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Sexual arousal and the pursuit of attractive mating opportunities

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ABSTRACT

From an evolutionary perspective, sexual arousal may function, in part, to motivate the pursuit of attractive mating opportunities. We designed a study to test three aspects of this hypothesis. Several hundred heterosexual men and women completed a short survey about sexual arousal in response to a casual sex mating opportunity. We replicated previous research documenting that men report greater sexual arousal than women in response to a short-term mating opportunity. We argue that it is unlikely that a “downplaying of alternatives” psychology evolved, whereby mated individuals rate opposite-sex targets as less attractive than do unmated individuals, but instead that men and women have a relationship-seeking psychology, motivating them to pursue attractive mating opportunities. The results supported this relationship-seeking psychology rather than a downplaying alternatives psychology. Discussion addresses directions for future research on the motivational properties of sexual arousal.

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Sexual arousal is an emotional and physiological response to cognitions about sexually stimulating situations and potential partners (Levay & Valente, 2002; Shackelford, LeBlanc, & Drass, 2000). From an evolutionary perspective (e.g., Buss, 2003), sexual arousal may function, in part, to motivate the pursuit of mating opportunities. If sexual arousal functions to motivate pursuit of mating opportunities, then reported sexual arousal will correspond to mating behaviors that would have benefited men and women reproductively over evolutionary history. In the current research, we test several predictions about the functional nature of sexual arousal in response to an attractive casual sex opportunity.

The first prediction is derived from the theory of parental investment (Trivers, 1972), and is consistent with a large literature on psychological sex differences resulting from a biological sex difference in minimum obligatory parental investment: men are more interested in casual sexual opportunities than are women (Oliver & Hyde, 1993; Schmitt, Shackelford, & Buss, 2001). Because the minimum obligatory parental investment is smaller for men than for women, men's psychology motivates a sexual strategy that would have benefited them over evolutionary history: opportunistic pursuit of casual sex (Buss, 2003). We predict that reported sexual arousal also will reflect this psychological sex difference. The first prediction, if supported, not only will confirm that our sample of participants is similar to those studied previously, but also will demonstrate that men's greater relative interest in casual sex is reflected in self-reported sexual arousal.

Prediction 1: Men will report greater sexual arousal than women will in response to an attractive casual sex opportunity.

Sexual arousal also may function, in part, to maintain a romantic relationship or, conversely, to motivate the pursuit of mating opportunities among unmated individuals. Mated men and women rate both available and unavailable targets as less physically and sexually attractive than do unmated individuals (Johnson & Rusbult, 1989; Simpson, Gangestad, & Lerma, 1990). Until recently, this effect was presumed to be in the service of relationship maintenance, insofar as “downplaying alternatives” functions to maintain a faithful, committed relationship. Bazzini and Shaffer (1999) have since demonstrated that unmated men and women increase their ratings of the attractiveness of opposite-sex targets from a baseline, rather than mated men and women devaluing the attractive alternative from a baseline: unmated participants rate a target who is interested in themselves to be more attractive than a target who is interested in dating a friend of theirs. In addition, mated men and women do not rate the target to be less attractive – in fact, mated individuals also rate the target interested in themselves as more attractive (Bazzini & Shaffer, 1999).

From an evolutionary perspective, it might be unlikely that natural selection designed in men and women a “relationship maintenance” psychology that includes downplaying all alternatives. Although mated men and women are expected to be sensitive to the costs of a discovered infidelity, any mechanism for selecting more attractive partners with “better” genes, or partners who have a higher “mate-value” than their current partner, would likely be selected over a mechanism for inflexibly preserving a mateship with someone of lower mate-value. It is not that mated men and

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women do not exhibit a relationship maintenance psychology – clearly, this is not the case, as there are substantial costs associated with a discovered infidelity and relationship dissolution. Instead, mated individuals will not downplay *all* alternatives, as the identification of an advantageous mating opportunity was likely selected for. This argument against a rigid downplaying of alternatives effect is consistent with the results of Bazzini and Shaffer (1999), and with results indicating mated men provide lower ratings of relationship satisfaction after viewing *Playboy* centerfolds (Kenrick, Gutierrez, & Goldberg, 1989). Further evidence against a rigid downplaying of alternatives effect comes from results indicating that even mated men are more likely than unmated women or mated women to selectively recall attractive faces of the opposite sex (Kenrick, 1989). That is, men in relationships did not downplay alternatives more than unmated women – suggesting that a downplaying alternatives psychology is sensitive to advantageous mating opportunities.

Previous research and the present evolutionary logic suggest that a rigid downplaying of alternatives psychology is not likely to have been favored by natural selection. We instead argue for the existence of a relationship-seeking psychology. There are costs to remaining unmated from an evolutionary perspective; for example, unmated individuals (i.e., those who do not have heterosexual sexual intercourse) cannot transmit copies of genes to offspring. Natural selection likely selected for individuals who placed a premium on finding a mate, whether by perceiving potential mates to be more sexually attractive or, as in the current study, by being more sexually aroused by a potential mating opportunity. Although we suggest that even mated individuals may be somewhat inclined to capitalize on an attractive extra-pair mating opportunity relative to an unattractive extra-pair mating opportunity, we nonetheless predict that because of the potential costs incurred by remaining unmated over evolutionary history, unmated men and women will exhibit particular motivation, demonstrated by greater reported sexual arousal, to pursue an attractive mating opportunity.

Prediction 2: Unmated men and women will report greater sexual arousal than mated men and women will in response to an attractive casual sex opportunity.

A downplaying of alternatives psychology also predicts that unmated men and women will report more sexual arousal than mated men and women will, however. Thus, to distinguish between our proposed relationship-seeking psychology and the downplaying alternatives hypothesis, we examine the absolute arousal ratings provided by mated individuals. A relationship maintenance psychology predicts that mated men and women find an attractive alternative absolutely unattractive (Johnson & Rusbult, 1989), whereas a relationship-seeking hypothesis predicts mated individuals will be absolutely attracted to a very attractive alternative. If sexual arousal functions to motivate pursuing adaptive mating opportunities, then mated men and women – if they are downplaying alternatives – will rate themselves as not aroused by a casual sex opportunity. If they instead have a relationship-seeking psychology sensitive to attractive mating opportunities, they will report being absolutely aroused by an attractive casual sex opportunity.

Prediction 3: If the downplaying alternatives hypothesis is correct, the mean sexual arousal rating provided by mated men and women in response to an attractive casual sex opportunity will be below the median. If the relationship-seeking hypothesis is correct, the mean sexual arousal rating to an attractive casual sex opportunity provided by mated individuals will be above the median.

We conducted a study to investigate, first, if reported sexual arousal in response to a casual sex opportunity reveals a predicted sex difference and, second, if there is a predicted difference in

sexual arousal according to relationship status. To distinguish between two competing hypotheses for why mated men and women might be less aroused by a mating opportunity than are single men and women, we examined if mated men and women reported that they were, or were not, absolutely aroused by a casual sex opportunity.

1. Method

1.1. Participants

Two hundred heterosexual men and 264 heterosexual women participated in this study. Men ranged in age from 18 to 51 years, with a mean of 19.7 ($SD = 4.0$) and women ranged in age from 18 to 45 years, with a mean age of 20.8 ($SD = 5.3$). Two hundred and fifty six participants, 132 men and 124 women, reported they were not currently in a committed relationship. Two hundred and eight participants, 68 men and 140 women, reported they were currently in a committed relationship. Participants received course credit in compensation for their participation.

1.2. Materials and procedure

Participants completed a short survey that included questions about their age, sex, and relationship status, and queried them about their sexual arousal in response to a scenario describing a casual sex opportunity. Participants were asked to imagine a scenario in which a chance arises to have a one-night stand (i.e., sexual intercourse for just one night) with a single “extremely sexually attractive” person of the opposite sex. Participants rated how sexually aroused they were by this scenario, using a scale that ranged from 0 to 9, where 0 = *not at all sexually aroused* and 9 = *extremely sexually aroused*.

2. Results

We conducted an analysis of covariance with arousal rating as the dependent variable, and sex (male, female) and relationship status (currently in a committed relationship, not currently in a committed relationship; mated and unmated, respectively) as independent variables. We included age (years) as a covariate, to control for effects attributable to age. Consistent with the first prediction, men reported greater sexual arousal ($M = 6.39$, $SD = 2.57$) than women ($M = 5.47$, $SD = 2.88$) in response to the casual sex opportunity [$F(1, 462) = 12.37$, $p < .001$]; Cohen (1988) effect size $d = 0.34$].

The second prediction also was supported: unmated individuals ($M = 6.64$, $SD = 2.59$) rated themselves as more sexually aroused by the casual sex opportunity than did mated individuals ($M = 5.11$, $SD = 2.96$; $F(1, 462) = 27.05$, $p < .001$, $d = 0.55$). The test of the third prediction supported the relationship-seeking hypothesis but not the downplaying alternatives hypotheses – the average sexual arousal rating by mated men and women was greater than the median [$t(207) = 2.97$, $p < .001$, $d = 0.41$]. Age negatively predicted sexual arousal [$F(1, 462) = 5.41$, $p < .05$, partial $\eta^2 = .01$]. None of the interactions were significant ($p > .05$); these analyses are available from the first author on request.

3. Discussion

The results of this study are consistent with the hypothesis that sexual arousal motivates evolutionarily adaptive behavior. The first prediction, that men will report greater sexual arousal than women will in response to an attractive casual sex opportunity, was supported and provides further evidence for the robustness of this

psychological sex difference. The second prediction also was supported: unmated men and women report greater sexual arousal than mated men and women do in response to an attractive casual sex opportunity. Mated men and women rated themselves as absolutely aroused by this causal sex opportunity – directly challenging the downplaying alternatives hypothesis and supporting our proposed relationship-seeking hypothesis. In addition, younger participants reported greater sexual arousal than older participants. This age effect replicates previous research (e.g., Levay & Valente, 2002), and provides further evidence of the normalcy of our sample of participants.

The results testing the second and third predictions supported our proposed relationship-seeking psychology. The evolutionary consequences of remaining unmated are acute, and single men and women in our sample were especially motivated, relative to mated men and women, to pursue an attractive casual sex opportunity. The implications of this are not that mated men and women are downplaying alternative mating opportunities, however. Mated men and women in our study reported being absolutely aroused by this same mating opportunity – they were attracted to it. They may not have been as aroused by it as unmated men and women were, but they did not downplay their absolute attraction to the casual sex opportunity. Future research investigating relationship maintenance psychology should explore the interplay of relative and absolute arousal to attractive alternatives. Can we really consider it “downplaying alternatives” if men and women are attracted to it? This result, combined with research indicating unmated men and women report increased assessments of attractiveness from a baseline (when the person is interested in themselves versus a friend; Bazzini & Shaffer, 1999), provide mounting support for a relationship-seeking psychology.

Although this study supports the role of sexual arousal in seeking adaptive mating opportunities, future research should test additional predictions of this hypothesis. The evolutionary logic for the relationship-seeking psychology we propose suggests that mated individuals would only reproductively benefit by defecting from a relationship (or, as in this study, risk relationship dissolution if the infidelity is discovered) if the alternative partner has a higher mate-value than the current partner. Future research should inquire about features of the current mate, to determine if sexual arousal calibrates to the attractiveness of alternatives relative to the mate-value of the current partner, as predicted by this relationship-seeking psychology.

In addition, women who are ovulating – at the most fertile point of their ovulatory cycle – and who are mated to an asymmetrical (low mate-value) partner, are most interested in short-term mating (Gangestad, Thornhill, & Garver-Apgar, 2005). We did not inquire about cycle status in this research, but it may indeed explain variation among mated women in arousal to the casual sex opportunity. Future research should investigate the role of ovulatory cycle status on women's sexual arousal to casual mating opportunities.

We suggest that, if a relationship maintenance psychology exists, natural selection might have shaped even highly committed individuals to capitalize on a mating opportunity that would have conferred great reproductive benefits. We are not suggesting a reproductively wise strategy would be to seize any attractive mating opportunity. Instead, it is likely that, when confronted with an attractive mating opportunity, an individual will perform (unconsciously) a cost-benefit analysis, weighing the potential costs of pursuing this opportunity against the potential benefits.

There are additional ways to distinguish between support for a relationship-seeking psychology and a downplaying alternatives psychology. For example, one hypothesis explaining the relationship maintenance psychology proposes the effect is attributable to “commitment calibration” (Lydon, Fitzsimons, & Naidoo,

2003), and that mated individuals downplay alternatives only when the alternative threat-level (i.e., the mate-value of the alternative mate) is equal to their level of relationship commitment. The evolutionary logic presented in the current article generates different predictions – men and women should pursue an opportunity with an individual of relatively higher mate-value, regardless of commitment level. For example, given the costs of a discovered infidelity, moderately committed participants (as are many undergraduate students in relationships) presented with a target of similar mate-value to their current partner are not predicted to display motivational sexual arousal effects in either direction – to pursue or downplay this alternative. The commitment calibration hypothesis, in contrast, predicts a downplaying of alternatives effect in this condition because the threat of the alternative mate is commensurate to the level of commitment. In addition, according to our relationship-seeking hypothesis, even highly committed individuals will report increased sexual arousal to an extremely attractive mating opportunity. The commitment calibration hypothesis predicts that highly committed individuals (e.g., married participants), when presented with a highly threatening target (as would be a relatively higher mate-value target) will display a downplaying of alternatives, whereas the present logic suggests that, over evolutionary history, men and women who declined this attractive mating opportunity likely experienced relatively lower reproductive success than did individuals who seized it.

A limitation of this study is the use of a single-item assessment of sexual arousal. Although previous research using multiple-item assessments of similar constructs indicates that the current single-item assessment is likely to provide a valid assessment of sexual arousal (e.g., Shackelford et al., 2002), future research on the nature and function of sexual arousal might secure multiple-item assessments of sexual arousal. Future research also might profitably address the nature of sexual arousal by identifying if it fluctuates according to other hypothesized adaptive or non-adaptive situations. For example, incestuous sexual relationships are maladaptive because of the costs associated with inbreeding depression and, as such, humans may have evolved incest avoidance mechanisms (e.g., Brevc & Silverman, 2000; Lieberman, Tooby, & Cosmides, 2003). Accordingly, men and women should report very low sexual arousal in response to incestuous mating opportunities.

In summary, the current study provides support for the hypothesis that sexual arousal may have evolved to motivate the pursuit of attractive mating opportunities. Future research could investigate sexual arousal in other contexts in which men and women might have benefited from pursuing mating opportunities over evolutionary history. Such research would allow not only for additional tests of the hypothesis that sexual arousal functions, in part, to motivate the pursuit of attractive mating opportunities, but also might generate additional evidence of the sensitivity of human psychological mechanisms to specific contexts and circumstances.

References

- Bazzini, D. G., & Shaffer, D. R. (1999). Resisting temptation revisited: Devaluation versus enhancement of an attractive suitor by exclusive and nonexclusive daters. *Personality and Social Psychology Bulletin*, 25, 162–176.
- Brevc, I., & Silverman, I. (2000). Early separation and sibling incest: A test of the revised Westermarck theory. *Evolution and Human Behavior*, 21, 151–161.
- Buss, D. M. (2003). *The evolution of desire* (rev. ed.). New York: Basic Books.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Gangestad, S. W., Thornhill, R., & Garver-Apgar, C. E. (2005). Women's sexual interests across the ovulatory cycle depend on primary partner developmental instability. *Proceedings of the Royal Society B*, 272, 2023–2027.
- Johnson, D. J., & Rusbult, C. E. (1989). Resisting temptation: Devaluation of alternative partners as a means of maintaining commitment in close relationships. *Journal of Personality and Social Psychology*, 57, 967–980.
- Kenrick, D. T. (1989). Bridging social psychology and sociobiology: The case of sexual attraction. In R. W. Bell & N. J. Bell (Eds.), *Sociobiology and the social sciences* (pp. 5–23). Lubbock, TX: Texas Tech University Press.

- Kenrick, D. T., Gutierrez, S. E., & Goldberg, L. L. (1989). Influence of popular erotica on judgments of strangers and mates. *Journal of Experimental Social Psychology*, 25, 159–167.
- Levay, S., & Valente, S. M. (2002). *Human sexuality* (2nd ed.). Sunderland, MA: Sinauer Associates.
- Lieberman, D., Tooby, J., & Cosmides, L. (2003). Does morality have a biological basis? An empirical test of the factors governing moral sentiments relating to incest. *Proceedings of the Royal Society of London, B*, 268, 39–44.
- Lydon, J. E., Fitzsimons, G. M., & Naidoo, L. (2003). Devaluation versus enhancement of attractive alternatives: A critical test using the calibration paradigm. *Personality and Social Psychology Bulletin*, 29, 349–359.
- Oliver, M. B., & Hyde, J. S. (1993). Gender differences in sexuality: A meta-analysis. *Psychological Bulletin*, 114, 29–51.
- Schmitt, D. P., Shackelford, T. K., & Buss, D. M. (2001). Are men really more 'oriented' toward short-term mating than women? A critical review of theory and research. *Psychology, Evolution, and Gender*, 3, 211–239.
- Shackelford, T. K., LeBlanc, G. J., & Drass, E. (2000). Emotional reactions to infidelity. *Cognition and Emotion*, 15, 643–659.
- Shackelford, T. K., LeBlanc, G. J., Weekes-Shackelford, V. A., Bleske-Rechek, A. L., Euler, H. A., & Hoier, S. (2002). Psychological adaptation to human sperm competition. *Evolution and Human Behavior*, 23, 123–138.
- Simpson, J. A., Gangestad, S. W., & Lerma, M. (1990). Perception of physical attractiveness: Mechanisms in the maintenance of romantic relationships. *Journal of Personality and Social Psychology*, 59, 1192–1201.
- Trivers, R. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). Chicago: Aldine-Atherton.