Strategic reactions to unfaithfulness: female self-presentation in the context of mate attraction is linked to uncertainty of paternity

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Abstract

People are motivated to self-present to their potential romantic partners. We hypothesized that due to the uncertainty of paternity, one of the self-presentational behaviors that human females engage in when they are motivated to attract a long-term mate is designed to communicate to prospective partners that they are likely to be faithful. In Study 1, we show that females in a long-term-romance mindset are less likely to agree to going to a concert with another female known to be unfaithful (cheater) than with a female known to have many sexual partners (player) or a non-flirtatious control female (control). Females in the long-term-romance mindset are also less willing to be the unfaithful female’s friend and less willing to indicate that she is similar to them. In Study 2, we show that the effect is gender specific. In particular, we show that in the presence of a potential long-term partner, females (but not males) express more rejecting emotions towards a same-sex acquaintance who reveals a predilection to be unfaithful. These studies provide strong support for the role of uncertainty of paternity in the female self-presentational behaviors in the context of mate attraction.

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1. Introduction

Monogamous pair-bonding equalizes maternal and paternal investment in offspring and makes the two genders equally demanding when it comes to selecting long-term mates (Campbell, 2004; Geary, 1998). Thus, we can expect that, in humans, a species with high levels of paternal care, both males and females will be motivated to advertise their qualities as mates in order to attract desirable partners (Griskevicius, Cialdini, & Kenrick, 2006). Consistent with this logic, Tooke and Camire (1991) found that females attempt to enhance their physical appearance when they are trying to impress a potential mate. Likewise, research has shown that when in a long-term mating mindset, females are motivated to advertise their pro-social orientation and genetic quality by becoming more helpful (Griskevicius et al., 2007) and more creative (Griskevicius et al., 2006).

In this article, we argue that in the context of long-term-mate attraction one of the qualities that males desire and that females advertise is faithfulness. Males desire faithfulness because paternal investment is associated with risks as well as benefits (Symons, 1979; Trivers, 1972). Although by taking care of their offspring, males can ensure that their offspring survive to adulthood and reproduce themselves, they risk wasting time and resources by investing in another male’s child (Buss, Larsen, Westen, & Semmelroth, 1992). In species with internal fertilization, males can rarely be certain that they have successfully impregnated their mate and, consequently, they can rarely be certain that they are the father of her offspring (Gross & Shine, 1981). The uncertainty of paternity is an adaptive problem (Trivers, 1972) that creates a selection pressure on males to care about their long-term partner’s fidelity (Buss et al., 1992; Cann, Mangum, & Wells, 2001; Symons, 1979).

One consequence of the pressure posed by paternity uncertainty is male sexual jealousy, which is thought to be an evolved mechanism of mate guarding designed to protect against female infidelity (Daly, Wilson, & Weghorst, 1982; Greiling & Buss, 2000). Although both genders experience sexual jealousy, males experience it...
more often and more strongly. For example, Buss et al. (1992) found that males more than females report that they would be more upset by sexual infidelity and that females more than males report that they would be more upset by emotional infidelity. Buss et al. (1992) also showed that imagining sexual and emotional infidelities has differential effects on the male and female physiological reactions, such as electrodermal activation, pulse rate and the activity of corrugator supercilii (the muscles that produce an appearance of frowning). Males showed stronger reactions when imagining sexual infidelity, while females tended to show the reverse pattern.

Although male concern about a partner’s sexual fidelity is powerful (Daly et al., 1982), it is not indiscriminate. Evolutionary theory predicts that its activation will be linked to expected paternal investment in offspring (Trivers, 1972; Whittingham, Taylor, & Robertson, 1992). If a male does not intend to invest in the first place, there is no need for him to be concerned about wasting resources on another male’s offspring. In Masai culture, the only known culture where males openly tolerate widely infidelity (Daly et al., 1982), inheritance is avuncular, such that males care for their sisters’ offspring more than they do for their own. Such an arrangement is a clear indication of evolutionary forces at work. Males ‘do not care’ about their wives’ sexual relationships with other males because (a) they do not expect to invest in their children and (b) they have another way to ensure the propagation of their genes into the next generation, i.e., caring for the offspring of a woman who is related to them.

Male sexual jealousy would not have evolved if it had not been successful at ensuring that females stay faithful; however, the existence of male sexual jealousy suggests that at least some females in evolutionary history reaped the benefits of pursuing a polymorphic strategy whereby they secured the investment of one male and discreetly engaged in extra-pair copulations with another, high-quality male (Greiling & Buss, 2000). If there are differences between females in the likelihood of being unfaithful (Bailey, Kirk, Zhu, Dunne, & Martin, 2000), then males would benefit if they preferred to invest in females who are likely to stay faithful in the first place. Consistent with this logic, Buss and Schmitt (1993) showed that males name faithfulness as one of the desired characteristics in their long-term romance partners.

If males prefer to assort themselves selectively with females who are more likely to remain faithful, females should be motivated to self-present to potential long-term partners in a way that suggests that they do not condone unfaithfulness. There are good theoretical reasons to believe that females are concerned enough about their sexual reputation (Campbell, 2004) to be motivated to manage impressions in this way. For example, teenage females avoid associating with other females known to be ‘tarts’ (Lees, 1993) because they fear acquiring a similar reputation by association. Females are also sometimes willing to engage in physical violence in order to protect their sexual reputation (Campbell, 2004). Statistical data on female juvenile offenders obtained from various governmental agencies, including the FBI in the US and the Home Office in the UK, show that when female–female aggression occurs it is usually in poorer areas between women of approximately the same age (O’Brien, 1988) and the most important causes of fights are attacks on a female’s or her friend’s personal integrity, which include accusations of promiscuity (Campbell, 1986).

If faithfulness is something that males desire in their long-term mates and sexual integrity is something that females are concerned about, females who seek long-term partners should be motivated to communicate to prospective partners that they do not condone unfaithfulness. We therefore hypothesized that when in a long-term relationship mindset, females will distance themselves from a female known to have been unfaithful.

This pattern is predicted only for heterosexual, pre-menopausal females. This is due to the fact that faithfulness is important primarily because of the risk of adulterous conception. This risk is clearly minimal for postmenopausal females and there is no reason that males should not be ‘aware’ of this fact. If males care less about the sexual faithfulness of their post-menopausal partners than they care about the sexual faithfulness of their younger and more fertile partners, it would be less important for post-menopausal females to actively self-present themselves as faithful, which means that they should be less motivated to engage in such self-presentational behavior. The age at which females reach menopause varies widely (Phillips, 2004), so any cut-off age will necessarily be arbitrary. The average age of reaching menopause is 51 years, with 2 to 8 years of peri-menopausal period when a woman’s hormonal profile undergoes substantial changes. We therefore operationalized ‘pre-menopausal’ as being under the age of 50.

We conducted two studies to test our hypothesis regarding female self-presentational behavior. In Study 1, we primed participants with (i) a long-term romantic motive, (ii) a short-term romantic motive or (iii) a control motive. We then presented them with a verbal depiction of a woman who was (i) unfaithful and promiscuous, (ii) promiscuous but faithful or (iii) control. Participants were asked to indicate their reactions to the target female, including judging how likely they were to agree to go to a concert with her, indicating how much they would like to be her friend and judging how similar they were to her.

In Study 2, we investigated nonverbal expressions of social distancing. We examined how males and females reacted to a same-sex acquaintance who strongly implied that he or she was acting unfaithfully in one of three social contexts: (i) when the participant was accompanied by his or her date, (ii) when the participant was accompanied by an opposite-sex acquaintance or (iii) when the participant was accompanied by a same-sex friend.
2. Study 1

As explained above, the design of the study was a 3 (motive type: long-term romance vs. short-term romance vs. control motive)×3 (female type: cheater vs. player vs. traveler control) fully between-participants design. We included two controls for each of the two factors in order to rule out possible alternative explanations of the predicted results.

In particular, the short-term romance condition was included in the motive type factor in order to enable us to argue that it is not just romantic mindset, but rather long-term romance mindset that produces social distancing from unfaithful others. We predicted, in effect, that participants in the short-term romance condition would behave similarly to participants in the control motive condition.

For the female type factor, we included the player condition as a second control in order to rule out two alternative explanations. The first has to do with the threat to a stable relationship posed by a promiscuous female. Such a threat could potentially be a reason enough for a mated female to distance herself from the cheater, so in the absence of the control for promiscuity (i.e., the player condition) the pattern of results we predict could be explained in terms of this threat. The second alternative explanation we sought to rule out was a negative social labeling explanation, whereby females primed with long-term romance distance themselves from promiscuity, on the grounds that it is a negative label for females, rather than infidelity per se. Here, females would distance themselves from the cheater in order to avoid being labeled in a socially undesirable way (i.e., as ‘promiscuous’) by an audience they care about most (long-term partner, as opposed to a short-term partner and non-social control). For this factor, too, we predicted that participants in the player condition would behave similarly to participants in the control condition.

2.1. Method

2.1.1. Participants

Participants were recruited through the internet. They were given a chance to enter a lottery at the end of the study to win an Amazon Voucher of £40, £20 or £10. The study was advertised on Facebook and on websites that host links to online psychological studies, such as http://psych.hanover.edu, http://www.in-mind.org and http://www.socialpsychology.org. Of the 237 participants who participated in the study, 171 were retained for analysis (see Results for exclusion criteria). The average age of the sample was 24.23 (S.D.=7.27). Their ethnic background was as follows: 88% white, 6% Asian, 2% Latino/Hispanic and the rest were black or other. Forty-two percent of the sample reported being single; 38% were either married or ‘in a serious committed relationship,’ while the rest were in casual or steady dating relationships. Fifteen percent of respondents reported having at least one child. Seventy-eight percent had at least some college education and another 8% attended graduate school. Finally, 64% of the sample came from the UK, 32% came from the US, 1% from Canada, while the rest were either continental European or Australian.

2.1.2. Stimulus materials

For the motive-type manipulation we used the materials of Griskevicius et al. (2006). In the committed long-term romance condition, participants read a story in which they imagined meeting a highly desirable person; the story depicts the progress of the romance that develops into a passionate, committed relationship. In the short-term romance condition, participants read a story in which they imagined meeting a highly desirable member of the opposite sex while on a vacation on a tropical island. The meeting occurred on the very last day of the vacation, and the story depicts a romantic day ending in a passionate kiss. Throughout the story, participants are reminded that they will never see this person again. In the control condition, participants read a story in which they imagined losing and looking for a wallet; the story describes the initial anxiety over the inability to find the wallet, but ends with the protagonist finding it and leaving the house feeling elated.

Three scenarios describing different females were prepared in advance. In the first scenario (cheater), a female named Yvette was described as an adventurous woman who likes variety and frequently changes her dating partners; in order to depict her unfaithfulness it was stated that ‘she particularly enjoys the thrill of dating two men at the same time without them realizing it’. In the second scenario (player), Yvette is described in a similar way, but it is stated that even though she changes her partners frequently, she does not date more than one person at any given time. In the third scenario (traveler control), Yvette is similarly described as adventurous, but in this condition she is described as moving frequently from city to city, rather than changing her dating partners frequently.

2.1.3. Measures

All key dependent variables were measured on a 23-point visual analog scale (1 — not at all, 12 — moderately, 23 — extremely). The scales were realized as sliders on the computer screen; the cursor always appeared in the centre of the slider, directly above a point labeled ‘moderately’. The only dependent measure that was accompanied by a different set of instructions was the item ‘How similar do you think you are?’ (i.e., to Yvette). For this item, participants were provided with a diagram that helped them to visualize what ‘similar’ means in this context (see Fig. 1).

We also included a four-item scale measuring the quality of participation (α=.74). The questions were designed to probe how much effort participants invested in completing the questionnaire (e.g., ‘While answering the questions, I tried to follow the instructions and read the materials carefully’) and how much their answers reflected their true
opinions (e.g., ‘At least for some questions in this study I tried to answer contrary to the way that I thought the researchers wanted me’, reverse scored).

2.1.4. Procedure

After agreeing to take part in the experiment, participants answered questions about age, ethnic background, sexual orientation and other demographic variables. They were then randomly allocated to one of the three motive-type conditions (long-term romance, short-term romance or control) and were led to believe that the scenarios they were going to read were given to them because the experimenters were interested in ‘whether the atmosphere of imagined events affects later recall’.

After reading the motive-type materials, participants completed the manipulation check questions. In particular, they were asked to indicate the extent to which they were able to visualize what was happening in the scenario, the extent to which they were excited and happy, and the extent to which they experienced romantic arousal (the order of these items was counterbalanced). Participants were then randomly allocated to one of the female-type conditions (cheater, player or control) and read the corresponding scenario about Yvette. Next, participants answered a number of questions about their perceptions of Yvette; responses to these questions were the key dependent variables. Finally, they completed the participant quality questionnaire and were fully debriefed.

2.2. Results

2.2.1. Exclusion criteria

We excluded a total of 66 participants for the following reasons: failure to indicate sexual orientation or indicating being bi- or homosexual (24 participants); being 50 years of age or above (11 participants); proceeding through pages of the study much faster than the average participant (17 cases); scoring more than 1.96 S.D. less than the mean on the participant quality questionnaire (six cases); not being fluent in English (five cases); and answering 1 (not at all) or 2 on the 7-point scale that probed whether participants were successful in visualizing the scenarios (three cases).

2.2.2. Manipulation checks

The effect of motive type on romantic arousal was significant ($F_{2,168}=101.57$, $p<.000001$, $\eta^2=0.55$), such that participants in the long-term romance condition (mean±S.D.=4.57±1.49) and the short-term romance condition (mean±S.D.=4.69±1.57) were more romantically aroused than participants in the control condition (mean±S.D.=1.48±1.10). However, participants in the three conditions did not differ with respect to how happy the scenarios made them ($F_{2,168}=2.34$, ns). There was no effect of motive type either on how well participants were able to visualize the scenarios ($F_{2,168}=1.84$, ns).

There was, however, a significant effect of motive type on how excited participants felt ($F_{2,168}=6.12$, $p=.003$, $\eta^2=0.068$), such that participants in the short-term romance condition experienced the highest levels of excitement (mean±S.D.=4.94±1.61), followed by participant in the long-term romance condition (mean±S.D.=4.82±1.50), followed by participant in the control prime condition (mean±S.D.=3.95±1.84). Post hoc tests revealed that there was no difference between the long-term and the short-term romance conditions, but both long-term romance ($p=.005$) and short-term romance ($p=.002$) were significantly different from the control condition. We control for level of excitement in all subsequent analyses.

To establish whether participants understood the difference between the long-term and short-term romance scenarios, we analyzed the effect of these two conditions on the item ‘How likely were you to see him again?’ An independent-samples $t$ test revealed that participants in the long-term romance condition were significantly more likely than participants in the short-term romance condition to choose the option ‘very likely’ as opposed to ‘not likely at all’ ($t_{77.91}=9.64$, $p<.000001$).

2.2.3. Contrast analysis

In order to test the specific prediction we are interested in, we recoded our two three-level factors (motive type and female type) into a single nine-level factor with the following conditions: (1) long-term romance and cheater; (2) long-term romance and player; (3) long-term romance and traveler control; (4) short-term romance and cheater; (5) short-term romance and player; (6) short-term romance and traveler control; (7) control prime and cheater; (8) control prime and player; (9) control prime and traveler control.

We then constructed contrasts to test the hypothesis that participants distance themselves from the cheater more than from the player and control, but only when they are in the long-term romance prime, or — in other words — that (i) participants would exhibit more distancing behaviors in the long-term romance condition (vs. short-term romance and control prime) and (ii) participants would exhibit more
distancing behaviors when faced with the cheater (vs. player and traveler control).

Thus, the contrast for the motive-type manipulation was (2, 2, 2, −1, −1, −1, −1, −1), because the motive-type manipulation was represented in the following way: long-term romance motive (Conditions 1, 2 and 3), short-term romance motive (Conditions 4, 5 and 6) and control motive (Conditions 7, 8 and 9). On the other hand, the contrast for the female-type condition was (2, −1, −1, 2, −1, −1, 2, −1, −1), because the female-type manipulation was represented thus: cheater (Conditions 1, 4 and 7), player (Conditions 2, 5 and 8) and traveler control (Conditions 3, 6 and 9).

The first contrast (motive type) compares the three long-term romance conditions to the remaining six conditions, while the second contrast (female type) compares the three cheater conditions to the remaining six conditions. What we are interested in, however, is the interaction of these contrasts, which is obtained by multiplying the two. The interaction contrast of (2, 2, 2, −1, −1, −1, −1, −1) and (2, −1, −1, 2, −1, −1, 2, −1, −1) is (4, −2, −2, −2, 1, 1, −2, 1, 1); and this is the contrast we use in the analysis.

A significant effect of the interaction contrast would indicate that the difference between the cheater and the player and traveler control conditions depends on whether the prime is long-term romance or short-term romance/control. More specifically, it would indicate that participants distance themselves from the cheater more than from the player and control, but only when they are in the long-term romance prime.

2.2.4. Willingness to go to a concert with Yvette

The item ‘go to a concert’ was significantly non-normal ($D_{171} = 0.11$, $p < .001$) and negatively skewed. We therefore transformed this variable using the recommended ‘reflect and square root’ function (Tabachnick & Fidell, 2006). The values of outliers were also changed (the next highest value plus 0.01 or the next lowest value minus 0.01, as appropriate). These procedures produced a normally distributed variable ($D_{171} = 0.065$, ns), with no outliers.

The predicted contrast effect was significant ($F_{1,161} = 4.78$, $p = .03$, $\eta^2 = 0.029$) (see Fig. 2). The main effect of female type was also significant ($F_{2,161} = 5.87$, $p = .003$, $\eta^2 = 0.068$), such that participants were much less likely to say ‘yes’ to going

![Fig. 2. Interaction effect of motive type and female type on likelihood of saying ‘yes’ to going to a concert with Yvette. Note that lower values represent stronger desire to go to a concert with Yvette.](image)
to a concert with the cheater (mean±S.D.=3.03±0.85) than with the player (mean±S.D.=2.66±0.76) or with the traveler control (mean±S.D.=2.49±0.78).

2.2.5. Perception of own similarity to Yvette

The item ‘how similar are you’ was significantly non-normal ($D_{171}=0.12, p<.0001$) and positively skewed. We therefore transformed this variable using the recommended square-root function (Tabachnick & Fidell, 2006). The values of outliers were also changed (the next highest value plus 0.01 or the next lowest value minus 0.01, as appropriate). Although the transformed variable was still non-normal ($D_{171}=0.11, p<.001$), it had no outliers and the standardized value of skewness was less than 1.96. We proceeded with the analysis, because ANOVAs are robust against moderate violations of normality (Glass, Peckham, & Sanders, 1972).

The predicted contrast was significant ($F_{1,161}=4.74, p=.03, \eta^2=0.029$) (see Fig. 3). The main effect of female type was also significant ($F_{2,161}=10.44, p<.001, \eta^2=0.115$), such that participants indicated that they were less similar to the cheater (mean±S.D.=2.34±0.94) than to the player (mean±S.D.=2.96±0.78) or to the traveler control (mean±S.D.=2.81±0.55).

2.2.6. Willingness to be friends with Yvette

The item ‘how much would you like her to be your friend’ was significantly non-normal ($D_{171}=0.15, p<.001$) and negatively skewed. We therefore transformed this variable using the recommended ‘reflect and square root’ function (Tabachnick & Fidell, 2006). The values of outliers were also changed (the next highest value plus 0.01 or the next lowest value minus 0.01, as appropriate). Although the transformed variable was still non-normal ($D_{171}=0.11, p<.001$), it had no outliers and the standardized value of skewness was less than 1.96.

The predicted contrast was significant ($F_{1,161}=4.25, p=.04, \eta^2=0.026$) (see Fig. 4). The main effect of female type was also significant ($F_{2,161}=19.35, p<.001, \eta^2=0.19$), such that participants were less willing to be a friend of the cheater (mean±S.D.=3.69±0.59) than of the player (mean±S.D.=3.07±0.54) or of the traveler control (mean±S.D.=3.25±0.52).

2.2.7. Perceptions of Yvette’s attractiveness and overall likeability

In the analysis of ratings of how pretty Yvette was judged to be, there was only a significant main effect of female type ($F_{2,161}=3.76, p=.025, \eta^2=0.045$), such that participants
judged the cheater (mean±S.D.=14.16±3.4) to be less pretty than either the player (mean±S.D.=15.79±3.36) or the traveler control (mean±S.D.=15.16±2.55). The contrast used in other analyses was not significant. There were no other significant main or interaction effects in a factorial ANOVA either.

The analysis of ratings of Yvette’s overall likeability also revealed only a main effect of female type ($F_{2,161}=21.47, p<.001, \eta^2=0.21$), such that the cheater was perceived to be less likeable (mean±S.D.=10.93±3.7) than either the player (mean±S.D.=14.85±3.97) or the traveler control (mean±S.D.=14.76±3.61). There were no other significant main or interaction effects in a factorial ANOVA.

2.2.8. Perceived threat posed by Yvette

The item ‘threatening’ was significantly non-normal ($D_{171}=0.11, p<.001$), and there was significant negative kurtosis (−2.1). Negative kurtosis produces underestimates of variance (Tabachnick & Fidell, 2006), a problem that cannot be dealt with by transforming the data. Following the recommendations of Tabachnick and Fidell (2006) we dichotomized this variable. In the analysis of these dichotomized ratings there was only a significant main effect of female type ($F_{2,161}=7.1, p=.001, \eta^2=0.081$), such that the traveler control was perceived to be less threatening (mean±S.D.=1.31±0.47) than either the player (mean±S.D.=1.53±0.53) or the cheater (mean±S.D.=1.67±0.49). The contrast used in other analyses was not significant. There were no other significant main or interaction effects in a factorial ANOVA either.

2.3. Discussion

The predicted contrast effect was significant for all three measures of social distancing. Females in a long-term romance (vs. short-term romance and control prime) condition were more reluctant (i) to go to a concert with the cheater, (ii) to be the cheater’s friend and (iii) to regard herself as similar to the cheater. These three motive-type groups did not differ from each other in their desire to go to a concert with a player or a traveler control.

The obtained pattern of results enables us to rule out the alternative explanations mentioned above. First, the fact that the females in the control motive condition behaved similarly to the females in the short-term romance condition allows us to conclude that it is not merely the romantic nature of the long-term romance mindset that leads females in this condition to distance themselves from the cheater. Had we
not included the short-term condition, it would have been possible to argue that females in a romantic mindset distanced themselves from the cheater, because — by being unfaithful — the cheater betrayed the contract implicit in a romantic partnership. The most parsimonious explanation for the demonstrated effect would then be social as opposed to evolutionary in nature. This is not, however, what our results show.

The other two alternative explanations that still we are able to rule out are the threat and the negative labeling explanations. First, the fact that the significant contrast effects on our measures of social distancing were not accompanied by a similar effect on the measure of threat suggests that an explanation in terms of threat is at the very least unlikely to be the whole story. Moreover, if the threat explanation were correct, we should have found that females in the long-term romance mindset also distance themselves from the player, because theoretically the player poses as much of a threat to the relationship as the cheater. Second, the fact that females in the long-term romance condition did not distance themselves from the player suggests that the distancing that occurred in the cheater condition was not due to the fact that females were simply afraid of being negatively labeled (i.e., as promiscuous) by association.

3. Study 2

One alternative explanation that still needs to be ruled out is the possibility that the effect may be gender neutral. It is possible that when pursuing a potential long-term partner, both males and females want to distance themselves from a same-sex person who behaves in a way that casts doubt on his/her integrity. If this were the case, the effect might simply be a generalized strategy that consists of wanting to appear to have his/her integrity. If this were the case, the effect might simply be a gender-neutral explanation, in Study 2 we collected data from males too.

We also used a different method of eliciting self-presentational concerns. Rather than the motive-type manipulation used in Study 1, we manipulated audience type by asking participants to imagine being in the presence of a person in whom they were romantically interested, a person of the opposite gender for whom they had no particular feelings or a person of the same gender whom they wanted to befriend. We also sought to present participants with a situation that called for active self-presentation. Not going to a concert with the cheater or not wanting to be her friend is a way of distancing oneself from her that does not actively communicate to the intended audience the sentiments underlying such decisions. In Study 2, we presented participants with a scenario in which they were faced with a person of the same gender who revealed her/his tendency to be unfaithful and asked participants how they would feel and what they would express on their face.

3.1. Method

3.1.1. Participants

Participants were recruited through the internet. They were given a chance to enter a lottery at the end of the study to win an Amazon voucher of £10, £20 or £40. The study was advertised on Facebook and on websites that host links to online psychological studies, such as http://psych.hanover.edu and http://www.onlinepsychresearch.co.uk. Of the 176 participants who completed the study, 125 were retained for analysis (60% female; see Results section for exclusion criteria). The average age of the retained sample was 25.73 years (S.D.=8.54); 81% identified themselves as white, 8% as Asian, 6% as black, 3% as Latino or Hispanic, and 1% as other. Fifty-three percent reported that they were single; 33% were either married or ‘in a serious committed relationship’, while the rest were in either casual dating or steady dating relationships. Nineteen percent of respondents reported having at least one child. Seventy percent had at least some college education and another 8% attended graduate school. Finally, 63% of the sample came from the US, 24% came from the UK, 4% from Canada and 4% from continental Europe, while the rest were from Australia, China, Israel, Japan and the Philippines.

3.1.2. Materials

The scenario concerned a participant’s same-sex flatmate who jokingly revealed that he/she is being unfaithful to his/her partner to the participant and the participant’s company (audience-type manipulation).

To assess nonverbal behavior, we prepared a set of pictures from which participants could choose the expression that best resembled the one that they themselves would make in response to the events in the scenario. Each expression corresponded to a specific emotion: neutrality, distress, anger, disgust, embarrassment and joy. Except for the ‘embarrassment’ expression, which was taken from Keltner, Young, and Buswell (1997), all other pictures were taken from the FACS manual (Ekman, Friesen, & Hager, 2002). Pictures were cropped to include only the facial area and blurred slightly in order to make irrelevant characteristics, like gender, age and physical attractiveness, less salient.

3.1.3. Procedure

After agreeing to take part in the study, participants answered several demographic questions. They were then randomly allocated to one of three audience-type conditions. They were asked to imagine a particular person of the opposite gender with whom they (i) wanted a romantic relationship or (ii) did not want a romantic relationship; or to imagine a particular person of the same gender with whom they (iii) wanted to be friends. Participants were instructed that, in the scenario that they would read, they should imagine being in the presence of the person they imagined. Participants were then presented with the scenario. After reading it, participants rated the extent to which they would experience certain emotions and chose from the set of six
different facial expressions the expression that they would be most likely to make.

3.1.4. Design

The study had a 2 (participant gender: male vs. female) × 3 (audience type: date vs. opposite-sex control vs. same-sex friend) fully between-participants factorial design.

3.2. Results

3.2.1. Exclusion criteria

Of the total sample that completed the study, we excluded cases (i) where participants proceeded through the web pages much faster than the average participant (16 cases); (ii) where participants reported being younger than 18 years of age (two cases); (iii) where participants reported being homosexual or bisexual (eight cases); and (iv) where participants reported being 50 years of age or over (25 cases).

3.2.2. Manipulation check

In a one-way ANOVA, we examined the effect of audience type (date vs. opposite-sex control vs. same-sex friend) on ratings of physical attractiveness of the imagined person. This was highly significant both for the ‘objective’ (‘How attractive do other people find this person?’ \( t_{2,122}=4.93, \ p=0.009 \)) and ‘subjective’ (‘How attractive was that person to you?’ \( t_{2,121}=17.52, \ p<0.001 \)) measures. Planned contrasts revealed that dates were rated as more attractive on both measures than were opposite-sex controls (objective: \( t_{122}=3.14, \ p=0.002 \); subjective: \( t_{65}=5.46, \ p<0.001 \)). Although there was a non-significant tendency for friends and controls to be rated differently on the objective measure of attractiveness (\( t_{122}=-1.69, \ p=0.094 \)), such that same-sex friends (mean±S.D.=4.68±1.33) were rated as more attractive than opposite-sex controls (mean±S.D.=3.16±1.52), this was not considered to be a problem because the difference was marginal and because friends and controls were not rated any differently on the subjective measure of attractiveness (\( t_{74.9}=0.19, \ ns \)).

Further analysis revealed that compared to opposite-sex controls (mean±S.D.=3.18±1.92), dates (mean±S.D.=5.45±1.64) were rated as more desirable than long-term romance partners (\( t_{53}=5.87, \ p<0.001 \)). Participants reported that they would have liked the imagined person to be their friend significantly more in the same-sex friend condition (mean±S.D.=5.13±1.42) than in the opposite-sex control condition (mean±S.D.=4.37±1.6; \( t_{76}=-2.12, \ p=0.03 \)). The audience manipulation was therefore considered to be successful.

3.2.3. Self-reported emotions

Although the interaction between audience and gender was not significant for any of the reported emotions (affection, amusement, disgust or embarrassment), the main effect of audience on experienced embarrassment was significant (\( F_{2,119}=14.52, \ p=0.023, \ \eta^2=0.161 \)). Participants were more embarrassed in front of a date (mean±S.D.=4.02±1.83) than in front of a control (mean±S.D.=2.95±1.9) or a friend (mean±S.D.=3.0±2.05).

3.2.4. Facial expressions

To examine the effect of audience on this variable, we recoded it into a dichotomous variable, dividing expressions into ‘accepting’ or ‘rejecting’. The accepting expression was a smile, while rejecting expressions were anger, disgust, neutrality and sadness.

A neutral expression was deemed to be rejecting for two reasons. First, participants were choosing how to react to a comment that was clearly meant to be amusing, so there was a certain amount of pressure to react ‘appropriately’, i.e., by smiling. Second, neutral expressions are often perceived as negative (Lee, Kang, Park, Kim, & An, 2008), to the extent that some researchers who study facial expressions alter neutral expressions to be 25% happy (e.g., Phillips et al., 1997), so that they are perceived as neutral by participants. The neutral expression we used was taken from the FACS manual (Ekman et al., 2002) and had not been modified in this way.

Embarrassment was excluded from the analysis, because our data suggested that participants often mistook this expression for a positive one. Thus, expressing embarrassment was positively correlated with the experience of amusement (Spearman’s rho=−.28, \( p=.002 \)) and uncorrelated with the experience of embarrassment (Spearman’s rho=−.02, \( ns \)). With the benefit of hindsight, this pattern of results is not surprising because the embarrassment expression we used depicted a person smiling while looking down and touching his face. The emotion that it portrayed could be experienced in reaction to, for example, being praised in public — an event that can certainly be embarrassing, but is not altogether

![Fig. 5. Effect of audience on females’ expressions of rejecting and accepting expressions.](image-url)
unpleasant. Including embarrassment as a rejecting emotion does not substantially alter the results; however, we reasoned that including this expression would make the interpretation of the results difficult. Together, the remaining expressions (anger, disgust, happiness, neutrality and sadness) comprised 82% of all chosen expressions for both genders.

A Kruskal–Wallis test of the effect of audience on female displays of accepting and rejecting emotions was significant ($\chi^2=9.51, p=.009$) (see Fig. 5), such that females expressed rejection (anger, disgust, neutrality and sadness) more often than acceptance emotions in the date condition. The comparable test was not significant for males ($\chi^2=0.5$, ns) (see Fig. 6).

3.2.5. Conscious desire to impress

We measured conscious desire to impress by asking participants whether, in choosing what they would express, they were motivated to impress the person they were asked to imagine. Participants indicated their answers on a scale ranging from 1 (not at all) to 4 (moderately) to 7 (extremely). There was no significant interaction effect of audience type and gender on this measure ($F_{2,104}=0.50, \text{ns}$, $\eta^2=.01$). The average score was 3.25 (S.D.=1.9).

3.3. Discussion

We have found a significant effect of audience type on females’ expressions of rejecting and accepting emotions towards an unfaithful acquaintance. Females were more likely to express negative emotions when in front of a date than when in front of an opposite-sex control or a same-sex friend. This pattern was reversed for smiling, such that females were most likely to smile in front of a same-sex friend.

Like females, males were more likely to express rejecting emotions than accepting emotions; however, the likelihood that they would express a certain type of emotion (rejecting or accepting) did not vary as a function of audience type. Thus, the effect is not gender neutral. As predicted, only females modulated their emotional expressions towards an unfaithful acquaintance as a function of audience type.

4. General discussion

In two studies, we have shown that females in a long-term romance mindset or in the presence of a date distance themselves from other females who are known to be unfaithful. In Study 1, we showed that females in a long-term romance condition indicated that they would be less likely to say ‘yes’ to going to a concert with the unfaithful woman, that they would be less willing to be her friend and that they were less similar to her (by comparison with control conditions). This pattern was not observed for females in a short-term romance mindset or a control mindset. In Study 1, we also ruled out several alternative explanations of our results, including the threat explanation and the negative labeling explanation.

In Study 2, we showed that in the presence of a potential long-term partner, females (but not males) expressed more rejecting emotions towards a same-sex acquaintance who indicated a predilection to be unfaithful. Thus, the distancing from an unfaithful same-sex other is specific to females and is reflected in expressive behavior as well as in more passive forms of distancing. Furthermore, the tendency for females to engage in this self-presentational behavior does not appear to be consciously motivated; females did not report trying to impress their dates any more than they reported trying to impress opposite-sex controls or same-sex friends. This pattern is consistent with the findings of Roney (2003), who showed that males who were exposed to young females reported placing higher importance on social status and described themselves as more ambitious, but did not think consciously about mate attraction and were not aware that their answers had been influenced. Thus, using different manipulations, stimulus material and dependent measures, we have shown that, when in a long-term romance mindset or in the presence of a romantic date, females tend to distance themselves from another female who is known to be unfaithful and that they do not do this as part of a conscious strategy of impression management.

Our results also show that the cheater was perceived to be less attractive and less likeable than the player and the traveler control. The fact that she was perceived as less likeable overall is readily understandable; after all, the cheater breaks the contract implicit in romantic relationships and she may therefore be perceived as someone who ‘free
rides’ her way through social relationships — a trait unlikely to be received positively. The fact that the cheater was perceived to be less attractive, on the other hand, is more puzzling, especially in light of the fact that beautiful women are often perceived to be more prone to being unfaithful (Singh, 2004). This suggests that the explanation of the effect lies not in the correlations, illusory or otherwise, between attractiveness and faithfulness, but somewhere else.

A possible explanation is that negative information about the cheater’s personality generalizes to her external appearance. Cosmides (1987) suggested that, over evolutionary history, people were disadvantaged by dealing with ‘free riders’ and that they have therefore evolved a specialized mechanism for detecting potential cheaters. Detecting cheaters, however, is only part of the process of avoiding them; having detected the cheater, one needs to steer clear of them. What better way is there to make cheater avoidance successful than to code the visual features of the cheater as less attractive?

4.1. Theoretic significance

Our results provide support for the role of paternity uncertainty in female self-presentational efforts in the context of attracting long-term mates. Males have evolved to be vigilant about their existing long-term partners’ fidelity (Buss et al., 1992; Daly et al., 1982; Trivers, 1972) and they name faithfulness as one of the desirable characteristics in their potential long-term mates (Buss & Schmitt, 1993). This concern about female fidelity, we argue, has made it advantageous for women who are motivated to start a long-term relationship to advertise that they do not condone unfaithful behavior. This lack of condonation is expressed on measures of behavioral choice, perceptions of self—other similarity, and expressive behavior.

4.2. Future directions

Reproductive behavior is sensitive to cues that are germane to its success (Gangestad & Simpson, 2000; Little, 2001). One such cue is one’s own desirability as a partner (Kenrick, Groth, Trost, & Sadalla, 1993). Thus, attractive females prefer more masculine and symmetric men as long-term partners (Penton-Voak et al., 2003; Little, Burt, & Perrett, 2006). Furthermore, these females are generally very desirable as mates (e.g., Li, Bailey, Kenrick, & Linsenmeier, 2002) and tend to be perceived (as are attractive males) as more popular and less socially anxious (Feingold, 1992). However, Singh (2004) showed that beautiful women also tend to be perceived as more unfaithful. This is not surprising, since attractiveness is correlated with the number of sexual encounters and sexual variety, which are in turn correlated with the number of extra-pair copulations (Hughes & Gallup, 2003). Thus, if beautiful women are more ‘at risk’ for being unfaithful, they should be particularly motivated to advertise their faithfulness to desirable long-term mates. Self-rated attractiveness should therefore moderate the effect of long-term romantic mindset on distancing behavior observed in the present research.

5. Summary

Females motivated to attract a long-term partner self-present themselves to potential partners in ways that suggest that they are likely to be faithful. Faithfulness is so advertised because — as a solution to the adaptive problem of uncertainty of paternity — males have evolved a tendency to care about their long-term partners’ sexuality (Buss et al., 1992; Daly et al., 1982; Trivers, 1972).

References


