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Women's red clothing can increase mate-guarding from their male partner

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ABSTRACT

Mate guarding is a common strategy that functions to prevent individuals from engaging in extra-pair copulations. For women, wearing red clothing can be perceived by men as a signal of sexual receptivity. Thus, men may guard their mate more strongly when she is wearing red, relative to other colors. We tested this hypothesis by examining the intensity of anticipated mate-guarding behaviors in conditions where women were imagined (by their partner and themselves) to wear red or black clothing in a repeated-measures design. Results showed stronger anticipated mate-guarding behaviors from men when they imagined their partner in red, relative to black. Women were unable to predict the intensity of mate-guarding from their partner with respect to color condition. Partner satisfaction did not moderate these findings in either sex.

1. Introduction

Female promiscuity, a practice of having frequent sex with more than one partner, is common in a range of animals, including humans (Birkhead & Møller, 1998; Greiling & Buss, 2000). In contemporary Western societies, roughly 14–50% of young women have reported cases of their sexual infidelities (Greiling & Buss, 2000; Prokop & Fedor, 2013; Simmons, Firman, Rhodes, & Peters, 2004). This may significantly impair male reproductive success, which would provide men with motivation to guard their mates from potential extra-pair relationships (Shackelford, Goetz, Guta, & Schmitt, 2006).

Female extra-pair mating can result in male investment to offspring that are not genetically his own (Shackelford et al., 2006). Therefore, sexual selection should favor male strategies that prevent female infidelity (Leivers, Rhodes, & Simmons, 2014). Mate guarding is a common strategy that functions to prevent women from engaging in extra-pair copulations (Buss & Shackelford, 1997), causing potential rivals to choose other prospective targets (Schmitt & Buss, 2001). Men may respond to the risk of infidelity, for example, by staying in closer proximity to their partner (Buss, 1988), increasing copulation frequency (Shackelford et al., 2006), or by aggressing toward rivals (Roma et al., 2012). However, investment in mate guarding is costly in terms of time, energy, and increased physiological stress (Girard-Buttoz et al., 2014a; Komdeur, 2001). Therefore, males should invest in mate guarding strategies particularly when the reproductive benefits outweigh energy expenditure or physiological costs (Girard-Buttoz et al., 2014b; Leivers et al., 2014). Indeed, mate guarding in humans is stronger when women have greater reproductive value, particularly when the woman is more attractive and young (Buss & Shackelford, 1997; Kaighobadi & Shackelford, 2008; Pham et al., 2014) and/or she is in the fertile phase of her menstrual cycle (Haselton & Gildersleeve, 2011).

Human females use various strategies to increase their own attractiveness to men, and women's attire plays a role in male attraction (Grammer, Renninger, & Fischer, 2004; Haselton, Mortezaie, Pillsworth, Bleske-Rechek, & Frederick, 2007). Women prefer red clothing when the likelihood of meeting a potential mate is high (Elliot, Greitemeyer, & Pazda, 2013; Prokop & Hromada, 2013) and when the likelihood of conception is highest (Eisenbruch, Simmons, & Roney, 2015; Tracy & Beall, 2014). Red clothing significantly increases women's sexual attractiveness to men, both under laboratory (Elliot & Niesta, 2008; Young, 2015) and real life conditions (Guéguen, 2012), presumably because men interpret red as a signal of sexual interest (Pazda, Elliot, & Greitemeyer, 2012). Therefore, it is reasonable to posit that men should increase mate guarding behaviors when their female partner is wearing red clothing because red makes women more attractive to potential romantic rivals.

In the present study we investigated the influence of red clothing on men's anticipated mate guarding behavior. We hypothesized that when a man imagines his female partner wearing red clothing, he will anticipate enacting more vigorous mate-guarding behavior, relative to when his partner is wearing black clothing. Furthermore, we tested whether

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satisfaction with one's partner would moderate the effect of red clothing because low partner satisfaction may indicate low perceived partner value, which may inhibit mate-guarding (Buss & Shackelford, 1997; Klusmann, 2002).

2. Method

2.1. Participants

The research was carried out during the Winter Semester of 2014 (September – December) at a university in Slovakia. Roughly 400 freshman students were asked to participate in the experiment for extra course credit. Participants were asked to recruit their romantic partner to participate in the study. Those who were not involved in romantic relationships were excluded, but were given the option to participate in a different study. A total of 223 heterosexual pairs comprised the final sample. The mean age of males was 22.9 (SD = 4.2), and the mean age of females was 20.2 (SD = 2.41). All participants were Caucasian.

2.2. Measures

2.2.1. Mate-guarding scenario and measurement

Participants read a scenario in which the woman is going out with some friends without her male partner, along with a picture of the supposed clothing that she will be wearing. The clothing item displayed was randomly assigned to be either a red or black dress. Then participants answered seven modified items obtained from the Mate Retention Inventory (Buss, 1988). Male participants were asked to indicate their likelihood of engaging in the listed behaviors under the hypothetical scenario by using a Likert scale anchored from 1 (not at all likely) to 7 (very likely). Female participants were asked to indicate the likelihood that their partner would engage in the behaviors listed under the hypothetical scenario using the same Likert scale. After completing their ratings, participants were shown the other colored dress (red or black, depending on which was randomly chosen to be seen first), and completed the same mate-guarding measure. Cronbach's α for combined data from both black and red treatments was 0.86 for males and 0.87 for females. Summed scores of the mate guarding responses were used in the statistical analyses. Details regarding items and instructions are in the Appendix.

2.2.2. Clothing color manipulation

We took a photograph of a white knee-length dress and applied a color mask using Adobe Photoshop CS2. Separate red and black versions of the dress were created, ensuring that the pictures were identical aside from color (see Fig. 1).

Fig. 1. Red and black versions of the dress used in the scenarios.

2.2.3. Partner satisfaction

The four-item Partner Satisfaction Scale (PSS; Pham, Shackelford, & Sela, 2013) was administered to investigate participants' partner satisfaction. This scale consists of four questions about their relationship satisfaction, answered on a Likert-type scale ranging from 1 (not at all) to 7 (extremely). Summed scores of the PSS were used in the statistical analyses. Cronbach's α for males and females was 0.82 and 0.79, respectively.

2.3. Procedure

The research was carried out online. Prior to completing the experiment, each couple received an ID code to establish their dyadic identity, but participants were instructed to complete the experiment independently. Participants were initially asked demographic questions (age, sex, relationship length), then responded to the mate guarding scenarios and partner satisfaction scale.

3. Results

Due to the nested structure of our data, we used hierarchical linear modeling (HLM; Bryk & Raudenbush, 1992) to test our hypothesis. Self-reported mate-guarding for each color condition (Level 1) was nested within participants (Level 2), and participants were nested within dyads (Level 3).

We first created a model that tested the effect of color condition (dummy coded; 1 = red, 0 = black) on mate-guarding with no predictors at Level 2 or Level 3 (see model below).

Level 1 model:

$$Y = \pi_0 + \pi_1(red) + e$$

Level 2 model:

$$\pi_0 = \beta_{00} + r_1$$

$$\pi_1 = \beta_{10}$$

Level 3 model:

$$\beta_{00} = \gamma_{000} + \mu_{10}$$

$$\beta_{10} = \gamma_{100}$$

The intercept of mate-guarding (i.e., the reported mate-guarding for the black condition, averaged across all participants) was 17.97. The effect of red was significant, $B = .55$, $t(890) = 4.34$, $p < .001$, indicating that participants reported higher mate-guarding in the red condition, relative to the black condition.

Next we examined whether individual or dyadic variables would have main or interactive effects with color condition on mate-guarding. In this model, we added sex (dummy coded; 1 = male, 0 = female), and partner satisfaction as Level 2 predictors; relationship length (in months) was included as a Level 3 predictor. All continuous variables were grand-mean centered, and intercepts at each level were allowed to vary randomly (see model below).

Level 1 model:

$$Y = \pi_0 + \pi_1(red) + e.$$

Level 2 model:

$$\pi_0 = \beta_{00} + \beta_{01}(sex) + \beta_{02}(partner\ satisfaction) + r_0$$
$$\pi_1 = \beta_{10} + \beta_{11}(sex) + \beta_{12}(partner\ satisfaction)$$