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## FlashReport

# You do not only hurt the one you love: Self-protective responses to attractive relationship alternatives

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## ABSTRACT

Committed romantic relationships confer important benefits to psychological health and well-being. However, to effectively maintain these relationships, individuals must avoid threats posed by the temptation of attractive relationship alternatives. Previous work has demonstrated that individuals in committed relationships consciously downplay the allure of romantic alternatives. The current work tested the hypothesis that attractive relationship alternatives evoke an automatic self-protective response at an early stage of cognition. The current study employed a computer simulation that recorded automatic, split-second assessments of threat elicited by social targets that varied in their gender and level of attractiveness. Consistent with hypotheses, attractive opposite-sex targets evoked automatic self-protective responses from participants in committed heterosexual relationships. Moreover, these responses seemed to be particularly pronounced among the male participants in committed relationships. These findings have implications for the maintenance of long-term close relationships.

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## Introduction

Although committed romantic relationships are extremely rewarding and provide both psychological and health benefits (e.g., Gonzaga, Keltner, Londahl, & Smith, 2001; Horwitz, White, & Howell-White, 1996; Hu & Goldman, 1990), maintaining these relationships can be a challenge. One factor that threatens the success of romantic relationships is the presence of attractive relationship alternatives (Gonzaga, Haselton, Smurda, Davies, & Poore, 2008; Kenrick, Neuberg, Zierk, & Krones, 1994; Lydon, Meana, Sepinwall, Richards, & Mayman, 1999; Rusbult, 1983). In order to remain committed to their current romantic partner, people must avoid this potential threat to their relationship success. Indeed, many people who are committed to a long-term partner actively work to downplay the allure of romantic alternatives. For example, compared with less committed people, highly committed people rate alternatives as less attractive and spend less time looking at attractive alternatives (e.g., Lydon, Fitzsimons, & Naidoo, 2003; Maner, Gailliot, & Miller, 2009; Maner, Rouby, & Gonzaga, 2008; Miller, 1997; Simpson, Gangestad, & Lerma, 1990). Responses such as these help the individual avoid being tempted by attractive alternatives.

Theories of relationship maintenance presume that relationship alternatives are perceived as threats that elicit psychological responses designed to downregulate the threat. Few studies, how-

ever, have directly tested the hypothesis that attractive relationship alternatives evoke a psychological threat response (c.f., Lydon, Menzies-Toman, & Burton, 2008). Moreover, previous work has focused almost exclusively on threat responses occurring at conscious and explicit levels of cognition (e.g., overt judgments of attractiveness). This raises the question: is the threat posed by attractive alternatives processed only at conscious and controlled levels of cognition, once people have had time to consider the costs of straying from their relationship? Or, instead, do attractive alternatives also evoke threat responses at earlier and more automatic stages of cognition? The current study examined whether mere exposure to an attractive relationship alternative elicits a quick and automatic self-protective response.

To the extent that romantic relationships provide important rewards, attractive alternatives should pose a significant psychological threat. Consequently, among committed individuals, even initial evaluations of attractive alternatives are likely to be cognitively and affectively tinged by perceptions of threat. We therefore hypothesized that mere exposure to attractive alternatives would elicit automatic threat responses from individuals in committed romantic relationships.

We also considered whether participants' gender would moderate the degree of psychological threat evoked by attractive relationship alternatives. Previous work indicates that physically attractive alternatives may be particularly threatening to the relationship success of men. For example, Kenrick and colleagues (1994) demonstrated that men but not women reported less satisfaction with their current romantic partners after being exposed to

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physically attractive (compared to average-looking) opposite-sex targets (see also Kenrick, Gutierrez, & Goldberg, 1989; cf. Lydon et al., 2008). Based on such findings, one might expect that threat responses to attractive alternatives would be stronger for men than women.

Based on the mate-guarding literature, whereby people in committed relationships are vigilant to same sex romantic rivals who could threaten the success of their relationship (e.g., Buss & Schmitt, 1993; Buss & Shackelford, 1997; Haselton & Gangestad, 2006), one might also anticipate that committed individuals would display a threat response to attractive members of their own sex. However, attractive rivals can threaten both people in committed relationships (by increasing the likelihood of infidelity) and single people (by competing over access to new partners). Indeed, several recent studies revealed no differences between single and committed participants in their romantic vigilance to attractive same sex individuals (e.g., Maner, Miller, Rouby, & Gailliot, 2009; Maner et al., 2009). Moreover, studies suggest that neither committed nor single participants automatically derogate attractive same sex individuals unless they are primed with feelings of jealousy or thoughts of infidelity (e.g., Maner, Gailliot, Rouby, & Miller, 2007; Maner, Miller et al., 2009). Thus, we predicted that committed individuals would display automatic threat responses to attractive relationship alternatives, but not to potential relationship rivals.

To assess participants' automatic threat responses to attractive alternatives, we used an approach that allowed us to directly tap automatic self-protective responses. Participants completed a computer simulation in which they identified whether target individuals were dangerous (i.e., armed) or not dangerous (i.e., unarmed). This approach has been used extensively in the stereotyping literature to assess the extent to which participants associate threat with particular kinds of targets (Correll, Park, Judd, & Wittenbrink, 2002; Plant & Peruche, 2005; Plant, Peruche, & Butz, 2005). Such studies have shown that targets associated with threat are mistakenly identified as dangerous even when they are unarmed (e.g., Correll et al., 2002).

In the current study, participants identified whether people who appeared on the computer screen were dangerous based on whether a gun was present in the picture. Targets varied in gender and level of attractiveness. We hypothesized that participants in a committed, heterosexual relationship would automatically perceive attractive opposite-sex targets as a threat and, therefore, would be biased toward identifying those targets as having a gun. We further examined whether this tendency would be most pronounced among male participants.

We chose this approach for two reasons. First, the task allowed us to evaluate participants' automatic self-protective responses to rapidly presented target images, which allowed us to evaluate relatively automatic responses to attractive alternatives. Second, the task veiled the true purpose of the study, thereby, reducing concerns about socially desirable responding. For example, committed individuals may feel it is socially desirable to respond negatively to an attractive alternative. Because the task in the current study seemingly had little to do with relationships, we presumed social desirability would have little impact on participants' responses. Moreover, because responses to the simulation were made extremely quickly, participants had minimal opportunity to consciously manipulate their responses.

It is worth noting that our predictions differ from what might be expected based on the halo effect literature, which tends to reveal a positive bias toward attractive people (e.g., Dion, Berscheid, & Walster, 1972; Eagly, Ashmore, Makhijani, & Longo, 1991). Based on this literature, one might anticipate that people would be unlikely to perceive attractive people as threatening (e.g., Downs & Lyons, 1991; Efran, 1974). Despite the positive bias toward attrac-

tive people, we expected committed participants to display negative, self-protective responses toward attractive members of the opposite sex.

## Method

### *Participants and design*

Participants were 117 introductory psychology students who participated for course credit (66% female; 72% White). Forty-nine percent of participants were currently in a heterosexual romantic relationship ( $M$  age = 19.19,  $SD$  = 1.71). The design of the study was a 2 (Target Gender: male vs. female)  $\times$  2 (Target Attractiveness: attractive vs. average-looking)  $\times$  2 (Object: gun vs. neutral)  $\times$  2 (Participant Gender: male vs. female)  $\times$  2 (Relationship Status: single vs. committed) mixed design with Participant Gender and Relationship Status as between subject factors.

### *Procedure and materials*

Participants were told that they would complete a simulation examining decisions about danger. The computer simulation was based on work by Plant et al. (2005). Participants were instructed: "Pictures of people with objects will appear at various positions on the screen. . . Some of the pictures will have a face of a person and a gun. These people are the criminals, and you are supposed to shoot at these people. Some of the pictures will have a face of a person and some other object (e.g., a wallet). These people are not the criminals and you should not shoot at them. Press the 'A' key for "SHOOT" and press the 'L' key for "DON'T SHOOT".

The program presented participants with images of highly attractive and average-looking, White, college-aged men and women displaying neutral facial expressions. Images were selected from those used in Maner, Miller et al. (2009). All images were pre-tested to ensure that attractive faces were rated as more attractive than average-looking faces and that the male and female pictures of each category were equivalently attractive. A picture of a gun or a neutral object (e.g., wallet) was superimposed upon each image, so that the face was still clearly visible. The location of the object varied so that participants could not predict where it would appear. The computer program presented each image in random order on the screen until the participant responded or until 630 ms elapsed. Each participant completed 20 practice trials and 160 test trials. After the simulation, participants completed a brief questionnaire that assessed their relationship status.

## Results

Participants who viewed the targets as a threat should be more likely to mistakenly shoot the target if he or she was unarmed than to mistakenly *not* shoot the target if he or she was paired with a weapon. We conducted a mixed-model analysis of variance on the average number of errors during the simulation. We observed a Target Gender  $\times$  Object interaction and a Target Attractiveness  $\times$  Object interaction, both of which were subsumed by the predicted interaction among Target Gender, Participant Gender, Relationship Status, Target Attractiveness, and Object  $F(1, 109) = 4.21, p < .05$ , partial  $\eta^2 = .04$ .

To unpack this complex interaction, we examined the responses of single and committed participants separately. Among single participants, there was no evidence of an interaction among Target Gender, Participant Gender, Target Attractiveness, and Object,  $F < 1$ . In contrast, among committed participants, this 4-way interaction was significant,  $F(1, 53) = 4.83, p < .05$ , partial  $\eta^2 = .08$ . Examination of the committed, male participants revealed an

interaction between Target Gender, Target Attractiveness, and Object,  $F(1, 15) = 5.61$ ,  $p < .05$ , partial  $\eta^2 = .27$ . This interaction reflected biased responses to female targets. Consistent with predictions, committed men responded differentially to the attractive and average-looking female targets based on the object,  $F(1, 15) = 9.78$ ,  $p < .01$  (see Fig. 1). Specifically, committed men were more likely to mistakenly shoot the unarmed attractive female targets ( $M = 5.38$ ,  $SD = 3.63$ ) than to mistakenly not shoot the armed female attractive targets ( $M = 3.69$ ,  $SD = 2.02$ ),  $p < .05$ , thus providing evidence for a threat response to attractive female targets. When the female targets were average-looking, committed men did not respond differently to unarmed female targets ( $M = 3.19$ ,  $SD = 2.20$ ) vs. armed female targets ( $M = 4.38$ ,  $SD = 2.45$ ),  $p = .08$  (if anything, the trend was in the opposite direction from that for attractive female targets, suggesting that average-looking women were not perceived as threatening). Committed men did not respond differently to the attractive vs. average-looking male targets based on object,  $p = .72$ .

Among female participants in a relationship, the analysis revealed no significant main effects or interactions. However, when we directly compared the committed male and female participants' responses to attractive and average-looking opposite-sex targets, there was a strong attractiveness by Object interaction,  $F(1, 53) = 13.95$ ,  $p < .05$ , partial  $\eta^2 = .21$  that was marginally moderated by Participant Gender,  $F(1, 53) = 3.40$ ,  $p = .07$ , partial  $\eta^2 = .06$ . Further, direct examination of the responses to attractive male tar-

gets revealed that women in a relationship were a bit more likely to mistakenly shoot unarmed attractive male targets ( $M = 3.87$ ,  $SE = 2.12$ ) than to mistakenly not shoot armed attractive male targets ( $M = 3.18$ ,  $SE = 1.93$ ),  $p = .11$ . Thus, the pattern of responses among committed women mirrors the one for committed men, though it was somewhat weaker and statistically nonsignificant.

Finally, single female participants did not respond differently to the attractive vs. average male targets based on object,  $p = .19$ . Nor did single male participants respond differently to the attractive vs. average-looking female targets based on object,  $p = .71$ . Thus, effects were observed only for committed participants.

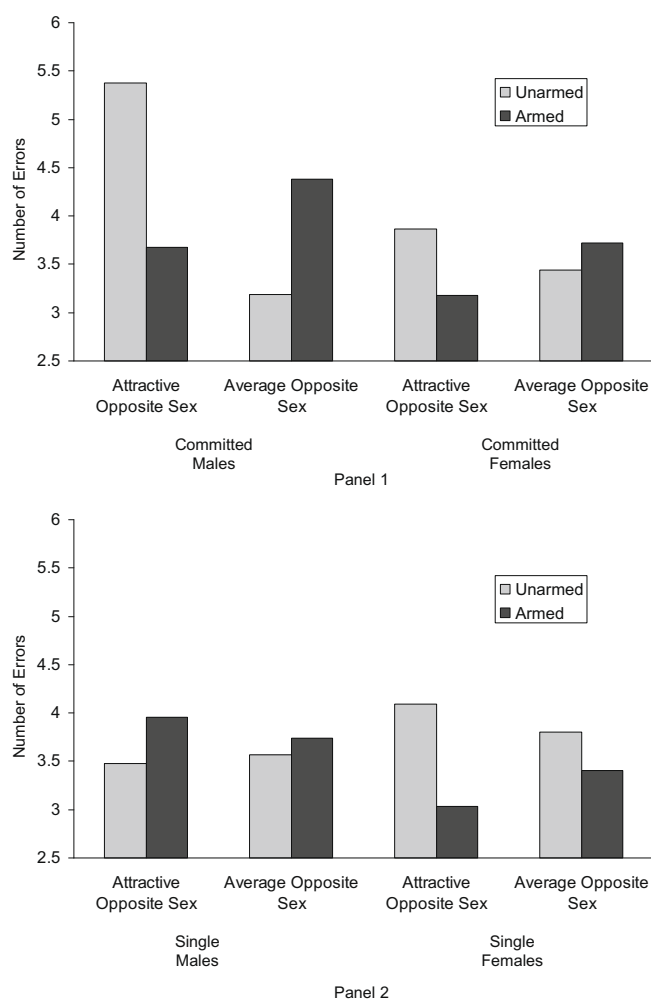
## Discussion

The current study demonstrates that, for people in a committed relationship, mere exposure to attractive relationship alternatives evokes a threat response at an early and automatic stage of cognition. When participants made split-second evaluations about whether or not people in a computer simulation posed a threat, responses depended on participants' relationship status and the target's characteristics. Consistent with predictions, the pattern of errors indicated that participants, and particularly men, in a committed, heterosexual relationship perceived physically attractive members of the opposite sex as a threat. This pattern was limited to responses to highly attractive alternatives; no threat responses were observed for average-looking alternatives. This is consistent with previous studies indicating that physical attractiveness plays an important role in whether people are tempted by relationship alternatives (Dijkstra & Buunk, 2001). Physically attractive individuals can pose especially potent threats to people's relationships, and thus they appear to be selectively targeted by committed people's self-protective responses. Indeed, it would seem counterproductive and even dysfunctional to respond self-protectively to all members of the opposite sex.

Although a similar pattern of responses was observed among committed female participants, in that they exhibited some evidence of threat responses to highly attractive male targets, this pattern was marginally weaker than it was for male participants. These findings are consistent with previous research suggesting that men's (compared with women's) commitment is threatened to a greater degree by exposure to attractive members of the opposite sex (e.g., Kenrick et al., 1989, 1994). The current findings can be contrasted with Lydon et al. (2008), who found a stronger response to attractive alternatives among committed women than men. However, Lydon and colleagues' work focused on pro-relationship responses, in which participants reported their tolerance of partner transgressions. It may be that men are highly threatened by attractive alternatives, as indicated by the current study, but that their self-protective responses do not necessarily translate into relationship strengthening behaviors whereas women are more inclined to respond to the presence of relationship alternatives with behaviors aimed at strengthening the bond with their current partner. Further research is needed to more fully delineate differences between the nature of men's and women's responses to attractive relationship alternatives.

No evidence for threat responses was observed among single participants. Thus, findings from this study were not only specific to the type of target, but to the type of perceiver as well. This provides additional evidence that the self-protective responses observed among committed individuals specifically reflected perceived threats to their relationship.

One limitation of the current work is that we evaluated relatively artificial laboratory responses to static images. Although this allowed for a highly controlled assessment of participants' self-protective responses, further work should also include more eco-



**Fig. 1.** Total number of errors by committed (Panel 1) and single (Panel 2) male and female participants in on trials with attractive and average-looking opposite-sex targets as a function of object.

logically valid measures. A particularly valuable avenue for future work will be to examine directly the connections between automatic threat responses and downstream behavioral reactions (i.e., responses designed to strengthen the relationship or derogate the relationship alternative).

In conclusion, the current work directly tested the hypothesis that attractive alternatives, which jeopardize the success of rewarding romantic relationships, evoke a relatively automatic psychological threat response. In demonstrating that such a threat response occurs upon mere exposure to pictures of physically attractive opposite sex people, the current work contributes to a burgeoning literature on relationship maintenance processes. These findings provide valuable insight into how relationship maintenance responses occur at a very early stage of cognitive processing. Such responses may psychologically prepare and potentially motivate people to protect their relationship from threat.

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### References

- Buss, D. M., & Schmitt, D. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, 100, 204–232.
- Buss, D. M., & Shackelford, T. K. (1997). From vigilance to violence: Mate retention tactics in married couples. *Journal of Personality and Social Psychology*, 72, 346–361.
- Correll, J., Park, B., Judd, C. M., & Wittenbrink, B. (2002). The police officer's dilemma: Using ethnicity to disambiguate potentially threatening individuals. *Journal of Personality and Social Psychology*, 86, 1314–1329.
- Dijkstra, P., & Buunk, B. P. (2001). Sex differences in the jealousy-evoking nature of a rival's body build. *Evolution and Human Behavior*, 22, 335–341.
- Dion, K., Berscheid, E., & Walster, E. (1972). What is beautiful is good. *Journal of Personality and Social Psychology*, 24, 285–290.
- Downs, A. C., & Lyons, P. M. (1991). Natural observations of the links between attractiveness and initial legal judgments. *Personality and Social Psychology Bulletin*, 29, 541–547.
- Eagly, A. H., Ashmore, R. D., Makhijani, M. G., & Longo, L. C. (1991). What is beautiful is good, but...: A meta-analytic review of research on the physical attractiveness stereotype. *Psychological Bulletin*, 110, 109–128.
- Efran, M. G. (1974). The effect of physical appearance on the judgment of guilt, interpersonal attraction, and severity of recommended punishment in a simulated jury task. *Journal of Research on Personality*, 8, 45–54.
- Gonzaga, G. C., Keltner, D., Londahl, E. A., & Smith, M. D. (2001). Love and the commitment problem in romantic relations and friendship. *Journal of Personality and Social Psychology*, 81, 247–262.
- Gonzaga, G. C., Haselton, M. G., Smurda, J., Davies, M. S., & Poore, J. C. (2008). Love, desire, and the suppression of thoughts of romantic alternatives. *Evolution and Human Behavior*, 29, 119–126.
- Haselton, M. G., & Gangestad, S. W. (2006). Conditional expression of women's desires and men's mate-guarding across the ovulatory cycle. *Hormones and Behavior*, 49, 509–518.
- Horwitz, A. V., White, H. R., & Howell-White, S. (1996). Becoming married and mental health: A longitudinal study of a cohort of young adults. *Journal of Marriage & the Family*, 58, 895–907.
- Hu, Y., & Goldman, N. (1990). Mortality differentials by marital status: An international comparison. *Demography*, 27, 233–250.
- 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.
- Kenrick, D. T., Neuberg, S. L., Zierk, K. L., & Krone, J. M. (1994). Evolution and social cognition: Contrast effects as a function of sex, dominance, and physical attractiveness. *Personality and Social Psychology Bulletin*, 20, 210–217.
- 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.
- Lydon, J. E., Meana, M., Sepinwall, D., Richards, N., & Mayman, S. (1999). The commitment calibration hypothesis: When do people devalue attractive alternatives? *Personality and Social Psychology Bulletin*, 25, 152–161.
- Lydon, J. E., Menzies-Toman, D., & Burton, K. (2008). If-then contingencies and the differential effects of the availability of attractive alternatives on relationship maintenance for men and women. *Journal of Personality and Social Psychology*, 95, 50–65.
- Maner, J. K., Gailliot, M. T., & Miller, S. L. (2009). The implicit cognition of relationship maintenance: Inattention to attractive alternatives. *Journal of Experimental Social Psychology*, 45, 174–179.
- Maner, J. K., Gailliot, M. T., Rouby, D. A., & Miller, S. L. (2007). Can't take my eyes off you: Attentional adhesion to mates and rivals. *Journal of Personality and Social Psychology*, 93, 389–401.
- Maner, J. K., Miller, S. L., Rouby, D. A., & Gailliot, M. T. (2009). Intrasexual vigilance: The implicit cognition of romantic rivalry. *Journal of Personality and Social Psychology*, 97, 74–87.
- Maner, J. K., Rouby, D. A., & Gonzaga, G. (2008). Automatic inattention to attractive alternatives: The evolved psychology of relationship maintenance. *Evolution & Human Behavior*, 29, 343–349.
- Miller, R. S. (1997). Inattentive and contented: Relationship commitment and attention to alternatives. *Journal of Personality and Social Psychology*, 73, 758–766.
- Plant, E. A., & Peruche, B. M. (2005). The consequences of race for police officers' responses to criminal suspects. *Psychological Science*, 16(3), 180–183.
- Plant, E. A., Peruche, B. M., & Butz, D. A. (2005). Eliminating implicit racial bias: Making race nondiagnostic. *Journal of Experimental Social Psychology*, 41(2), 141–156.
- Rusbult, C. E. (1983). A longitudinal test of the investment model: The development (and deterioration) of satisfaction and commitment in heterosexual involvements. *Journal of Personality and Social Psychology*, 45, 101–117.
- Simpson, J. A., Gangestad, S. W., & Lerma, M. (1990). Perception of physical attractiveness: Mechanisms involved in the maintenance of romantic relationships. *Journal of Personality and Social Psychology*, 59, 1192–1201.