Gossip as an intrasexual competition strategy: Predicting information sharing from potential mate versus competitor mating strategies

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ABSTRACT

We propose that one function of competitive information sharing is success in intrasexual competition. We posit that the decision to share potentially damaging information about a competitor is sensitive to the probability of that information diminishing a competitor's mate value. According to Sexual Strategies Theory (Buss & Schmitt, 1993), men and women have evolved different psychological mechanisms underlying short-term and long-term mating strategies, and display somewhat different (although partially overlapping) preferences for long-term and short-term mate choice. In two experiments, we utilized a 2 × 2 factorial within-subjects design to manipulate a potential mate's mating strategy (long-term vs. short-term) and characteristics of a rival indicative of the rival's mating strategy (long-term vs. short-term). We predicted that participants would be more likely to share information about a competitor when that information mismatched the potential mate's preferences, thereby decreasing the perceived mate value of the competitor. Using Linear Mixed Effects Modeling, Study 1 found that men and women reported that they would be *more likely* to share that a competitor was promiscuous when the potential mate was interested in a long-term mate than when the potential mate was interested in a short-term mate. Study 2 demonstrated similar findings for ratings of *effectiveness* of sharing the information. Taken together, the two studies support the central hypothesis about the role of negative information sharing in intrasexual competition and the context-specificity of its deployment depending on mating strategy pursued.

1. Gossip as an intrasexual competition strategy: Predicting information sharing from potential mate versus competitor mating strategies

The adage "knowledge is power" reveals something important about the psychology of competition–the strategic use of information can be a potent weapon in conflicts of interest with others. There are many ways to benefit from sharing information about others. In some circumstances, disseminating damaging information about someone may aid in diverting resources from that person to oneself. Previous research suggests that sharing negative gossip is a common tactic of intrasexual competition. For example, if one is competing with someone for a mate, they can spread injurious information about their rival to gain a competitive advantage (Baumeister & Twenge, 2002; Buss & Dedden, 1990; Hess & Hagen, 2002; Hess & Hagen, 2006a; Schmitt & Buss, 1996). The underlying mechanisms involved in regulating competitive information sharing, however, are not well understood (Reynolds, Baumeister, & Maner, 2018). We advance a functional approach to understanding competitive information sharing, as intrasexual competition mechanisms that are sensitive to the costs and benefits of information sharing.

We believe this will be a useful framework to further the study of strategic information sharing, or gossip.

Recent evidence supports the notion that one function of gossip[1] is to diminish rivals' mate value or status: gossip is most often targeted towards same-sex peers (Gallup & Wilson, 2009; Vaillancourt & Sharma, 2011), the topics of gossip are often about characteristics that are attractive to members of the opposite sex (Buss & Dedden, 1990; Dijkstra & Buunk, 2002; Vaillancourt & Sharma, 2011), and negative gossip has been shown to diminish rivals' attractiveness (Fisher & Cox, 2009). Gossip can also be used to promote one's status within a group (Archer, 2001; Hawley, 1999; Hawley, 2002; Rose, Swenson, & Waller, 2004) through preferential sharing of positive information about allies and negative information about rivals (McAndrew, Bell, & Garcia, 2007; McAndrew & Milenkovic, 2002). Recent research suggests that women preferentially disclose reputation-damaging, over reputation-enhancing, information about rivals and this strategic information sharing is predicted by cues of romantic rival threat (e.g. mate poaching, physical attractiveness, and provocative clothing; Reynolds et al., 2018).

Building upon research on gossip and intrasexual competition, the current study explores how the costs and benefits of using negative

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[1] Gossip, or conversations about social topics, account for approximately two-thirds of naturally occurring conversations and can be positive or negative (Dunbar, 2004). In the present studies we focus mainly on negative gossip in the service of diminishing rival's status. A discussion of other functions of gossip is beyond the scope of this article. For a discussion of other functions of gossip see Barkow (1995), Dunbar (1998), and Baumeister, Zhang, and Vohs (2004)

information sharing influences the likelihood and perceived effectiveness of using this particular intrasexual competition tactic. This novel focus will add to the foundation of prior research by delineating several potential inputs to the cost-benefit calculus of negative information sharing. We first explore potential cues of costs and benefits associated with negative gossip. We then experimentally test our model by manipulating one cue to the probability of benefits of spreading negative information about a sexual rival: mating strategy mismatch.

2. Costs and benefits of negative information sharing

While spreading unfavorable information about a competitor seems like a low-cost strategy and is considered a safer alternative to physical aggression, the costs of gossip should not be overlooked (Campbell, 1999). For example, one can incur reputational costs if others see them as deceitful or self-serving, or if they gossip too often (Farley, Timme, & Hart, 2010; Hess & Hagen, 2002). Retaliation by rivals or their extended friend and kin network is another risk; in fact the majority of physical fights between women occurs in retaliation for negative gossip (Campbell, 1995). Ancestral humans would have faced the adaptive problem of sharing negative information in such a way as to yield maximum benefits to themselves at minimal cost. Selection should have favored the evolution of psychological mechanisms that assessed cues correlated with net benefits of sharing information and motivated sharing information in proportion to the presence of those cues.

There are many cues that would, in principle, be useful in solving this adaptive problem. These cues would be important inputs in deciding whether to spread damaging information about a rival. Below we consider some examples of cues that may influence the calculation of costs and benefits of information sharing.

Cues relevant to the cost of information sharing may include the physical or social formidability of one's rivals. Rivals high in physical formidability can more effectively impose physical costs (Sell, Tooby, & Cosmides, 2009). Though not the same as gossip, seemingly trivial verbal slights can trigger violent physical assaults in men (Wilson & Daly, 1985) and physical retaliation has been observed in response to gossip in women (Campbell, 1999). Women high in attractiveness, a correlate of female social formidability, are able to more effectively derogate competitors than women low in attractiveness (Fisher & Cox, 2009). And attractive women show more anger in response to perceived slights than less attractive women (Sell et al., 2009).

An indicator of the probability of incurring costs associated with gossip is the plausibility of denying that one spread in the information. One way to reduce the costs of gossip is to employ it in a way to disguise the source of the information and allow for plausible deniability (Campbell, 1999). An example would be distancing oneself from the information source using phrases like "I've heard that she slept with the whole football team "or "Everyone seems to think that she is easy to get into bed." Therefore, how and with whom one discloses information about a rival influences the probability of facing retaliation. On the other hand, sharing information about a rival with people closer to the potential mate increases the probability of the potential mate receiving, and being influenced by, the information. Therefore, individuals face a tradeoff between probability of the potential mate receiving their signal and the degree of plausible deniability.

Cues relevant to assessing the benefit of sharing information likely include the quality of the resource or mate being competed over. In the context of mate poaching, the benefits of successful poaching depend upon the quality of the mate being poached. Expending energy to poach a low-quality mate through information sharing may be less beneficial than pursing alternative mates not currently in relationships. The opacity of competitive motives may also influence the probability of effectiveness. When a gossiper is perceived to have a motive or perceived competition with a rival, the perceived veracity of the gossip is lower (Hess & Hagen, 2006b).

We hypothesize that people have psychological mechanisms

designed to estimate the net benefits of competitive information sharing and motivate sharing in proportion to these estimates. In principle, we should be able to predict likelihood of gossip by manipulating cues to the probability and/or magnitude of costs and benefits. Although any form of competitive information sharing should follow these principles, the present studies focus on manipulating the probability of benefits in the context of mate competition.

3. Sex differences in mating tactics

Men and women have different optimal mating strategies based on key differences in reproductive biology. According to Parental Investment Theory (Trivers, 1972), the sex with the greater minimum obligatory parental investment will face greater consequences for poor mate choices and should be more selective in short-term mating contexts. Because minimum obligatory investment for men is small and the major limit on men's reproductive success is access to fertile women, ancestral men would have had more incentive to seek out short-term mating opportunities. Because the minimum obligatory investment for women is much higher (e.g. nine months internal gestation) and the presence of an investing mate greatly affects women's reproductive success, women often seek long-term mates (e.g. committed romantic partners), although some women seek short-term mates for important functional reasons such as resource acquisition or mate switching (Buss, Goetz, Duntley, Asao, & Conroy-Beam, 2017; Greiling & Buss, 2000).

Men and women have also faced distinct adaptive problems due to these biological differences. Since offspring were more likely to survive to reproductive age with two parents than with one, women faced the challenge of paternal investment: finding mates who showed both ability and willingness to invest resources in offspring (Buss, 1989). Men faced the adaptive challenge of paternity uncertainty (the possibility that the child they invest in is not genetically related to them), and so would have looked for cues to fidelity in a mate (Buss, 1989). In line with this evolutionary logic, men and women differ predictably in mate preferences for qualities of long-term and short-term mates (Buss, 1989; Buss & Schmitt, 1993). In a large cross-cultural study of long-term mate preferences, while both men and women valued traits such as kindness and intelligence, women rated financial prospects and education as higher priorities then men did. In contrast, men rated physical attractiveness (a cue to fertility) and chastity (a cue to probability of cuckoldry) as a higher priority than women did, although the latter sex difference was not universal, being significant in only 62% of the 37 cultures studied (Buss, 1989; Buss, Shackelford, Kirkpatrick, & Larsen, 2001).

4. Sex differences in information sharing

Given the reliable sex differences in mate preferences, Buss and Dedden (1990) predicted that men and women would differ in the types of information used in intrasexual competition. In the mating context, people should spread information about a rival that would most damage the rival's value on the mating market. For example, given women's mate preferences, it is more damaging to derogate a male rival's financial prospects than it is to suggest that he is promiscuous. Given men's mate preferences, it is more damaging to allude to a female rival's promiscuity than her financial prospects. Across three studies, Buss and Dedden (1990) found evidence for these patterns of sex differences: women are more likely to derogate other women's promiscuity, while men are more likely to derogate other men's financial resources (Buss & Dedden, 1990).

The current study builds upon the findings of Buss and Dedden (1990) by looking at differences in derogation tactics across both short-term and long-term contexts. A potential mate or a rival's interest in a long- or short-term relationship should influence the effectiveness and likelihood of spreading certain types of information due to differences in preferences for long- versus short-term mates. Furthermore, the

current study investigates how cues to the probability of benefits associated with derogating a sexual rival influence the likelihood and perceived effectiveness of sharing negative information.

5. The current study

If competitive information sharing (i.e. gossip) is an intrasexual competition tactic, then people should be more motivated to share information when that information has a higher probability of interfering with their rival's mating success. The present research examines the effectiveness of sharing information about a competitor by manipulating the mating strategy congruence between the competitor and a potential mate. If the potential mate is interested in a long-term mate, spreading information that a rival is promiscuous would be more damaging than spreading information that a rival is also interested in a long-term relationship. However, if the potential mate is interested in a short-term mate, it would be more damaging to spread information that the rival is sexually unavailable than that they are promiscuous. In the present studies we expected people to be more likely to share information about a rival, and believe it to be more effective to share information about a rival, when there is a *mismatch* in the motives of the rival and the potential mate.

In the present studies we also examined audience of information sharing (i.e., with whom people indicate they would share information). There are cost-benefit tradeoffs associated with choice of audience for gossip. When competing for a mate, sharing information about a rival with people closer to the potential mate increases the probability of the potential mate receiving the information. However, plausible deniability is lower with fewer degrees of separation between the source and target of the information, increasing the risk of retaliation or other costs associated with information sharing. If one shares with others who are relationally further from the potential mate, their plausible deniability is higher, but the probability of the target hearing a high-fidelity repetition of the information is lower.

We also examined perceived effectiveness of sharing the information in a separate sample. Previous research has demonstrated that perceived effectiveness of competitor derogation in different domains confirms predicted sex differences in likelihood of derogation tactics (Buss & Dedden, 1990). Because people should be sensitive to cues of effectiveness (insomuch as effectiveness predicts benefits), we expect ratings of effectiveness to follow a similar pattern as ratings of likelihood (Schmitt & Buss, 1996).

In summary, we propose that one function of competitive information sharing is as an intrasexual competition strategy that is sensitive to the benefits and costs of sharing information about rivals. We hypothesize that people will share information more often when it has the potential to benefit them, as operationalized by mismatching goals between potential mate and rival (Hypothesis 1).

Prediction 1a: When the potential mate is interested in long-term mating, we predict that participants will report greater likelihood of sharing information that a rival is promiscuous.
Prediction 1b: When the potential mate is interested in long-term mating, we predict that participants will rate it to be more effective to share information that a rival is promiscuous.
Prediction 2a: When the potential mate is interested in short-term mating, we predict that participants will report greater likelihood of sharing information that a rival is waiting until marriage to have sex.
Prediction 2b: When the potential mate is interested in short-term mating, we predict that participants will rate it more effective to share information that a rival is waiting until marriage to have sex.

Given that the probability of the potential mate receiving the shared information is contingent upon the initial target of the information, we predict that people will be more likely to share with the potential mate

and mutual friends when there is a mismatch between the rival's and potential mate's mating strategies (Hypothesis 2). Because people most often share gossip with same-sex peers (McAndrew et al., 2007), we do not necessarily predict that people will be more likely to share information with the potential mate than a mutual or nonmutual friend, but that they will be more likely to share with the potential mate when there is a mismatch as compared to when there is not a mismatch.

Prediction 3a: People will be more likely to share information with the potential mate and when there is a mismatch between rival's and potential mate's mating strategies.
Prediction 3b: People will rate it as more effective to share information with the potential mate when there is a mismatch between the rival's and potential mate's mating strategies.

5.1. Study 1

Study 1 was designed to test our hypothesis that people are more likely to share information in proportion to the potential benefits of sharing that information. In order to test this hypothesis, we independently manipulated the potential mate's mating strategy and the rival's mating strategy. Using a within-subjects factorial design, we predicted that people would report that they are more likely to share information about their rival's mating strategy when the potential mate's and the rival's mating strategies are misaligned.

Because the participant's own mating strategy could influence their interest in the potential mate (i.e. if there is a match or mismatch between the participant and the potential mate's mating strategy), we asked all participants to imagine there were interested in the same type of relationship (long-term or short-term) as the potential mate. Although it is difficult to completely shift preferred mating strategy, temporary experimental manipulation of participant mating strategy have been frequently used in the literature (e.g. Greiling & Buss, 2000; Griskevicius et al., 2007), In addition to our manipulation of mating strategy, we included a measure of participant mating strategy (Sociosexual Orientation Inventory; SOI-R; Penke & Asendorpf, 2008), in order to control for participant's self-reported dispositional mating strategy and to allow for exploratory analysis of the influence of self-reported mating strategy on competitive information sharing.

6. Method

6.1. Participants

Three hundred and fifty-two (352 women, 98 men; M_{age} = 19.13, SD_{age} = 2.12) undergraduate students participated in the study. Fifteen participants who did not complete a majority of the questions were removed. The remaining 337 (240 women, 97 men; M_{age} = 19.13, SD_{age} = 2.12) were included in analysis. Power analysis, conducted in G*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007) for a repeated measures ANOVA with a within-between interaction with an effect size of f = 0.1, indicated a sample size of 180 for 90%.

6.2. Materials

6.2.1. Vignettes

Participants read a scenario in which they were asked to imagine that they were interested in a potential mate (PM). For women, the PM was Dan and the sexual rival (SR) was Anna. For men, the PM was Anna and the SR was Dan. An example scenario from the perspective of a female participant would read: "You are at a party when you see a handsome man named Dan. You've spoken to Dan a few times before and you two seem to have a lot of chemistry. He spends part of the night talking to you. You two seem to be hitting it off. But, later you notice that he also spends some time talking to another woman, Anna. They seem to be enjoying each other's company. Later in the night, you find

out that Dan is definitely single. Unfortunately, you know that Anna is also single and you are not sure whether Dan is more interested in you or her."

Next, participants were asked to imagine that they were interested in either a long-term or a short-term relationship. They were also asked to imagine that the PM's mating strategy was either long-term or short-term. Participants were assigned to all levels of the PM's strategy. To manipulate SR's sexual availability, participants were told that the SR either sleeps with a lot of people or is waiting until marriage to have sex. For example, female participants in the long-term mating strategy and high sexual availability condition read the following: "Now, imagine that you and Anna are both interested in a long-term romantic relationship with Dan. Dan is also interested in pursuing a long-term romantic relationship. Earlier in the night, you overheard Anna whispering to her best friend that she has been sleeping with a lot of men. You can choose to share this information if you wish."

6.2.2. Outcome measure

For each vignette participants rated their likelihood of sharing the information they just learned on a scale from 1 *(not at all likely)* to 7 *(very likely)*. To capture variance in audience choice in information sharing, we asked participants to rate their likelihood of sharing the information with the potential mate, a mutual friend of the potential mate, and a friend.

Participant's mating strategy was measured with the revised Sociosexual Orientation Inventory (SOI-R, Penke & Asendorpf, 2008). This 9-item scale measures attitudes, desires and behaviors regarding casual sex (e.g., "Sex without love is OK"). Lower scores indicate a more restricted sociosexuality associated with interest in exclusive, long-term relationships.

6.3. Procedure

After agreeing to participate and reporting their sex, all participants read the scenario about seeing a PM and a SR at a party. Participants viewed all combinations of the IVs in random order (within-subjects design). After completing the vignettes participants reported their age, sexual orientation, and relationship status[2]

7. Results

We ran all analyses as a linear mixed effects model, treating subject as a random variable to account for the within-subjects design. Significance values were obtained using a likelihood ratio test between the full model and a model without the effect in question. Linear mixed effects models were run with the "lme4" package (Bates, Maechler, Bolker, & Walker, 2015) in R (R Core Team, 2016).

A 2 (participant sex) x 2 (PM's mating strategy) x 2 (SR's mating strategy) x 3 (audience choice) linear mixed-effects model indicated there was not a main effect of PM's mating strategy. Participants were not more likely to share information about the SR when the PM was interested in a long-term mate ($M = 3.45$, $SD = 1.67$) than when they were interested in a short-term mate (M = 3.40, SD = 1.56). There was no main effect of sex: women were equally likely to share information about the SR (M = 3.43, SD = 1.49) as men (M = 3.42, SD = 1.89). There was, a main effect of SR's mating strategy ($\chi^2(1)$ 311.63, $p < 0.001$): people were more likely to share that the SR was promiscuous (M = 3.87, SD = 1.55) than that the SR was waiting until marriage to have sex (M = 2.99, SD = 1.56). There was a significant main effect of audience choice ($\chi^2(2)$ 1149.80, $p < 0.001$). Participants rated that they would be most likely to share with their friend (M = 4.37, SD = 2.07) followed by a mutual friend (M = 2.96,

SD = 1.87), followed by the PM (M = 2.22, SD = 1.72).

To test whether people are more likely to share information about the SR when there is a mismatch between the SR's and the PM's mating strategy, we examined the interaction between PM's and SR's mating strategy, controlling for audience choice. The interaction between SR and PM mating strategies was statistically significant, ($\chi^2(1) = 187.44$, $p < 0.001$). Pairwise comparisons indicated that there was a significant difference between sharing information about the SR when the PM was interested in a long-term mate ($\chi^2(1) = 334.98$, $p < 0.001$) than when PM was interested in a short-term mate ($\chi^2(1) = 7.87$, $p = 0.005$). As expected, when the PM was interested in a long-term mate, participants were more likely to share that the SR was promiscuous (M = 4.22, SD = 2.13) than that the SR was waiting until marriage to have sex (M = 2.68, SD = 1.99). When the PM was interested in a short-term mate, participants were still more likely to share that the SR was promiscuous (M = 3.52, SD = 2.10) than waiting until marriage to have sex (M = 3.29, SD = 2.12), but the effect is weaker, as indicated by our interaction.

The model also indicated that there was a significant interaction between sex and the SR mating strategy condition ($\chi^2(1) = 10.93$, $p = 0.001$). Because of the interaction with sex, we conducted further analyses separately by sex.

7.1. Men

e conducted a 2 (PM mating strategy) x 2 (SR mating strategy) x 3 (audience choice) linear mixed-effects model. There was not a significant three-way interaction, indicating that people audience choice did not depend on the mating strategy mismatch between PM and SR. There was a significant main effect of audience choice, ($\chi^2(1) = 61.90$, $p < 0.001$). Men were most likely to share with a friend (M = 3.85, SD = 2.08), followed by a mutual friend (M = 3.16, SD = 2.00), followed by the PM (M = 2.80, SD = 2.00).

There was not a significant main effect of the PM's mating strategy ($\chi^2(1) = 0.43$, $p = 0.51$). There was a significant main effect of the SR's mating tactic ($\chi^2(1) = 147.41$, $p < 0.001$). Men were more likely to share that the SR was promiscuous (M = 3.98, SD = 2.08) than that the SR was waiting until marriage to have sex (M = 2.85, SD = 2.01). But this effect is qualified by an interaction between the SR's and the PM's mating strategies ($\chi^2(1) = 57.33$, $p < 0.001$). Pairwise comparisons confirmed that there was a significant difference in sharing information about the SR when the PM was interested in a long-term mate ($\chi^2(1) = 191.04$, $p < 0.001$) than when the PM was interested in a short-term mate ($\chi^2(1) = 13.74$, $p < 0.001$). As expected, when the PM was interested in a long-term mate, men were significantly more likely to share that the SR is promiscuous (M = 4.30, SD = 2.06) than that the SR is waiting until marriage to have sex (M = 2.48, SD = 1.90). When the PM was interested in a short-term mate, they were still more likely to share that the SR was promiscuous (M = 3.67, SD = 2.06) than to share that they were waiting until marriage to have sex (M = 3.24, SD = 2.05) but the effect was larger when PM was interested in a long-term mate than a short-term mate, as indicated by our interaction (see Fig. 1).

To examine the effect of participant's mating strategy, we included participant's SOI scores in our analysis. There was a significant interaction between SOI and the SR's mating tactic ($\chi^2(1) = 21.87$, $p < 0.001$). As can be seen in Fig. 2, SOI negatively predicted sharing when the SR was pursuing a short-term mating strategy ($\chi^2(1) = 4.00$, $p = .05$). There was no effect of SOI when the SR was interested in a long-term mate, ($\chi^2(1) = 0.35$, $p = 0.55$).

7.2. Women

We conducted a 2 (PM mating strategy) x 2 (SR mating strategy) x 3 (audience choice) linear mixed-effects model. There was not a significant three-way interaction, indicating that audience choice did not

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[2] Participants also completed additional, similar questions that were part of a related study but not included in the analysis of the present studies.
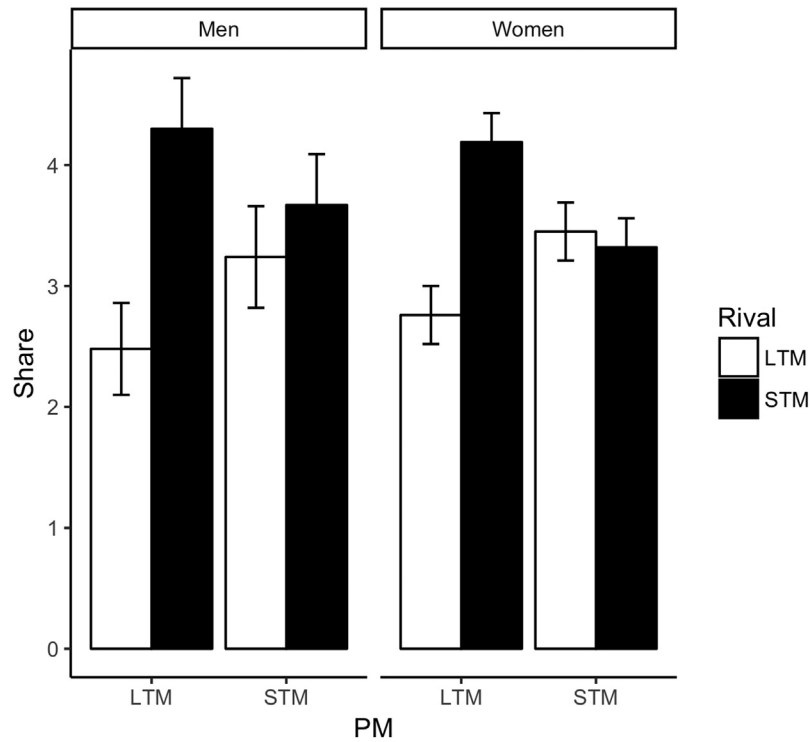
Fig. 1. The effect of mating strategy misalignment on likelihood of sharing information about the promiscuity of a rival in Study 1 for men (left) and women (right). LTM indicates a long-term mating strategy; STM indicates the short-term mating strategy.
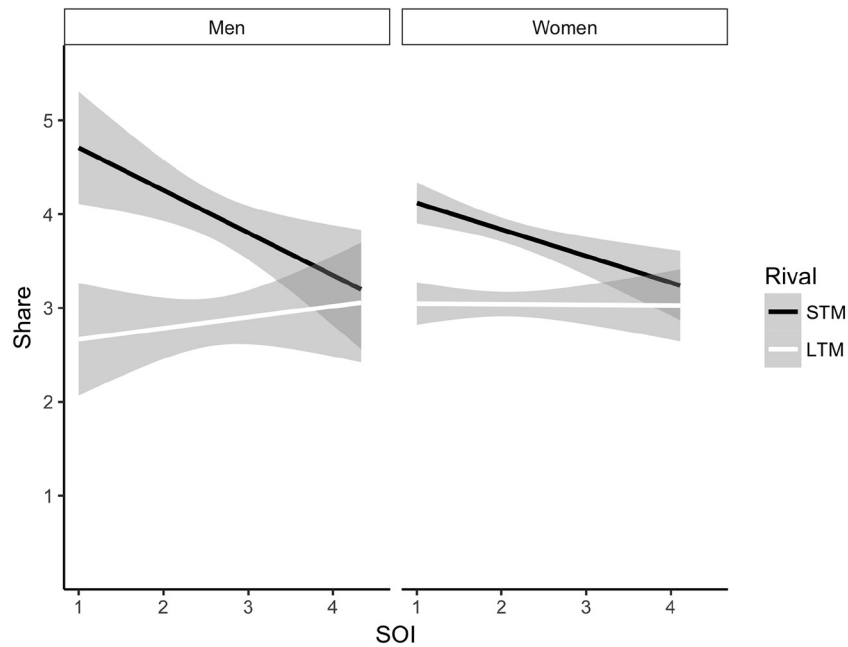

Fig. 2. The effect of SOI by competitor's mating strategy on likelihood of sharing information about the promiscuity of a rival in Study 1 for men (left) and women (right). Lower SOI scores indicate a more restricted sociosexuality associated with interest in exclusive, long-term relationships.

depend on the mating strategy mismatch between PM and SR. There was a significant effect of women's audience choice ($\chi^2(2) = 1178.50$, $p < 0.001$). Women were most likely to share information about a SR with a friend (M = 4.58, SD = 2.03), followed by a mutual friend (M = 2.88, SD = 1.81) followed by the PM (M = 1.98, SD = 1.54). Because there was no three-way interaction, we present the remaining analysis with an average share outcome variable below.

There was no main effect of the PM's mating strategy ($\chi^2(1) = 3.13$, $p = 0.08$). There was a significant main effect of the SR's mating

strategy ($\chi^2(1) = 191.63$, $p < 0.001$). As with men, women were more likely to share that the SR was promiscuous (M = 3.82, SD = 2.16) than that the SR was waiting until marriage to have sex (M = 3.04, SD = 2.11). As can be seen in Fig. 1, there was a significant interaction between the PM's mating strategy with the SR's mating tactic ($\chi^2(1) = 141.40$, $p < 0.001$). Pairwise comparisons indicated a significant difference in sharing information about the SR when the PM was interested in a long-term mate ($\chi^2(1) = 293.86$, $p < 0.001$). Unlike with men, however, there was not a significant difference in

sharing information about the SR when the PM was interested in a short-term mate ($\chi^2(1) = 3.10$, p = 0.08). Estimated means indicate that when the PM was interested in a long-term mate, women were significantly more likely to share that the SR is promiscuous (M = 4.19, SD = 2.15) than to share that the SR is waiting until marriage to have sex (M = 2.76, SD = 2.02).

7.3. Participant's mating strategy

There was a significant interaction between participant's SOI and the SR's mating tactics ($\chi^2(1) = 14.08$, p < 0.001). As can be seen in Fig. 2, SOI negatively predicted sharing when the SR was pursuing a short-term mating strategy ($\chi^2(1) = 7.09$, p = 0.008). There was no effect of SOI when the SR was interested in a long-term mate ($\chi^2(1) = 0.01$, p = 0.93).

8. Discussion

Our hypotheses were largely supported by the data. Men and women were more likely to share that the SR was promiscuous when the PM was interested in a long-term mate than when the PM was interested in a short-term mate (prediction 1a). Prediction 2a was not supported: when the PM was interested in a short-term mate, women were no more likely to share that the SR was interested in in a long-term mate than they were interested in a short-term mate. Men were still more likely to share that the SR was interested in a short-term mate, but this effect was not as strong as when the PM was interested in a long-term mate. Prediction 3a was not supported: ratings of audience choice did not depend upon a mismatch between PM and Rival mating strategies. The finding that people prefer to share information about rivals with friends is consistent with the extant literature, which has found that people are more likely to share gossip with same-sex friends (McAndrew et al., 2007).

When the SR was pursuing a short-term mating strategy, lower-SOI women were more likely to share that information. The effect seems to be driven by those low in SOI being more likely to share that the SR was interested in a short-term mate. This could indicate that people with a more unrestricted SOI think casual sex is more acceptable and less gossip-worthy.

8.1. Study 2

We hypothesized that one's likelihood of sharing information is proportional to the effectiveness of sharing information. Because it is more effective to share information that conflicts with the PM's mating strategy, we predicted that participants would be more likely to share information about the SR that conflicts with a PM's preferences. Study 1 supported this prediction. Study 2 was designed to test whether people's perceptions of effectiveness of information sharing show the same pattern as likelihood of sharing.

9. Method

9.1. Participants

One hundred and sixty-four (104 women, 60 men; M_{age} = 19.21, SD_{age} = 1.54) undergraduate students participated in the study. Power analysis, conducted in G*Power 3.1 (Faul et al., 2007) for a repeated measures ANOVA with a within-between interaction with an effect size of f = 0.1, indicated a sample size of 180 for 90%.

9.2. Materials and procedure

All materials were the same as Study 1, except for the response items for the vignettes. Instead of being asked to rate their likelihood of sharing the information with the PM, a mutual friend of the PM, and a

friend, participants were asked to rate the effectiveness of sharing this information with each person. The procedure was identical to Study 1.

9.3. Results

As in Study 1, all analyses were conducted using linear mixed effects models, treating subject as a random variable to account for the within-subjects design and obtained significance values using a likelihood ratio test between a model with the effect in question model to a model without the effect in question.

A 2 (participant sex) x 2 (PM's mating strategy) x 2 (SR's mating strategy) x 3 (audience choice) linear mixed-effects model indicated that there was no a significant main effect of sex ($\chi^2(1) = 1.66$, p = 0.197). Men rated sharing information about the SR as effective (M = 4.00, SD = 1.47) as women (M = 3.39, SD = 1.82). There was a marginal main effect of the PM's mating strategy ($\chi^2(1) = 3.74$, p = 0.053). People rated it more effective to share when the PM was interested in a short-term mate (M = 3.98, SD = 1.98) than a long-term mate (M = 3.84, SD = 1.97). There was a main effect of the SR's mating tactic ($\chi^2(1) = 7.94$, p = 0.005): participants rated it more effective to share that the SR was promiscuous (M = 4.07, SD = 1.96) than that the SR was waiting until marriage to have sex (M = 3.80, SD = 1.99). There was a main effect of audience choice ($\chi^2(2) = 419.95$, p < 0.001). People rated it most effective to share with the PM (M = 4.70, SD = 1.94) followed by a mutual friend (M = 4.23, SD = 1.84) followed by a friend (M = 2.80, SD = 1.63).

To test whether people are more likely to share information about the SR when there is a mismatch between the SR's and the PM's mating strategy, we examined the interaction between PM's and SR's mating strategy, controlling for audience choice. There was a significant interaction between the PM's mating strategy and the SR's mating strategy ($\chi^2(1) = 145.1$, p < 0.001). When the PM was interested in a long-term relationship, participants were significantly more likely to rate sharing information about the SR being promiscuous (M = 4.38, SD = 1.97) as more effective than sharing that the SR was waiting until marriage to have sex (M = 3.29, SD = 1.82; $\chi^2(1) = 115.75$, p < 0.001). When the PM was interested in a short-term relationship, participants rated sharing that the SR was waiting until marriage to have sex (M = 4.31, SD = 2.02) as more effective than sharing that the SR was promiscuous (M = 3.65, SD = 1.89; $\chi^2(1) = 41.93$, p < 0.001).

The model also indicated that there was a significant interaction between sex and the SR mating strategy condition ($\chi^2(1) = 12.22$, p < 0.001). Because of the interaction with sex, we conducted further analyses separately by sex.

9.3.1. Men

We conducted a 2 (PM mating strategy) x 2 (SR mating strategy) x 3 (audience choice) linear mixed-effects model. There was not a significant three-way interaction, indicating that effectiveness of audience choice did not depend on the mating strategy mismatch between PM and SR. There was a significant effect of men's perceived effectiveness of audience choice ($\chi^2(1) = 151.39$, p < 0.001). Men rated sharing information about as most effective with the PM (M = 4.77, SD = 1.94) followed by a mutual friend (M = 4.42, SD = 1.83) followed by a friend (M = 2.94, SD = 1.75).

There was no main effect of the PM's mating strategy ($\chi^2(1) = 2.10$, p = 0.15). There was a significant main effect of the SR's mating strategy ($\chi^2(1) = 18.99$, p < 0.001): Men rated sharing information that the SR was promiscuous as more effective (M = 4.32, SD = 1.96) than sharing that the SR was waiting until marriage to have sex (M = 3.78, SD = 2.01). There was a significant interaction between the PM's mating strategy and SR's mating strategy ($\chi^2(1) = 45.21$, p < 0.001). As can be seen in Fig. 3, participants rated it more effective to share that the SR was promiscuous (M = 4.64, SD = 2.02) than that the SR was waiting until marriage to have sex (M = 3.30,
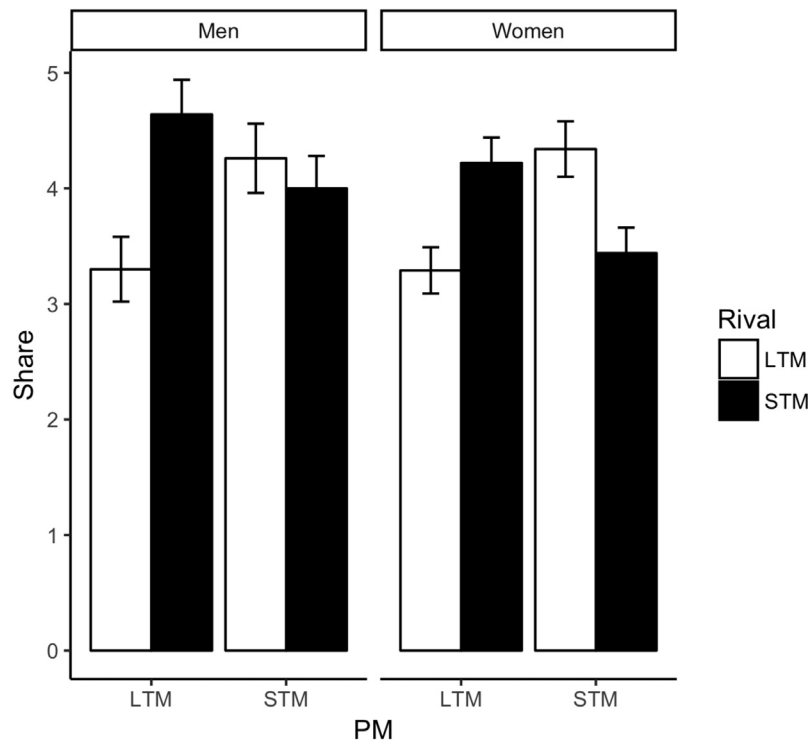
Fig. 3. The effect of mating strategy misalignment on likelihood of sharing information about the promiscuity of a rival in Study 2 for men (left) and women (right). LTM indicates the long-term mating strategy; STM indicates the short-term mating strategy.

SD = 1.93), when the PM was interested in a long-term mate ($\chi^2(1) = 54.62$, p < 0.001). When the PM was interested in a short-term mate, men rated sharing information that the SR was waiting until marriage to have sex as more effective (M = 4.26, SD = 1.97) than sharing that the SR was promiscuous (M = 4.00, SD = 1.86), but this effect was marginal ($\chi^2(1) = 2.90$, p = 0.09).

9.3.2. Women

We conducted a 2 (PM mating strategy) x 2 (SR mating strategy) x 3 (audience choice) linear mixed-effects model. There was a significant three-way interaction, indicated that people who people rated effectiveness of sharing information depended on the mating strategy mismatch between PM and SR ($\chi^2(2) = 12.53$, p = 0.002). Women rated it more effective to share information with the PM and a mutual friend when there was a mismatch between PM and SR mating strategies, than when there was not a mismatch (see Table 1 for descriptive statistics).

There was a significant effect of women's perceived effectiveness of audience choice, ($\chi^2(1) = 273.37$, p < 0.001). Women rated sharing

Table 1

Means and standard deviations are presented for the results of a 2 (SR mating strategy) × 2 (PM mating strategy) × 3(audience choice) interaction on the effectiveness of sharing information about a rival among women in Study 2.

SR's mating strategy	PM's mating strategy	Audience	Mean	SD
LTM	LTM	PM	3.94	1.81
LTM	STM	PM	5.42	1.71
STM	LTM	PM	5.23	1.87
STM	STM	PM	4.11	1.97
LTM	LTM	Mutual Friend	3.55	1.67
LTM	STM	Mutual Friend	4.66	1.83
STM	LTM	Mutual Friend	4.54	1.7
STM	STM	Mutual Friend	3.68	1.87
LTM	LTM	Non-Mutual Friend	2.4	1.35
LTM	STM	Non-Mutual Friend	3.03	1.78
STM	LTM	Non-Mutual Friend	2.91	1.56
STM	STM	Non-Mutual Friend	2.53	1.41

information about as most effective with the PM (M = 4.65, SD = 1.94) followed by a mutual friend (M = 4.11, SD = 1.83) followed by a friend (M = 2.71, SD = 1.56).

There was no main effect of the PM's mating strategy ($\chi^2(1) = 1.70$, p = 0.19) and no main effect of the SR's mating strategy ($\chi^2(1) < 0.01$, p = 0.98). As in Study 1, there was significant interaction between the PM's mating strategy and the SR's mating strategy ($\chi^2(1) = 102.82$, p < 0.001). As can be seen in Fig. 3, when the PM was interested in a long-term mate, women were significantly more likely to rate sharing that the SR was promiscuous as more effective (M = 4.22, SD = 1.92) than sharing that the SR was waiting until marriage to have sex (M = 3.29, SD = 1.74; $\chi^2(1) = 61.64$, p < 0.001). When the PM was interested in a short-term mate, women were significantly more likely to rate sharing that the SR was interested in a long-term mate as more effective (M = 4.34, SD = 2.06) than sharing that the SR was promiscuous (M = 3.44, SD = 1.88; $\chi^2(1) = 46.72$, p < 0.001).

9.3.3. Participant's mating strategy

There was a marginal interaction between SOI and PM's mating strategy ($\chi^2(1) = 3.75$, p = 0.052): as SOI increased, ratings of effectiveness in sharing information about the SR decreased. As can be seen in Fig. 4, SOI negatively predicted sharing when the PM was pursuing a long-term mating strategy ($\chi^2(1) = 4.79$, p = 0.029). There was no effect of SOI when the PM was interested in a short-term mate.

10. Discussion

With few exceptions, the results from Study 2 support our central hypothesis. In line with Study 1, participants reported sharing that the SR is promiscuous would be more effective than sharing that the SR is waiting until marriage to have sex. Supporting our hypothesis, men and women rated effectiveness of sharing information about the SR to be higher when the SR was promiscuous and the PM was interested in a long-term relationship (prediction 1b) and when the SR was waiting until marriage to have sex and the PM was interested in a short-term mate (prediction 2b). Prediction 3b was supported for women but not
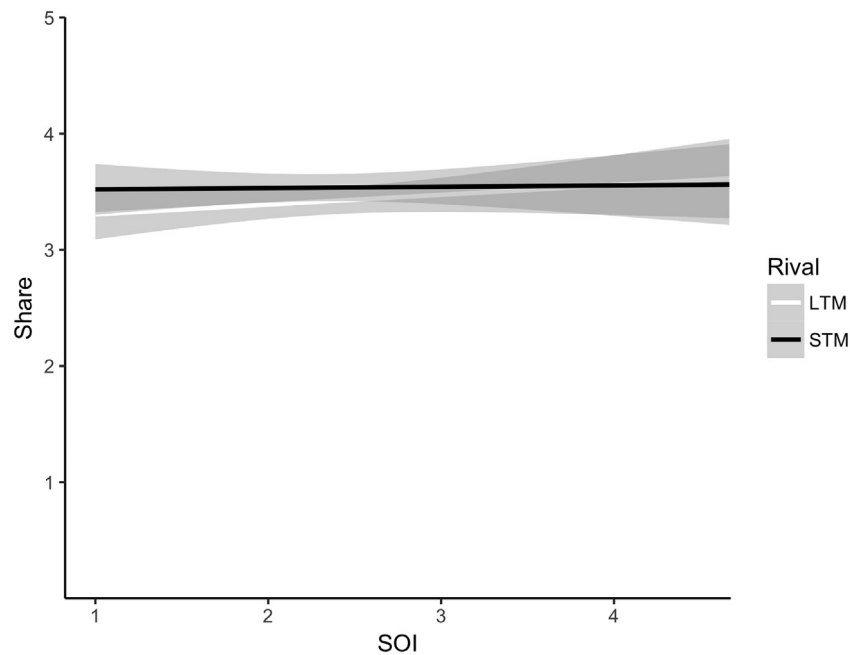
Fig. 4. The effect of SOI by competitor's mating strategy on likelihood of sharing information about the promiscuity of a rival in Study 2. Lower SOI scores indicate a more restricted sociosexuality associated with interest in exclusive, long-term relationships.

for men: women rated it more effective to share information with the PM and a mutual friend when there was a mismatch between PM and SR mating strategies.

SOI negatively predicted effectiveness of information sharing for women in Study 2, suggesting that women with more unrestricted SOI believed sharing information about the SR was a less effective strategy than women with more restricted SOI. This finding, along with the parallel finding in Study 1, could indicate that women with unrestricted SOI are less likely to share information about a promiscuous competitor because they view it as a less effective strategy. Unlike Study 1, participants rated sharing information in the short-term mating condition as more effective than the long-term mating condition. While people are still more likely to share information about the SR when it is in conflict with a potential mate's mating strategy (Study 1 and Study 2), this finding suggests that it may be more effective to disrupt a rival when competing for a short-term mating opportunity (Study 2). Future research should clarify the distinction between effectiveness and likelihood of competitive information sharing in long-term and short-term mating contexts.

11. General discussion

Overall, our findings support the hypothesis that evolved mechanisms motivating competitive information sharing as an intrasexual competition tactic sensitive to content-dependent cues of efficacy. In Study 1, both men and women were more likely to share information about a rival that conflicted with the potential mate's mating strategy. Study 2 demonstrated that men and women perceive it to be more effective to share information about a rival's promiscuity when it conflicted with the potential mate's mating strategy.

This pattern, however, is complicated by a participant's own mating strategy as indexed by sociosexual orientation. When a participant's mating strategy matched the sexual rival's mating strategy, they were less likely to share information about the rival. This finding makes sense if our intrasexual competition psychology is sensitive to the ramifications of negatively moralizing our own preferred mating behaviors. For example, if someone has an unrestricted sociosexual orientation, they may be viewed as a hypocrite for criticizing others for being promiscuous.

We hypothesized that one input in calculating the potential costs and benefits of gossip was the degree of separation between the audience and the potential mate. We operationalized this by asking people about sharing information with the potential mate compared with a mutual friend and a non-mutual friend, which have successively lower probabilities of reaching the potential mate. Though Study 2 found that it would be more effective to share information with the potential mate, Study 1 showed that people were more likely to share with friends than the potential mate, regardless of the condition. Theoretically, the choice of audience should influence the costs and benefits of gossip. It should also affect the relative value of directly transmitting information to the desired target compared taking a more circuitous route in order to minimize the risks of retaliation or reputation damage. Future research is needed to understand the conditions that influence decisions of who to share information with.

Our studies invite future research into the relationship between likelihood of competitive information sharing and its perceived effectiveness. Although perceived effectiveness generally mirrored likelihood ratings, there were some differences. For example, people reported that they would be more likely to share information when the potential mate was interested in a long-term mate, but rated it more effective to share information when the potential mate was interested in a short-term mate. Perhaps people's likelihood of sharing information is calibrated by mating strategy preferences in addition to effectiveness of sharing information. In other words, people may believe it is more effective to share information about a rival when competing for a short-term mate, but have a stronger preference to compete for a long-term mate. People's ratings of likelihood suggests that people are willing to compete for long-term mates despite the effectiveness being lower relative to competing for a short-term mate. Future studies could utilize a within-subjects design to test whether perceived effectiveness moderates the relationship between mating strategy mismatch and likelihood of negative information sharing.

There were several limitations to the present study that are worth addressing. While temporary experimental manipulation of participant mating strategy has been frequently used in the literature (Greiling & Buss, 2000; Griskevicius et al., 2007), it may be difficult to completely shift preferred mating strategy. Future research should investigate whether participants' actual mating strategy influences their likelihood

of using competitive information sharing to compete over potential mates whose mating strategy is either in alignment or misaligned with their own. Do individuals currently seeking a long-term mate show a greater likelihood of using competitive information sharing to compete over a potential mate also pursuing a long-term mating strategy? Since women, on average, seek long-term mates more than short-term mates, do women show a greater likelihood of sharing information about a rival to compete over men pursuing a long-term mating strategy than men pursuing a short-term mating strategy? The current studies cannot address these questions as participants' mating strategy was experimentally manipulated.

12. Conclusion

Findings from the present research largely support the hypothesis that motivation to share information about a competitor is, in part, driven by perceived effectiveness of sharing such information. In two studies, we experimentally manipulated the mating strategies of potential mates and rivals to demonstrate that the same information would be shared differently depending on the context of the competition. These findings suggest that individuals have mechanisms sensitive to cues of mating strategies of both potential mates and rivals (Buss & Schmitt, 1993; Schmitt & Buss, 1996), which motivates competitive information sharing in proportion to the costs and benefits of sharing such information. Taken together with past research on the derogation of competitors, it seems likely that one function of gossip is to strategically compete with others over access to reproductively valuable resources.

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