

## Sensation seeking and men's face preferences

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### Abstract

Findings from previous studies suggest that only men who are in good physical condition can afford to pursue high-risk activities and that men who engage in high-risk activities are considered particularly attractive by women. Here, we show that men's interest in high-sensation activities, a personality trait that is known to increase the likelihood of those individuals engaging in high-risk behaviors, is positively related to the strength of their preferences for femininity in women's faces (Studies 1–3) but is not related to the strength of their preferences for femininity in men's faces (Study 2). We discuss these findings as evidence for potentially adaptive condition-dependent mate preferences, whereby men who exhibit signals of high quality demonstrate particularly strong preferences for facial cues of reproductive and medical health in potential mates because they are more likely than lower-quality men to succeed in acquiring such partners.

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### 1. Introduction

Physical traits that are costly to develop will signal an individual's phenotypic and genotypic quality if only healthy (i.e., 'high quality') individuals are able to develop and maintain costly traits (e.g., Zahavi, 1975). For the same reason, costly *behavioral* traits may also signal men's phenotypic and genotypic quality (Bliege Bird, Smith, & Bird, 2001; Smith, Bliege Bird, & Bird, 2003). For example, turtle hunting among the Meriam men (Torres Strait, Australia) is an inefficient foraging strategy (i.e., a costly, high-risk behavior) that signals men's phenotypic quality (Bliege Bird et al., 2001). Turtle hunting may also increase men's reproductive success since hunters have higher-quality mates and begin mating earlier than nonhunters do (Smith et al., 2003). Another example comes from the Maasai people of Southern Kenya, where young men who

act as the 'bait' during lion hunts (by allowing the lion to attack them so that others in their hunting party can secure the kill) are considered particularly attractive by women (Barrett, Dunbar, & Lycett, 2002). Research has also shown that women give higher attractiveness ratings to men who take voluntary risks than they do to men described as altruists or who are required to take risks as part of their jobs (Kelly & Dunbar, 2001; see also Farthing, 2005). Collectively, these positive associations between risk taking and attractiveness suggest that risk taking is an attractive behavioral trait in men.

The idea of condition-dependent mate preferences has proven to be useful in predicting and explaining systematic variation in mate preferences in both nonhumans and humans. For example, healthy female stickleback exhibit a stronger preference for healthy males than do females in poorer physical condition (Bakker, Kunzler, & Mazzi, 1999). Additionally, women who perceive themselves to be more attractive exhibit greater preferences for masculinity and symmetry in men's faces (Little, Burt, Penton-Voak, & Perrett, 2001; Little & Mannion, 2006) and women who have more attractive body shapes show greater preferences for both masculinity (Penton-Voak et al., 2003) and cues

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associated with apparent health (Jones et al., 2005) in men's faces. These condition-dependent preferences are potentially adaptive if attractive individuals have more success in their efforts to attract high-quality mates (e.g., mates with high reproductive and/or medical health) than do relatively unattractive individuals. Since mating effort is a finite resource, individuals will increase their reproductive success by directing mating effort toward the highest-quality opposite-sex individuals who will be attracted to them. The condition-dependent preferences in females described above may be analogous to condition-dependent preferences seen in males. Male three-spined stickleback with more prominent sex-typical (i.e., attractive) traits demonstrate stronger preferences for healthy females than do relatively unattractive males (Kraak & Bakker, 1998). Furthermore, Buunk, Dijkstra, Kenrick, and Warntjes (2001) found that older men demonstrated weaker preferences for young adult women (i.e., women with the most reproductive potential), potentially because such preferences may reduce competition with younger men. As risk taking may signal men's phenotypic and/or genotypic quality (e.g., Farthing, 2005; Kelly & Dunbar, 2001), men who engage in risk taking may have stronger preferences for cues of reproductive and medical health in potential mates. Although several studies have reported condition-dependent preferences for various male characteristics (masculinity, symmetry, apparent health) among women, condition-dependent preferences among men have been less widely studied (but see Buunk et al., 2001).

Femininity in women's faces is positively associated with estrogen level (Law Smith et al., 2006), a measure of women's reproductive health (for a review of studies demonstrating this, see Law Smith et al., 2006). Although Rhodes, Chan, Zebrowitz, and Simmons (2003) observed no significant association between incidence of past health problems and femininity in women's faces, Thornhill and Gangestad (2006) found that feminine facial proportions were negatively associated with incidence of past health problems in women. Furthermore, Rhodes et al. (2007) recently showed that perceptions of women's health play an important role in preferences for feminine female faces. Attractiveness in women's faces, a facial characteristic that is thought to be synonymous with femininity (Law Smith et al., 2006; O'Toole et al., 1998; Rhodes et al., 2003; see also Rhodes, 2006), is also positively associated with indices of women's reproductive and medical health (e.g., a low waist-hip ratio, Penton-Voak et al., 2003). Moreover, Hume and Montgomerie (2001) found that facial attractiveness was inversely associated with incidence of past health problems in women and Henderson and Anglin (2003) found that facial attractiveness was positively associated with women's longevity. Collectively, these findings suggest that feminine facial characteristics may signal women's reproductive and medical health. Although preferences for cues of youth may contribute to men's preferences for feminine characteristics in women's faces (Rhodes, 2006), many researchers have noted that male attraction to cues of youth may reflect

preferences for cues of reproductive potential, rather than cues of youth per se (e.g., Miller & Todd, 1998; Thornhill & Gangestad, 1999). Since femininity in women's faces may signal reproductive and medical health, men who are willing to engage in high-risk behaviors may have stronger preferences for feminine female faces than do their relatively risk-averse counterparts.

Interest in high-sensation activities (i.e., 'sensation seeking') is a personality trait that varies widely among individuals, with men reporting greater interest in high-sensation activities than women do (Zuckerman, 1984). Furthermore, willingness to pursue high-sensation activities is closely linked to willingness to engage in risky behaviors, with sensation seeking increasing the likelihood of individuals engaging in risky activities (Horvath & Zuckerman, 1993; Zuckerman & Kuhlman, 2000). Given this association between risk taking in men and sensation seeking, as well as previous findings demonstrating female attraction to men who are willing to engage in high-risk activities, it is likely that women will value sensation seeking in potential mates. Indeed, sensation seeking is positively associated with men's potential reproductive fitness, as estimated from their number of sexual partners (e.g., Bogaert & Fisher, 1995; Sheer & Welch Cline, 1995), and is also positively related to men's physical attractiveness and dominance (Bogaert & Fisher, 1995).

We carried out three studies to test for positive relationships between sensation seeking in men and the strength of their preferences for femininity in female faces. The relationship between sensation seeking and femininity preference was investigated in samples of men recruited for both online (Studies 1 and 3) and laboratory-based (Study 2) studies of individual differences in face preferences.

## 2. Study 1

In Study 1, we tested for a positive relationship between scores on the 13-item Sensation Seeking Scale (Zuckerman, 1984) and the strength of preferences for feminine women's faces in a sample of men recruited for an online study of individual differences in face preferences.

### 2.1. Methods

#### 2.1.1. Stimuli

Following previous studies of attraction to sexual dimorphism of facial proportions (e.g., Buckingham et al., 2006; DeBruine et al., 2006; Penton-Voak et al., 2003), masculinized and feminized versions of 16 young adult female faces were manufactured by transforming each image by  $\pm 50\%$  of the linear differences in 2D shape between male and female prototype faces (see Rowland & Perrett, 1995; Tiddeman, Burt, & Perrett, 2001, for technical details of this computer-graphic method). Previous studies have confirmed that manipulating sexual dimorphism of face shape in this way influences perceptions of facial masculinity in the predicted manner (DeBruine et al., 2006; Welling et al.,

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