



## FlashReport

## Women's use of red clothing as a sexual signal in intersexual interaction

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## HIGHLIGHTS

- ▶ We tested whether women use red clothing as a sexual signal in intersexual interaction.
- ▶ Women expecting to talk with an attractive man were more likely to choose a red shirt.
- ▶ This draws a parallel between human and nonhuman females' red ornamentation.

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## ABSTRACT

Research on several non-human primate species has shown that females use red ornamentation as a sexual signal to attract male conspecifics. In the present research, we conducted two experiments designed to test an analogous use of red clothing by women in an intersexual interaction. In Experiment 1, women expecting to converse with an attractive man were more likely to choose to wear a red (versus green) shirt than women expecting to converse with an unattractive man or a woman of average attractiveness. In Experiment 2, women expecting to converse with an attractive man were more likely to choose to wear a red (versus blue) shirt than women expecting to converse with an attractive woman; red shirt choice was positively correlated with attractiveness and status perceptions in the former, but not the latter, case. These findings contribute to both the literature on female sexuality and that on color and behavior.

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## Introduction

In many mammals, female red ornamentation is a sexual signal designed to attract mates (Andersson, 1994). For example, in several species of nonhuman primate (e.g., baboons, chimpanzees), females display red on their face, chest, or genitalia when “in heat,” and males respond with increased mounting behavior (Dixson, 1998). Herein we investigate whether human females use red as a sexual signal in intersexual interaction in analogous fashion.

Although men are commonly portrayed as the initiators of romance-relevant communication, research on nonverbal courtship behavior shows that women often use a variety of subtle signals (e.g., glancing, smiling, primping) to “make the first move” (for a review, see Moore, 2010). One understudied aspect of this nonverbal courtship behavior is clothing choice. Clothing is typically considered from the standpoint of aesthetics or fashion, but clothes may also be used to convey symbolic meaning (Adam & Galinsky, 2012), including romance-relevant information. A few correlational studies have linked wearing tight and revealing clothing to sexual intent (Durante, Li, & Haselton, 2008; Grammer, Renninger, & Fischer, 2005) and Barber (1999) demonstrated that women's skirt lengths shrink when sex ratios point to stiff

competition for male attention. In the present research, we focused on clothing color (i.e., red), rather than style or fit, as a subtle sexual signal.

There are several reasons why women might use red clothing as a sexual signal in intersexual interaction. Red has associations to romance and sexuality in society (e.g., the “lady in red,” red light districts) and women may don red to signal their amorous inclination accordingly. The face, neck, and upper chest redden during the flush of sexual interest/excitation (Changizi, 2009; Katchadourian, 1984), and women may choose red apparel in an attempt to mimic or symbolically extend these natural vascular processes. Furthermore, women may observe that men respond to red with approach behavior (see details below), and may thus display red when desiring appetitive attention themselves. In short, red clothing seems an ideal medium through which women may engage in sexual signaling, as it simultaneously draws on widespread societal associations, mimics basic physiological processes, and caters to men's enacted preferences. In addition, women may use red both dynamically (e.g., changing into or out of red as a function of current inclination) and in targeted fashion (e.g., wearing red when preparing to meet an attractive man).

Signal systems involve both a signaler and a receiver. In nonhuman primate research on red, considerable attention has been paid to both female signaling and male receiving/responding behavior (for reviews, see Berglund, Bisazza, & Pilastro, 1996; Gerald, 2003). Experimental research on red with humans has just begun, and the focus has been

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exclusively on men's receiving/responding behavior. This work shows that men sit closer to women in red, tip them more in restaurants, and are more likely to offer them a car ride (Guéguen, 2010; Guéguen & Jacob, in press; Niesta Kayser, Elliot, & Feltman, 2010). Experimental work has yet to be conducted on women's use of red in signaling behavior. The most relevant research to date is correlational work by Elliot and Pazda (2012) showing that women on the web who explicitly state that they are looking for casual sex are more likely to post photos of themselves in red.

In the present research, we conducted two experiments designed to examine whether women use red as a sexual signal in everyday intersexual interaction, specifically, in the context of an introductory conversation. We manipulated the attractiveness and sex of the anticipated conversation partner, and predicted that women would be more likely to select red attire when expecting to meet an attractive male. In the second experiment, we also examined whether women's choice of red would be positively associated with their perceptions of the target's attractiveness and status in the attractive male condition only. In humans and several other primate species, females are particularly attracted to high status males (Elliot et al., 2010; Townsend, 1998), so these positive associations would provide further evidence of the amorous meaning of selecting red.

## Experiment 1

**Experiment 1** focused on a red versus green shirt choice. Green is a stringent contrast to red because it means "go" in traffic lights and tends to have positive connotations in general (Adams & Osgood, 1973). In addition, red and green are both chromatic colors, so they can be equated on lightness and chroma in examining hue.

### Method

147 female undergraduates in the UK received 5 pounds for participating. Participation in this and the subsequent experiment was restricted to heterosexual/bisexual individuals without an experiment-relevant color deficiency. The mean age of participants was 22.36 (range = 17–48). Participants were randomly assigned to one of three between-subjects conditions: attractive male ( $n=49$ ), unattractive male ( $n=49$ ), or average female ( $n=49$ ). The experimenters in this and the subsequent experiment were blind to participant condition and hypotheses.

Participants were informed that the experiment involved having a conversation with another participant in another room. They were told that prior to the conversation, both participants would complete a "brief description questionnaire" containing information to help start the conversation; their questionnaires would be exchanged prior to the conversation. The questionnaire contained the following: "What is your sex?," "Where did you grow up?," "What do you like to do on weekends?," "How tall are you?," "How would you describe yourself physically? (A. Skin complexion, B. Body type)," and "How are your marks at university?."

When the participant had completed the questionnaire, the experimenter collected it and left the room to ostensibly exchange questionnaires. Upon returning with "the other participant's questionnaire," the experimenter actually gave the participant a bogus questionnaire containing the experimental manipulation. In the *attractive male* condition, the other participant was described as a tall male with clear skin, an athletic-looking body, and high marks at the university. In the *unattractive male* condition, the other participant was described as a short male with unclear skin, an out-of-shape body, and low marks at the university. In the *average female* condition, the other participant was described as a female of average height with average skin, an average body, and average marks at the university. All other information was identical across conditions.



**Fig. 1.** The shirt used in Experiments 1 and 2. The shirt was printed in red and green in Experiment 1, and it was printed in red and blue in Experiment 2.

The experimenter left the room to give the participant time to read the information (and, ostensibly, check on the other participant), then returned and asked the participant to remove all jewelry "for the sake of experimental control." Then, the experimenter stated that the participant would also need to wear a standardized shirt for the conversation, but could choose between two options shown in a folder. The folder contained two printouts of the same long-sleeved shirt (see Fig. 1), one red and one green, presented in randomized order. The participant selected a shirt and put the selection in a separate folder. Participants then completed a demographics questionnaire, after which they were told the conversation was not necessary and were thoroughly debriefed.

The shirt images were 4.5 in.  $\times$  5.5 in., centered on an 8.5 in.  $\times$  11 in. page of Epson Enhanced Matte paper. Adobe Photoshop was used to print color on the shirts with an Epson Stylus Photo R800 printer. The colors were selected using the CIELCH color model and a Gretag MacBeth Eye-One Pro spectrophotometer; standard red and green hues equated on lightness and chroma were selected: red LCh(51.5/53.4/30.9) and green LCh(51.8/53.3/135.6).

### Results

A logistic regression revealed a significant effect for condition, Wald  $\chi^2(2) = 10.98$ ,  $p < .004$ ; Nagelkerke  $R^2 = .104$ ; see Fig. 2.<sup>1</sup> The contrasts between the attractive male condition and each of the other conditions also attained significance. Participants expecting to interact with an attractive male were more likely to choose the red shirt than those expecting to interact with an unattractive male,  $B = 1.22$ , Wald  $\chi^2(1) = 8.00$ ,  $p < .005$  (Odds ratio = 3.40) or an average female,  $B = 1.31$ , Wald  $\chi^2(1) = 9.07$ ,  $p < .003$  (Odds ratio = 3.69). The unattractive male and average female conditions did not differ,  $B = .08$ , Wald  $\chi^2(1) = 0.04$ ,  $p = .84$  (Odds ratio = 1.08).

<sup>1</sup> Ancillary analyses in this and the subsequent experiment tested whether the condition effects were moderated by relationship status or perceived own attractiveness. Existing research on these variables indicates that they sometimes do and sometimes do not moderate sexual selection processes (Clark, 2004; Massar, Buunk, & Rempt, 2012; Niesta Kayser et al., 2010; Pronk, Karremans & Wigboldus, 2011). They did not moderate the condition effects in this research ( $ps > .45$ ).

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