



## The association between men's ratings of women as desirable long-term mates and individual differences in women's sexual attitudes and behaviors

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### ARTICLE INFO

#### Article history:

Received 27 May 2008

Received in revised form 25 November 2008

Accepted 1 December 2008

Available online 13 January 2009

#### Keywords:

Sociosexual orientation

Mate selection

Attraction

Masculinity

### ABSTRACT

This research examined whether individual differences in women's sexual attitudes and behaviors are associated with men's ratings of them as desirable long-term mates when men were exposed to only pictures of women's faces. Links between sexual attitudes and behaviors with the presence of more masculine facial features were also assessed. Women completed the Sociosexual Orientation Inventory (SOI; Simpson & Gangestad, 1991) and had their faces photographed (without make-up). Facial markers of masculinity were measured, and female raters then independently rated the perceived masculinity of each face. Following this, male raters independently evaluated each woman's face on two dimensions: desirability as a long-term mate and trustworthiness. More sexually unrestricted women, who pose a greater threat of future infidelity, had more masculine facial features, and were evaluated as being both less desirable long-term mates and less trustworthy in relationships. Exploratory analyses suggested that men rated women with higher SOI scores less positively partly because these women had a more masculine facial appearance.

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### 1. Introduction

From an evolutionary perspective, adopting a long-term mating strategy should be beneficial for some and perhaps most men (Gangestad & Simpson, 2000). Adopting a long-term strategy can allow men to gain greater control over a mate's lifetime reproductive potential, to attract women of higher mate value, to increase the survival of a man's children, and to increase the probability of paternity (see Buss, 2004). One major problem that ancestral men had to solve to be reproductively successful, however, was to increase the probability of paternity. Because women give birth, maternity is never in question; paternity, in contrast, is less certain. Thus, increasing the likelihood of paternity should have been important, particularly considering that the costs of cuckoldry are severe when paternal investment is high and exclusive (Buss & Schmitt, 1993).

One way that cuckoldry can be reduced is to prefer long-term mates who are chaste, sexually faithful, and likely to remain faithful in the future. Most men value sexual loyalty highly in potential mates (Buss & Schmitt, 1993), and most become extremely distressed if their partners are unfaithful (Daly & Wilson, 1988). Moreover, men report being less attracted to women who have

had more sexual partners (Kenrick, Sundie, Nicastle, & Stone, 2001). This effect could be partly attributable to the perceived increased risk of future infidelity. Consequently, most men should be sensitive to cues that signal a heightened risk of future infidelity in potential long-term mates.

One of the best predictors of extramarital sex and infidelity is premarital sexual permissiveness (Thompson, 1983). Individuals vary considerably in their willingness to engage in sexual intercourse with multiple partners. Part of this variation is captured by individual differences in *sociosexual orientation* (Gangestad & Simpson, 1990; Simpson, Wilson, & Winterheld, 2004). Individuals who have a more restricted sociosexual orientation require more time in relationships before having sex with partners, have fewer partners, and are less likely to enjoy casual, uncommitted sex. More unrestricted individuals, in contrast, require less time in relationships before having sex, and are more comfortable engaging in sex without love, closeness, or commitment. Unrestricted persons, in fact, report having more sex partners and are more likely to engage in "one-night stands" (Simpson & Gangestad, 1991). In addition, more unrestricted individuals who are currently involved in supposedly exclusive dating relationships reported being more inclined to actively pursue extra-pair involvements (Seal, Agostinelli, & Hannett, 1994), and individuals who have had more prior sexual relationships (i.e., more unrestricted persons) are more likely to engage in infidelity (Barta & Kiene, 2005; Feldman & Cauffman,

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1999). More unrestricted women, therefore, should pose a greater risk of future infidelity and, thus, should be perceived as both less desirable long-term mates and less trustworthy in relationships.

## 2. Are facial features associated with an unrestricted sociosexual orientation?

In humans, the development of masculine facial features is facilitated by the androgen testosterone, especially during puberty (Apperloo, Van Der Stege, Hoek, & Weijmer Schultz, 2003; Fink & Penton-Voak, 2002). For instance, greater levels of testosterone are associated with the lateral growth and lengthening of the lower face (e.g., jaw and chin), as well as the forward growth of the eyebrow ridges (Farkas, 1981; Rosa & Basir, 2002). Androgens such as testosterone influence the brain and behavior in two ways. First, they act prenatally and during early infancy to organize the brain. Second, circulating androgens in later adolescence and adulthood mediate behavior by altering the activity of target neural systems (van Anders & Hampson, 2003). Davis (2000), in fact, claims that there may be a biological link between testosterone and the modulation of sexual motivation. Indeed, differences in testosterone levels between men and women may be partly responsible for some of the observed gender differences in sexual behavior (Townsend, 1999).

Higher levels of testosterone in women are associated with increased sexual desire and having a more unrestricted sociosexual orientation (Cashdan, 1995; Udry, Talbert, & Morris, 1986). Moreover, Mikach and Bailey (1999) have found that more unrestricted women report being more masculine (both as young girls and as adult women), and they are rated by observers as appearing more physically and behaviorally masculine. Higher levels of testosterone in women also predict more frequent initiation of coitus and masturbation, more frequent intercourse during the middle of the reproductive cycle, greater vaginal blood flow after exposure to erotic stimuli (Meston & Frohlich, 2000), wearing more revealing clothing (Grammer, Renninger, & Fischer, 2004), as well as having more sexual partners (Cashdan, 1995; van Anders, Hamilton, & Watson, 2007).

On the basis of the above reasoning, masculine facial features in women – especially features shaped by higher testosterone levels such as more prominent brow ridges, chins, and jaw lines – should be reliably associated with their current sexual behaviors and attitudes. As a result, women who have a more masculine facial appearance should be more sexually unrestricted and, therefore, may pose a greater risk of future infidelity (i.e., they should be less trustworthy in relationship contexts).

To our knowledge, the current research is the first to test relations between women's sexual attitudes and behavior (i.e., their sociosexual orientation), the masculinity of their faces (rated by observers and assessed by measures of facial characteristics), and their perceived desirability as long-term mates (also rated by observers). We predicted that women who are more sexually unrestricted should have more masculine facial features than women who are less sexually unrestricted. Additionally, we predicted that men (male raters) should perceive more sexually unrestricted women, and those with more masculine facial features, as both less desirable as long-term mates and less trustworthy than less sexually unrestricted women and those with less masculine facial features.

## 3. Method

### 3.1. Participants and procedure

One hundred and forty women attending a university in the northeastern United States participated in this research. The aver-

age age of participants was 19.93 years ( $SD = 1.37$ ). Sixty-nine women reported being single, 70 were in a dating relationship, and one did not provide information. Participants were recruited through student newspaper ads and were paid \$15 for participating. They were told to not apply any makeup before the study (so their "normal" face could be photographed). Prior research has demonstrated that the topography and color of the skin of women's faces is related to men's ratings of their faces (e.g., Fink, Grammer, & Matts, 2006; Fink, Grammer, & Thornhill, 2001; Fink & Matts, 2008), and therefore this step was important so that women did not have the opportunity to alter the appearance of their skin (e.g., by covering blemishes or the natural color of their skin) prior to being photographed. Upon arrival, participants first answered a short questionnaire. They were then asked to tie back their hair so it did not cover their face and to look directly at a digital camera with a neutral facial expression. High resolution pictures (300 dpi) were taken of each woman's face using a Nikon digital camera (Model E950), at the size of 1600 pixels high by 1200 pixels wide. Participants were then thanked and debriefed.

## 4. Materials

Participants first provided information on their age and dating status. They then completed the Sociosexual Orientation Inventory (SOI), which assesses restricted versus unrestricted sociosexual orientations (Simpson & Gangestad, 1991). The SOI taps five components of sociosexuality: (a) number of different sex partners (where "sex" connotes sexual intercourse) in the past year; (b) number of "one-night" stands; (c) number of sex partners anticipated in the next 5 years; (d) frequency of sexual fantasies involving persons other than the current (or most recent) romantic partner; and (e) attitudes toward engaging in casual, uncommitted sex. The components are weighted and then summed to form a single score (see Simpson & Gangestad, 1991). Higher scores reflect a more unrestricted sociosexual orientation, and lower scores reflect a more restricted one ( $\alpha = .83$ ).<sup>1</sup>

*Face Ratings.* Once all photographs had been taken, the faces were rated. One set of ten raters (all women) first independently viewed and rated each photograph on a personal computer in a random order.<sup>2</sup> These raters were recruited from a large Canadian university and had no knowledge of participants' self-ratings or the study hypotheses. Each rater evaluated how well 4 items (see below) described each woman on a 7-point scale, anchored 1 = not at all and 7 = very much. Interrater agreement for each item was high ( $\alpha$  ranged from .83 to .95), so scores were averaged across the raters on each item.

Given the links between the appearance of women's facial skin with ratings of their attractiveness (e.g., Fink & Matts, 2008), we had raters evaluate the appearance of each woman's skin on two dimensions: (a) how smooth each woman's skin appeared, and (b) how many facial blemishes each woman had. Because ratings on these items were highly correlated ( $r = .95$ ), they were averaged to create an index of appearance of the skin.

The masculinity of women's facial features was assessed by 2 items: (a) how masculine each woman appeared to the rater, and (b) how feminine each woman appeared to the rater (reverse-scored). Raters were not instructed to focus on any particular facial features when making these ratings. Because these items were

<sup>1</sup> Some recent research suggests that the SOI may not be a unitary construct (e.g., Penke & Asendorpf, 2008; Webster & Bryan, 2007). The results of the present research, however, were similar for the attitudinal and behavioral components of the SOI.

<sup>2</sup> Female raters were used out of convenience, and each rater evaluated the face of each participant. The ratings were not conducted in one sitting, but instead were conducted over the course of six weeks. Female raters did not rate the faces of participants on items related to attractiveness as a mate or trustworthiness.

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