if men's and women's path coefficients differed significantly.

Further, women, but not men, who experienced cheating from their partner were slightly more prone to identify cues to infidelity. However, participants who had been cheated upon reported somewhat lower levels of knowledge of typical reactions from the media.

As would be expected from the bivariate correlations, the paths running from perception of infidelity cues and knowledge of reaction from media and cheating experiences to own jealousy reactions on the one hand and to beliefs about same- and opposite-sex reactions were very weak. Basically, the only paths of significance ran from own jealousy reactions to same- and opposite-sex beliefs for both men and women. The parameter invariance (Wald) test strongly suggests that the association between own jealousy and same-sex jealousy belief was significantly stronger for men than for women ($\chi^2 = 25.59$, $p < 0.001$). Importantly, when accounting for the effect of own jealousy responses, there was no association between the beliefs the participants held toward same-sex and opposite-sex jealousy reactions, suggesting that these beliefs were highly independent constructs.

Discussion

The current study set out to consider the social psychology of jealousy, by considering what people believe about the different sex' responses to hypothetical infidelity scenarios, and further what experiences and sources of information about jealousy they have. Primarily, it seems that people have insight into the sex difference in jealousy responses of other men and women. People of both sexes seem to hold beliefs about what makes women and men jealous that are concurrent with their own jealousy responses, particularly when considering same-sex friends' responses. The belief scores are somewhat accentuated in the sex typical direction, suggesting that these beliefs are sex stereotypical. Relative to own responses to infidelity scenarios, women seem to believe that other women are somewhat more jealous of a cheating partner who falls in love, and men seem to believe that other men a more jealous of a cheating partner having sex with someone.

In predicting people's beliefs about jealousy responses, we looked at possible sources of knowledge ranging from own infidelity and relationship experiences, exposure to media, education, family, and friends. We also looked at people's judgement of what would count as cues to infidelity. Neither of these factors had any impact on jealousy

beliefs (nor on own jealousy response). The only factor that predicted beliefs was own jealousy response. In addition, the associations between beliefs about men's and women's (same-sex and opposite-sex) reactions to infidelity were very small and essentially zero when accounting for the respondent's own jealousy reactions. In considering that beliefs about same-sex and opposite-sex jealousy reactions are measures of "similar" constructs using the same scenarios, the lack of overlap strongly suggests that there are no "generalized" beliefs about jealousy responses. Rather, these beliefs are sex-specific and highly independent. In summary, we find no support for the hypothesis that knowledge about men's and women's reactions to infidelity is culturally transmitted in a systematic way, at least not in any way that our measures in the current study are able to discern. Also, we find that own experiences of being cheated on had no influence on own jealousy response or beliefs about others' jealousy response, a finding that must be considered robust at this point (Bendixen, Kennair, & Buss, 2015; Frederick & Fales, 2016). Further, we find limited support for the notion that people's jealousy beliefs of men's and women's reactions *merely* reflect their own jealousy response (*The Self-Referential Model*). People do not hold generalized, non-gendered beliefs about jealousy. Rather, the findings suggest that both men and women differentiate their beliefs about other men and other women's jealousy responses supporting *The Dual Model* and that men and women do have some insight into the jealousy psychology in opposite-sex persons that is not primarily anchored in their own reactions. It is remarkable how same- and opposite-sex beliefs are independent of each other, suggesting a truly dual process for the generation of beliefs about same- and opposite-sex jealousy responses. We cannot offer any explanation of why this is the case, as most of the factors we believed a priori might be relevant for the generation of these beliefs proved to be unrelated to the beliefs. This finding warrant attempts at replication, and if it proves to be robust, it might be worthwhile attempting to explain the mechanisms underlying this dual effect in future research.

Sex and sexual minority status seem to be the major predictors of own jealousy responses. Similar to previous studies (Frederick & Fales, 2016; Harris, 2003b; Sheets & Wolfe, 2001), the sex differentiated reaction to infidelity scenarios was found only among heterosexual participants. This therefore seems to be a robust finding. For beliefs about men's and women's reactions to infidelity, sexual minority status significantly affected beliefs about *women's* jealousy responses, but minority status had no effect on corresponding beliefs about men. Regardless of sex and sexual orientation, the participants believed that men more than women would be upset by the sexual aspect of the infidelity. This was also true for people who generally believed that men and women get jealous for similar reasons.

Neither having been cheated on nor people's sensitivity to infidelity cues had any effect on their own jealousy reactions or their beliefs about men's and women's reactions. Hence, the belief that men's and women's jealousy reactions are differentiated is widespread and basically unaffected by participant sex, sexual orientation, experience, sensitivity to cues to infidelity, or knowledge about jealousy reactions. This mirrors findings in the literature on own jealousy reactions and may be considered a robust finding (Bendixen, Kennair, & Buss, 2015; Brase et al., 2014; Frederick & Fales, 2016).

There is a paradox here. Literature, music (Alexopoulos & Taylor, 2020), and to a lesser degree television (Alexopoulos & Gamble, 2022), but also history and law, all focus primarily of sexual infidelity as the prototypical form of infidelity—probably because of being less ambiguous and because these have historically been dominated by men in power and laid the foundation for the cultural rules for keeping land and privilege within bloodlines. However, this means that while most respondents consider emotional infidelity as more distressing, the prototypical form of jealousy eliciting infidelity is sexual in nature. From Shakespeare's *Othello* to the empire and lasting genetic influence of the male family members of Genghis Kahn (Zerjal et al., 2003)—which must have been based on both cultural practices of nepotism and vigilance concerning bloodlines—male sexual jealousy has formed art, law, and culture. There is no available ontogenetic feedback process to communicate any adverse aspect of female sexual infidelity. With no other mode than selection that might explain the historically extreme interest in bloodlines and who sired the offspring, this must be considered the most likely conclusion, as Skinner (1981) points out. However, the resulting paradox is that while the dominant cultural prototype is sexual jealousy, emotional jealousy is considered more distressing by most respondents in the scientific literature—with only heterosexual/gynephilic males being more distressed by sexual infidelity compared all other groups of sex and sexual orientation.

There is therefore an evolutionary explanation for specifically male gynephilic sexual jealousy as a relationship maintenance and retention tactic (Buss, 2013), with no available ontogenetic feedback mechanism. However, for emotional jealousy, there may be ample ontogenetic feedback: one may observe through the lifespan the defection of many partners, allies, and lovers and how that affects well-being, social

standing, and resources. However, despite this, there are few studies that have been able to show any effect of specific experiences or sources of learning that moderate the sex difference. Therefore, at this point, it seems fair to conclude that the origin of male, gynephilic jealousy, both throughout history, art and law, as well as in current research, is best explained by an evolutionary approach. However, there is no hegemonic explanation of emotional jealousy. No research, thus far, has been able to identify the possible ontogenetic experiences that calibrate distress to partners investing in others, while at the same time, it is possible that learning may explain this response. Nevertheless, the current study has also failed to show any sign of social transmittance of jealousy.

Limitations and Strengths

In a cross-sectional study that does not involve any manipulation (systematic questionnaire manipulation, inducing specific mind of thought, etc.), it is not possible to make assumptions about causality. The strong associations between own jealousy reactions and beliefs about same-sex others' reactions may in principle run both ways. Nevertheless, neither own reactions nor beliefs showed any associations with social influences, so we found no support in the current data that these responses are the result of socialization or systematic cultural transmission. Future research needs to consider new sources or methods of investigating or measuring such sources of cultural input, possibly applying experimental or longitudinal designs. Also, it may be that the current findings are a result of investigating one of the world's most secular, sexually liberal, and egalitarian cultures; however, if anything, sex differences in own jealousy response are typically larger in such cultures ((Bendixen, Kennair, & Buss, 2015). Further, the representativeness of the sample may be questioned as snowballing sampling procedure was applied. Lack of representativeness usually affects levels rather than associations among constructs (Dey, 1997). Still, the strong sex differences in own jealousy responses and the lack thereof among sexual minority people attest to the validity of the findings from this sample also with regard to sex-specific scores (i.e., level). This is further supported by the clear and reasonable association for both men and women between number of committed relationships and having been cheated upon.

Conclusion

People seem to have knowledge about the sex difference between men's and women's jealousy responses at the group level, but in a sex stereotypical direction within each sex. The current findings fail to find strong pathways for the socio-cultural formation of beliefs about men's and women's jealousy responses. Further, it seems that people do not merely use their own intuition or *self-referential* processes and responses to infer what jealousy responses men and women in average will have. Although this is a relevant source for our beliefs about same- and opposite-sex jealousy responses, the *dual* process in which both knowledge about the sex difference as well as own jealousy response, especially for same sex, is utilized. In addition, and in independent processes, it seems that people believe that men and women have different jealousy responses. The findings suggest a possibility of evolved psychological adaptations for jealousy beliefs that extend to others of same and opposite sex. However, this first foray into this uncharted area of research cannot be considered conclusive. Future research needs to consider new approaches to measuring how sociocultural processes may influence people's sex differentiated jealousy response beliefs.

Appendix

Table 1 Perception of cues to infidelity in peers

Cue to infidelity	Women %	Men %
Has a sexual relationship with somebody else	92.8	91.9
Says "I love you" to somebody else	58.7	38.3
Kisses somebody else on the mouth	53.1	35.2
Says that he/she want to be in a relationship with somebody else	48.8	52.1
Creates dating profile on Tinder etc	28.0	14.5
In secret has dinner with an ex-boy/girlfriend	25.1	22.8
Stays overnight with somebody of the opposite sex	16.4	15.4
Frequently flirt with others in secret	10.4	5.6
Cancels an appointment to be with somebody of the opposite sex	9.7	7.8
Buys a very expensive gift to somebody of the opposite sex	9.0	2.2
Dances intimately with somebody of the opposite sex at a party	4.3	1.4
Has a scent of unfamiliar perfume after a night on town	3.2	2.0
Does not say "I love you" back	2.0	2.0
Spends a lot of time with somebody of the opposite sex	1.8	0.6
Takes a shower right after returning from a night on town	1.5	2.2
In secret watches online porn	1.5	0.3
Talks extensively about a particular other of the opposite sex	1.3	1.1
Seems emotionally distant	1.2	0.6
Wants to spend less time with his/her partner	0.8	0.6
Suddenly becomes much more concerned with his/her own appearance	0.5	0.6
Helps somebody of the opposite sex with renovation of their house	0.4	0
Suggests novel sexual activities	0.2	0.3
Pays extensive attention to somebody of the opposite sex	0	0

Numbers represent proportion of participants who perceived each of the 23 acts to be "definite" infidelity (Score = 5). The acts are sorted by women participants' scores, high-to-low

Table 2 Zero-order correlations (Pearson's *r*) for all relevant variables (Listwise deletion, Women $N = 823$)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Number lifetime relationships	—												
2. Age	0.39	—											
3. Cues to infidelity	0.02	0.06	—										
4. Knowledge of cues friends	−0.03	−0.07	0.04	—									
5. Knowledge of cues own experience	0.28	0.09	0.15	0.13	—								
6. Knowledge of cues media	−0.07	−0.06	0.05	0.23	−0.08	—							
7. Knowledge of reactions friends	0.03	−0.02	0.01	0.64	0.16	0.12	—						
8. Knowledge of reactions own experience	0.32	0.14	0.16	0.11	0.82	−0.09	0.20	—					
9. Knowledge of reactions media	−0.06	−0.04	0.01	0.20	−0.08	0.79	0.14	−0.09	—				
10. Been cheated upon	0.29	0.15	0.10	0.02	0.57	−0.13	0.08	0.59	−0.11	—			
11. Own jealousy reactions	0.04	0.03	−0.03	−0.05	0.05	−0.06	−0.02	0.04	−0.07	0.05	—		
12. Beliefs about men's jealousy reactions	0.08	0.04	−0.01	0.020	−0.03	−0.04	−0.01	−0.03	−0.02	−0.02	0.18	—	
13. Beliefs about women's jealousy reactions	0.04	0.06	0.01	−0.08	0.06	−0.11	−0.03	0.05	−0.14	0.09	0.43	0.10	—

Table 3 Zero-order correlations (Pearson's *r*) for all relevant variables (Listwise deletion, Men $N = 346$)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Number lifetime relationships	—												
2. Age	0.37	—											
3. Cues to infidelity	−0.11	0.02	—										
4. Knowledge of cues friends	0.06	0	0.03	—									
5. Knowledge of cues own experience	0.34	0.15	0.03	0.17	—								
6. Knowledge of cues media	−0.10	−0.07	0.15	0.23	−0.09	—							
7. Knowledge of reactions friends	0.05	0.04	0	0.60	0.19	0.07	—						
8. Knowledge of reactions own experience	0.29	0.14	0.13	0.20	0.73	−0.02	0.29	—					
9. Knowledge of reactions media	−0.05	−0.05	0.10	0.20	−0.10	0.76	0.16	−0.02	—				
10. Been cheated upon	0.36	0.16	0.02	0.08	0.57	−0.04	0.11	0.55	−0.11	—			
11. Own jealousy reactions	−0.02	−0.02	0.05	−0.07	0.08	−0.02	−0.03	0.07	0.04	0.04	—		
12. Beliefs about men's jealousy reactions	−0.05	0.01	0.03	−0.05	0.04	0.03	−0.03	0.01	0.02	−0.03	0.67	—	
13. Beliefs about women's jealousy reactions	0.04	0.03	0	−0.02	0.02	0.05	−0.03	0	0	0.11	0.21	0.16	—

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Author Contribution Both authors (MB and LEOK) contributed to the study conception and design. Material preparation, data collection, and analysis were performed by MB. The first draft of the manuscript was written by MB and both authors commented on previous versions of the manuscript. Both authors read and approved the final manuscript.

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Data Availability The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Ethics Approval The study was carried out in line with the American Psychological Association's ethical principles of psychologists and code of conduct. The Norwegian Data Protection Official for Research (Personvernombudet, NSD, ref. number 53098) approved of the research procedure.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Consent for Publication Consent to publication was obtained from all individual participants included in the study.

Competing Interests The authors declare no competing interests.

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