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FlashReport

Sexy red: Perceived sexual receptivity mediates the red-attraction relation in men viewing woman ☆

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ABSTRACT

In many non-human primate species, female red displays are a signal of sexual receptivity and this signal attracts male conspecifics. In the present research, we proposed and tested a human analog whereby perceived sexual receptivity mediates the relation between red and sexual attraction in men viewing women. Two experiments were conducted, each of which provided support for the hypothesized mediational model. Experiment 1 documented the mediational role of perceived sexual receptivity using the experimental–causal-chain approach, and Experiment 2 did so using the measurement-of-mediation approach. Alternative mediator variable candidates were ruled out, and participants showed no evidence of awareness of the red effect. These findings document red as a subtle, but surprisingly powerful environmental stimulus that can serve parallel functions in the mating game for human and non-human primates.

Introduction

Female red displays play an integral role in the mating process of many non-human primate species (e.g., baboons, chimpanzees). Females display red on their face, chest, or genitalia as a signal of sexual receptivity (Dixson, 1983; Setchell & Wickings, 2004), and male conspecifics respond with increased gaze, self-stimulation, and copulation attempts (Bielert, Girolami, & Jowell, 1989; Waitt, Gerald, Little, & Krasielburd, 2006). Elliot and Niesta (2008) recently demonstrated that red displays are also important in the mating game for human males and females. They observed that men find women wearing red to be more attractive and sexually desirable; they did not, however, investigate the psychological process responsible for this effect.

Herein we propose and test the hypothesis that perceived sexual receptivity mediates the link between red and sexual attraction in men viewing women. Data supporting this hypothesis would not only provide a more thorough understanding of the amorous influence of red in humans, but would establish a more precise and detailed cross-species parallel regarding the signal function of red in mating contexts.

The first step in our proposed mediational model is that men view red on a woman as a signal of sexual receptivity. The societal pairing of red and female sexual receptivity has a long history. Red was used as early as 10,000 B.C.E. in lipstick and rouge to mimic the red blush of sexual interest and excitation (Low, 1979); red has been used in mythology, folklore, and literature throughout the ages to represent sexual promiscuity and passion (Hutchings, 2004; Jobes, 1962); and red has long signaled sexual availability in red-light districts. Thus, men may associate red and female sexual receptivity due to societal conditioning.

This red-receptivity link may also be rooted in biology. Women's skin tone lightens during ovulation, their general blood flow is enhanced, and they are more easily sexually aroused (Bullivant et al., 2004; Lynn, McCord, & Halliwell, 2007; Van den Berghe & Frost, 1986). As such, the aforementioned red blush of sexual interest and excitation may be more prevalent and visible midcycle, meaning women, like other female primates, may display red more prominently when most fertile. If so, it is likely that men, like other male primates, are biologically predisposed to interpret red on a female conspecific as a signal of sexual readiness.

Our proposal, that red conveys the meaning of sexual receptivity for men viewing women, may be derived from societal conditioning or biological considerations alone, but we suspect that both are implicated in the red-receptivity link. Specifically, we contend that the societal pairing of red and female sexual receptivity is not random, but emerged from a biologically-based predisposition to interpret female red as a sexual signal. Indeed, the societal use of red may not only reinforce the biological predisposition, but may extend it beyond the tether of natural bodily processes. Accordingly, red may not only mean sexual readiness when viewed on a woman's body, but also when viewed on objects in close proximity to her body. In the present research, we predict that men viewing a woman wearing a red shirt will perceive her to be more sexually receptive.

The second step in our proposed mediational model is that men view sexually receptive women as particularly attractive and desirable. Men may prefer sexually receptive women because pursuing

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such women facilitates sexual conquests; a large number of sexual conquests is congruent with gender-specific standards and scripts and, therefore, is rewarded with admiration and social status (Oliver & Hyde, 1993). Men may also prefer sexually receptive women because pursuing such women increases their chances of reproductive success via mating with many sexual partners in efficient fashion (i.e., low time and effort costs; Schmitt & Buss, 1996). The available data support a receptivity–attraction link, as men rate women exhibiting receptivity cues (e.g., suggestive postures, provocative dancing) as more attractive (Clark, 2008; Schmitt, Couden, & Baker, 2001), and are more inclined to make advances toward such women (Hendrie, Mannion, & Godfrey, 2009). This effect is not limited to humans, but is present in many other mammalian species, including primates (Andersson, 1994; Beach, 1976).

In the present research, we not only predicted a link between men's perceptions of women's sexual receptivity and men's sexual attraction, we also predicted that perceived sexual receptivity would be the psychological mechanism that explains the direct influence of red on sexual attraction. Furthermore, given the subtlety of red as a stimulus cue, we anticipated that the effect of red would take place without participants' conscious awareness. Finally, and importantly, we tested two other candidate mediators, kindness and intelligence, characteristics that men across cultures value in women (Buss, 1989). If, as hypothesized, red carries a specific sexual meaning, rather than a positive meaning in general, sexual receptivity alone would be confirmed as a mediator. We conducted two experiments to test our predictions using two different, complementary, approaches to mediation.

Experiment 1a

Experiment 1 tested whether perceived sexual receptivity mediates the influence of red on perceived attractiveness using the experimental-causal-chain approach (Spencer, Zanna, & Fong, 2005). Experiment 1a examined the first link in the hypothesized causal chain. White was used as an unobtrusive, achromatic contrast to red.

Method

Twenty-five males (ages = 22–40, M = 28.7) participated for modest monetary compensation. Ethnicity was: 9 Caucasian, 1 African American, 11 Asian, and 4 "other." In this and all subsequent experiments, participation was restricted to heterosexuals/bisexuals without a color deficiency.

Participants followed a web link through Mechanical Turk to access the experiment. A welcome screen stated that the experiment was about first impressions and would involve viewing a picture of a person for five seconds and completing a brief questionnaire. The picture was of a moderately attractive young woman with brown hair, wearing either a red (n = 11) or white (n = 14) shirt. Shirt color was manipulated using Adobe Photoshop; the picture was 350 pixels × 450 pixels. Participants viewed the picture, then completed the questionnaire.

Perceived sexual receptivity was assessed with four face-valid items (e.g., "She is interested in sex"; $\alpha = .85$). For this and all subsequent measures, participants responded using 1 (not at all/strongly disagree) to 9 (extremely/strongly agree) scales. Participants were also asked to guess the purpose of the experiment.

Results

An independent-samples *t*-test revealed an effect of color on perceived sexual receptivity, $t(23) = 2.11$, $p < .05$, $d = 0.88$. Participants in the red condition (M = 5.50, SD = 1.04) rated the woman as more receptive than participants in the white condition (M = 4.30, SD = 1.63; Fig. 1a). No participant mentioned color when guessing the purpose of the experiment.

Experiment 1b

Experiment 1b examined the second link in the hypothesized causal chain.

Method

Twenty-two males (ages 19–40, M = 29.2) participated for modest monetary compensation. Ethnicity was: 5 Caucasian and 17 Asian.

Participants followed a web link through Mechanical Turk to access the experiment. A welcome screen stated that the experiment was about first impressions and would involve viewing a picture of a person for five seconds, reading a brief scenario about the person, and then completing a brief questionnaire. Participants then read either the high or low (parentheses) sexual receptivity scenario:

> *Imagine the woman in the picture is at a bar for the evening. She is acting flirtatiously (reserved), and her body language is sexy (stern) and seductive (rigid), seeming to indicate that she is (not) interested in the possibility of having sex tonight.*

The picture was the one used in the white condition in Experiment 1a. Participants viewed the picture, then completed the perceived attractiveness measure, a general likeability measure, and, finally, a manipulation check.

Perceived attractiveness was assessed with Mehrabian and Blum's (1997) 4-item measure (e.g., "Rate this person on facial attractiveness"; $\alpha = .95$). General likeability was assessed with a face valid bipolar item measuring the degree to which the target female was perceived as unlikeable (1) to likeable (9). The high receptivity condition is also more positive in valence than the low receptivity condition, thus we sought to demonstrate an effect of sexual receptivity

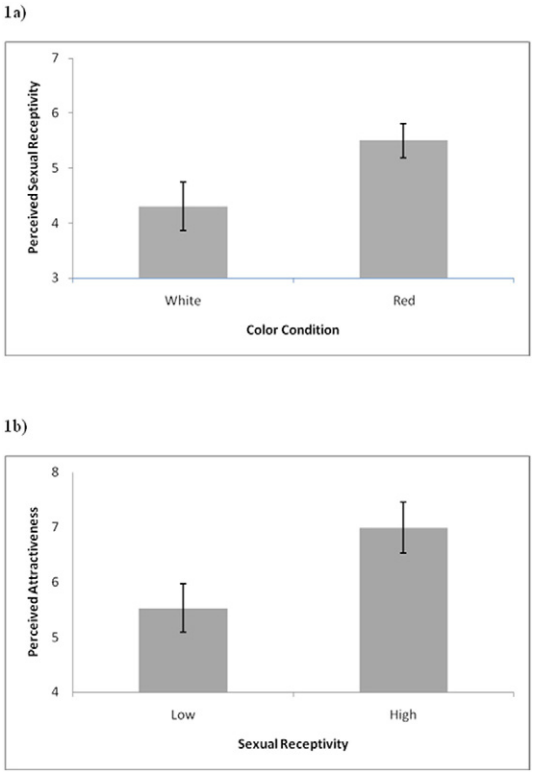

Fig. 1. a: The influence of shirt color on perceived sexual receptivity in Experiment 1a. b: The influence of sexual receptivity on perceived attractiveness in Experiment 1b.