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Short Communication

Female physical characteristics and intra-sexual competition in women

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ABSTRACT

Women engage in intra-sexual competition to attract or to retain a mate. Given men's preferences for certain female physical characteristics, women may be attuned to potential rivals who display such traits. We examined how variation in facial femininity, breast size, and waist-to-hip ratio (WHR) affects perceived competition and attractiveness judgments in a sample of German female undergraduates. Thirty-five women ranked five images of each stimulus type according to perceived competition and rated these images for attractiveness and femininity. Women with more feminine faces, larger breasts, and lower WHRs received higher attractiveness and femininity ratings and were ranked highest on perceived competition. The results indicate the occurrence of human female intra-sexual competition with respect to physical traits desired by potential mates.

1. Introduction

Men across cultures place greater importance than do women on the physical attractiveness of a prospective partner, whereas women place greater importance than men on the resources held by prospective partner (Buss & Schmitt, 1993). In inter-sexual selection, physical attractiveness may signal overall mate quality (Fink & Penton-Voak, 2002; Grammer, Fink, Møller, & Thornhill, 2003). In conjunction with male competition and female mate-choice, intra-sexual selection also occurs in human females. The finding that women are more likely to compete for mates when suitable partners are scarce (Campbell, 2004; Fisher, 2004) is consistent with research detailing similar mechanisms in other mammals (e.g., Clutton-Brock et al., 2006).

Mate poaching—attracting a person who is in a relationship (Schmitt & Buss, 2001), is a threat to an existing relationship. Schmitt and Buss found that almost half of men and women that had been the target of a poaching attempt had succumbed and 15% of people revealed that their current relationship resulted from a poaching. In addition, men are more likely to succumb to a poaching attempt than women (Schmitt & 121 members of the International Sexuality Description Project, 2004). Women seeking to thwart the loss of a partner may have evolved mechanisms that motivate them to be aware of potential poachers—especially women most capable of luring away their partner. The prevalence of mate poaching or extra-pair copulations and their consequences for mated women suggests that women may have evolved an awareness of potential competitors and the methods by which to deter these rivals (Schmitt & Buss, 2001). In particular, women might be expected to focus on the competitors that men find most desirable.

Previous research has documented the importance that men place on the physical attractiveness of a partner (Buss & Barnes, 1986). Therefore, physically attractive women represent particularly threatening rivals for mated women in both short-term (extra-pair copulation; EPC) and long-term (desertion) contexts. Consequently, women are expected to be able to identify physically attractive women and to focus their attention towards them. Attractiveness ratings are based on reproductively relevant features of the body, and these features are assessed by men to select mates (Buss, 1988a). Consequently, female competition is expected to focus on the physical attributes that signal reproductive value (Wade & McCrae, 1999). When women compare themselves to potential rivals, they attend to the traits that contribute to a woman's mate value (Buss, Shackelford, Choe, Buunk, & Dijkstra, 2000). For example, women report the greatest jealousy when faced with a rival with a low waist-to-hip ratio (WHR; Dijkstra & Buunk, 2001), a trait that influences the desirability of women to potential mates (Singh, 1993a; Singh, 1993b). The importance men place on other secondary sexual characteristics such as breasts (Li & Kenrick, 2006) suggests that women should attend to other cues to female fertility.

If the mate preferences of one sex influence the competitive tactics of the other sex (Buss, 1988a,b), women are expected to

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make themselves more physically desirable than rivals (Buss & Dedden, 1990). This should reduce the likelihood that a man would desert his partner or enter an extra-pair relationship. Women can increase their mate value by improving their own physical attractiveness and by reducing the attractiveness of alternative partners (Campbell, 2004). Consistent with this prediction, female enhancement of physical appearance is widespread (Etcoff, 1999), and women compete through the display of traits most desired by potential partners (Campbell, 1995). Women's appearance can be improved in a number of ways, such as by employing cosmetics (Tooke & Camire, 1991). Women state that they attract attention to their appearance as a competitive tactic (Walters & Crawford, 1994), even if no explicit mention is made of competition for potential mates.

We investigated the role of cues of physical attractiveness (facial femininity, breast size and body shape) in female intra-sexual competition. We predicted that more attractive women, displaying more feminine faces, larger breasts, and lower WHRs, would be perceived as the greatest threat to female observers.

2. Material and methods

2.1. Stimuli

Five faces varying in femininity were chosen from a 40-s QuickTime movie that morphed an extremely masculine male face into an extremely feminine face (see Johnston, Hagel, Franklin, Fink, & Grammer, 2001) (Fig. 1a). Five images of nude female upper torsos (front view) varying in breast size were created using one image from a series of photographs of Caucasian women (see Grammer et al., 2001). Breast size was manipulated digitally using Gryphon Morph 2.5 image warping facilities (Gryphon Software Corp., Wynnewood, USA). The original breast size (Fig. 1b, Picture 3) was enlarged or reduced twice to the same degree, resulting in five breast images of different sizes, ranging from very small to very large (Fig. 1b). A rear view image of the same woman was used for the creation of stimuli varying in WHR. As with breast stimuli, digital image warping was used to manipulate the waistline to produce five stimuli with different WHRs ranging from 0.60 to 0.80 in steps of 0.05 (Fig. 1c).

2.2. Experiment

Thirty-five German heterosexual women, aged 18 to 35 years ($M = 23.69$, $SD = 4.06$) participated on a voluntary basis. Standardized instructions and stimuli were presented with MediaLab (Empirisoft Corp., New York, USA) on a 19″ screen at a resolution of 1024 × 768 pixels. Participants were asked to imagine they were single and very interested in a man with whom they were having a conversation at a party, when another woman interrupts and starts to flirt with the man they are attracted to. Stimuli images (faces, breasts, bodies) were presented individually (and in random order) on the screen and the participants were asked to rank them according to perceived competition if the face/breast/body belonged to the imaginary rival, from 1 to 5 (1 = lowest threat, 5 = highest threat). Then all stimuli were presented again (in random order within each stimulus type) and participants were asked to rate them for perceived attractiveness and femininity on a 7-point Likert scale (1 = not attractive/feminine to 7 = highly attractive/feminine).

3. Results

A series of repeated-measures ANOVAs were conducted to test for differences in perceived threat of each of the three types of stimuli. Mauchly's tests of sphericity indicated that the assumption of sphericity had been violated; thus Greenhouse-Geisser adjustments were applied to the degrees of freedom. Women with more feminine facial features ($F_{2.48,84.15} = 73.46$, $p < .001$), larger breasts ($F_{2.19,74.46} = 68.59$, $p < .001$), and a lower WHR ($F_{2.36,80.30} = 23.98$, $p < .001$) were perceived to pose the greatest threat. There was a main effect of facial femininity ($F_{3.03,103.01} = 37.20$, $p < .001$), breast size ($F_{2.54,86.20} = 50.41$, $p < .001$) and WHR ($F_{2.80,95.19} = 31.54$, $p < .001$) on attractiveness perception. Feminine faces, large breasts and bodies with low WHRs received higher attractiveness ratings, although the extremes were not always considered most attractive (see Table 1). Similar results were obtained for ratings of perceived femininity. There was a main effect for facial femininity ($F_{3.41,115.84} = 77.67$, $p < .001$), breast size ($F_{2.92,99.34} = 75.41$, $p < .001$) and WHR ($F_{2.52,85.68} = 30.39$, $p < .001$). Feminine faces, larger breasts and bodies with lower WHRs received higher femininity scores, but the extremes were not always considered most feminine.

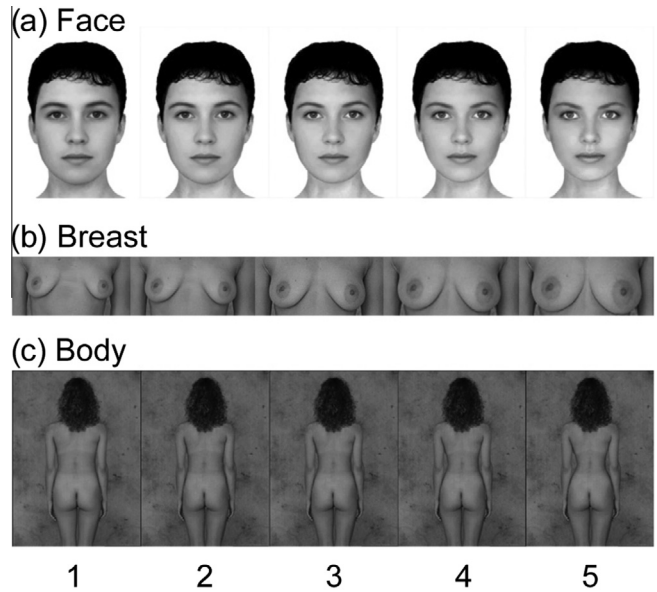

Fig. 1. Stimuli images of female faces, breasts and bodies. Faces: least feminine (1) to most feminine (5); Breasts: smallest (1) to largest (5); Bodies: highest WHR (1) to lowest WHR (5).

4. Discussion

We investigated the hypothesis that more attractive women, displaying more feminine faces, larger breasts and lower WHRs, generate the greatest perceived threat to female observers. The results are consistent with the hypothesis and indicate that intra-sexual female competition focuses on the traits men deem to be the most physically attractive. Men desire partners with more feminine faces (Johnston & Franklin, 1993), larger breasts (Hatfield & Sprecher, 1986) and lower WHRs (Singh, 1993a, 1993b). The identification of a physically attractive partner provides a cue to female fertility and each of these features is associated with greater reproductive value (Jasienska, Ziomkiewicz, Ellison, Lipson, & Thune, 2004).

Mated men should be more willing to become involved with another woman in part as a function of her physical attractiveness. Several tactics are used by women to thwart their partner's involvement with another woman. Women who perceive a threat may attempt to strengthen their relationship or monitor the behaviour of their partner (Buss & Shackelford, 1997). Alterna-