

Reported Sexual Desire Predicts Men's Preferences for Sexually Dimorphic Cues in Women's Faces

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Abstract Recent studies investigating the relationship between sexual desire and sexual attraction have found that heterosexual women's reported sexual desire is positively correlated with their reported attraction to both own- and opposite-sex individuals, but that heterosexual men's reported sexual desire is positively correlated with their reported attraction to opposite-sex individuals only. These findings have led to the proposal that sexual desire is a generalized energizer of sexual attraction in heterosexual women (i.e., influences women's attraction to both men and women), but only energizes heterosexual men's sexual attraction to women. Here we show that heterosexual men's scores on the Sexual Desire Inventory-2 were positively correlated with their preferences for exaggerated sex-typical shape cues in opposite-sex, but not own-sex, faces. Together with previous research showing that heterosexual women's reported sexual desire is positively correlated with their preferences for exaggerated sex-typical shape cues in both own- and opposite-sex faces, our findings present novel converging evidence for sex-specific relationships between

sexual desire and attractiveness judgments of own- and opposite-sex individuals.

Keywords Sexual desire · Sex drive · Attraction · Mate choice · Face perception

Introduction

Recent work by Lippa (2006, 2007) has investigated the relationship between sexual desire and attraction by studying the nature of the relationships between men's and women's reported sexual desire and their reported attraction to own- and opposite-sex individuals. In these studies, sex-specificity of sexual attraction was assessed by having participants separately rate the attractiveness of own- and opposite-sex individuals, rather than using the Kinsey scale. Lippa's studies found that heterosexual women's reported sexual desire was positively correlated with their reported attraction to both men and women, but that heterosexual men's reported sexual desire was positively correlated with their reported attraction to women only. These results led Lippa to propose that sexual desire is a generalized energizer of sexual attraction in heterosexual women (i.e., increases the sexual attractiveness of both men and women), but only energizes heterosexual men's sexual attraction to women.

Further evidence in support of Lippa's (2006, 2007) proposal comes from studies of the relationship between heterosexual women's reported sexual desire and their preferences for sexually dimorphic characteristics in men's and women's faces (Welling, Jones, & DeBruine, 2008). Consistent with Lippa's proposal that sexual desire is a generalized energizer of sexual attraction in heterosexual women, Welling et al. (2008) found that reported sexual desire was positively correlated with the strength of heterosexual women's preferences

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for both masculine characteristics in men's faces and feminine characteristics in women's faces.

Although Welling et al. (2008) presented converging evidence for Lippa's (2006, 2007) suggestion that sexual desire is a generalized energizer of sexual attraction in heterosexual women, they did not test for similar correlations between sexual desire and men's face preferences. To address this latter issue, we investigated the relationship between heterosexual men's reported sexual desire, assessed using the Sexual Desire Inventory-2 (SDI-2; Spector, Carey, & Steinberg, 1996), and their preferences for feminine characteristics in women's faces and masculine characteristics in men's faces. Given Lippa's proposal that sexual desire only energizes heterosexual men's sexual attraction to women, we predicted that heterosexual men's sexual desire would be positively correlated with their preferences for feminine characteristics in women's faces, but not their preferences for masculine characteristics in men's faces.

Method

Participants

A total of 70 heterosexual adult men took part in the study (age: $M = 26.1$ years, $SD = 6.3$ years, range = 18–44 years). The men were recruited for an online study of face preferences by following links from lists of web-based studies (e.g., psychology.org). Participants were not compensated for participating.

Measures and Procedure

Following previous studies of systematic variation in perceptions of masculine and feminine faces (e.g., Jones et al., 2007; Welling et al., 2007, 2008), we used prototype-based image transformations to objectively manipulate sexual dimorphism of 2D shape in digital face images. Although different methods for manipulating the masculinity of face images have been used in some other studies (e.g., Johnston, Hagel, Franklin, Fink, & Grammer, 2001), these methods have been shown to produce perceptual effects that are equivalent to those produced using the methods employed in our current study (DeBruine et al., 2006; DeBruine, Jones, Smith, & Little, 2010).

First, male and female prototype (i.e., average) faces were manufactured using established computer graphic methods (Rowland & Perrett, 1995; Tiddeman, Burt, & Perrett, 2001). Prototypes are composite images that are constructed by averaging the shape, color, and texture of a group of faces, such as male or female faces. These prototypes can then be used to transform images by calculating the vector differences in position between corresponding points on two prototype

images and changing the position of the corresponding points on a third image by a given percentage of these vectors.

Here, 50% of the linear differences in 2D shape between symmetrized versions of a male and a female prototype were added to or subtracted from face images of 20 young White male adults (age: $M = 19.5$ years, $SD = 2.3$ years) and 20 young White female adults (age: $M = 18.4$ years, $SD = .7$ years). This process created masculinized and feminized versions of the individual face images that differ in sexual dimorphism of 2D shape and that are matched in other regards (e.g., identity, skin color, and texture) (Rowland & Perrett, 1995). Examples of masculinized and feminized face images are shown in Fig. 1. Thus, 40 pairs of images were produced in total (each pair consisting of a masculinized and a feminized version of the same individual). Previous studies have demonstrated that this method for manipulating masculinity of 2D face shape affects perceptions of facial masculinity in the predicted manner (DeBruine et al., 2006; Jones et al., 2010; Welling et al., 2007, 2008). The 20 pairs of male faces and 20 pairs of female faces used in our study were the same set of stimuli that were used in Study 2 of Welling et al. (2008).

Each participant completed a face preference test in which they were shown the 40 pairs of faces (see above) and were asked to indicate which face in each pair they thought was



Fig. 1 Examples of masculinized (*left*) and feminized (*right*) versions of female and male faces used in our study

more attractive. Trial order and the screen side on which any given image was presented were randomized across participants. This method for assessing individual differences in men's preferences for masculine versus feminine face shape characteristics has been used in previous studies (e.g., Jones et al., 2007; Welling et al., 2008).

Each participant also completed the SDI-2, a 14-item questionnaire that assesses individual differences in sexual desire (Spector et al., 1996). Previous research has shown that the SDI-2 has very good internal consistency (Spector et al., 1996), produces scores that are highly correlated with other measures of sexual motivation (e.g., King & Allgeier, 2000), and that individuals with high scores on the SDI-2 demonstrate larger physiological responses to sexual stimuli than do individuals with relatively low scores (Giargiari, Mahaffey, Craighead, & Hutchison, 2005). Following Spector et al. (1996), participants were instructed as follows: "This questionnaire asks about your level of sexual desire. By desire, we mean interest in or wish for sexual activity. For each item, please circle the number that best shows your thoughts and feelings. Your answers will be private and anonymous." An example question is "When you spend time with an attractive person (for example, at work or school), how strong is your sexual desire?", to which participants responded using a 0 (no desire) to 8 (strong desire) scale.

The study was conducted online. Following recommendations by Kraut et al. (2004), data were not recorded from duplicate Internet Protocol (IP) addresses. Previous studies comparing online and lab-based methodologies have demonstrated that both methods produce equivalent findings for both individual differences in men's preferences for masculinized versus feminized versions of faces (e.g., Fraccaro et al., 2010; Jones et al., 2007) and individual differences in their sexual desire (e.g., Lippa, 2006).

Results

Responses on the face preference test were scored following previous research (e.g., Jones et al., 2007). For each participant, we calculated the proportion of times he chose the feminized female face as more attractive than the masculinized version. We also calculated the proportion of trials on which each participant chose the masculinized male face as more attractive than the feminized version.

First, we used a one-sample *t*-test to compare the proportion of trials on which men chose the feminized female face as more attractive than the masculinized version with the chance value .5. This analysis demonstrated that the men in our study chose the feminized female faces significantly more often than the masculinized versions, $t(69) = 15.20, p < .001, M = .81, SEM = .02$. A corresponding analysis comparing the proportion of trials on which men chose the masculinized male face as more

attractive than the feminized version with chance showed no significant effect of face shape on men's attractiveness, $t(69) < 1, M = .47, SEM = .03$.

Scores on the SDI-2 were calculated following Spector et al. (1996). High scores indicate high sexual desire. For our sample of men, responses showed very good internal consistency (Cronbach's alpha = .89) and scores ranged from 32 to 86 ($M = 60.9, SD = 12.6$).

SDI-2 scores were positively correlated with the proportion of trials on which participants chose feminized versions of female faces as the more attractive, $r = .30, N = 70, p = .011$, but not the proportion of trials on which participants chose masculinized versions of male face faces as the more attractive, $r = -.04, N = 70$. Steiger's test (Steiger, 1980) showed that these correlations were significantly different, $z = 1.97, p = .049$. There were no significant correlations between age and any of our other variables, all absolute r s $< .17$.

Discussion

Consistent with many previous studies of heterosexual men's preferences for feminized versus masculinized versions of women's faces (for a meta-analytic review, see Rhodes, 2006), the men in our study also demonstrated this preference. Consistent with some other studies of heterosexual men's preferences for masculinized versus feminized versions of men's faces (e.g., Jones et al., 2007), the men in our study showed no significant preference for either masculinized or feminized versions of men's faces.

Heterosexual men's scores on the SDI-2 (Spector et al., 1996) were positively correlated with their preferences for feminized versions of women's faces. By contrast, the corresponding correlation for judgments of men's faces was not significant. Moreover, the correlation between men's scores on the SDI-2 and their preferences for feminine women was significantly stronger than the correlation between men's scores on the SDI-2 and their preferences for masculine men. This pattern of results was consistent with Lippa's (2006, 2007) finding that heterosexual men's reported sexual desire was positively correlated with their reported attraction to women, but not men. Lippa's studies also showed that heterosexual women's reported sexual desire was positively correlated with their reported attraction to both women and men, a finding complemented by subsequent research by Welling et al. (2008) in which women's reported sexual desire was positively correlated with the strength of their preferences for exaggerated sex-typical cues in both men's and women's faces.

Our current findings, together with those of Welling et al., suggest that the nature of the relationships between sexual desire and preferences for exaggerated sex-typical shape cues in own- and opposite-sex faces is different in heterosexual men

and women. These findings are then consistent with Lippa's proposal that sexual desire is a generalized energizer of heterosexual women's sexual behaviors, but only energizes heterosexual men's sexual attraction to women. That reported sexual desire predicts women's judgments of the attractiveness of both men's and women's faces (Welling et al., 2008), while men's reported sexual desire predicts their attractiveness judgments of women's faces only, is also consistent with a recent study by Lippa, Patterson, and Marelich (2010). In their study, heterosexual women reported sexual attraction to both female and male models, while heterosexual men reported sexual attraction to female, but not male, models, suggesting greater category specificity in men's than women's sexual attraction.

Lippa (2006) and Welling et al. (2008) have previously interpreted correlations between reported sexual desire and attraction as evidence that sexual desire is a generalized energizer of heterosexual women's sexual attraction (i.e., increases sexual attractiveness of both men and women), but only energizes heterosexual men's sexual attraction to women. While it true that such correlations are certainly consistent with these proposals, it is also possible that attraction to men and women (among heterosexual women) and women (among heterosexual men) increases sexual desire or that the correlation between reported sexual desire and attraction is driven by the effects of other variables. Indeed, recent research has reported positive correlations between men's preferences for feminine shape cues in women's faces and the extent to which they demonstrate exaggerated sex-typicality on psychological measures (e.g., sensation seeking and systemizing) (Jones et al., 2007; Smith, Jones, & DeBruine, 2010), suggesting that correlated individual differences in attraction to feminine women and sexual desire among men may simply reflect individual differences in degree of masculinization. Research assessing the effects of experimentally manipulating sexual desire on face preferences and other aspects of attraction may shed light on the mechanisms and processes that shape the relationship between sexual desire and face preferences that were observed in the current study and Welling et al. (2008).

In summary, previous research has reported positive correlations between heterosexual women's reported sexual desire and their preferences for both feminine characteristics in women's faces and masculine characteristics in men's faces (Welling et al., 2008). Here we found that heterosexual men's reported sexual desire was positively correlated with their preferences for feminine characteristics in women's faces, but not their preferences for masculine characteristics in men's faces. Together, these findings complement reports of sex-selective relationships between sexual desire and reported attraction to own- and opposite-sex individuals (Lippa, 2006, 2007).

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