



## Original Article

# Mate choice, mate preference, and biological markets: the relationship between partner choice and health preference is modulated by women's own attractiveness



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## ARTICLE INFO

## Article history:

Initial receipt 25 July 2014

Final revision received 23 December 2014

## Keywords:

Mate choice

Mate preferences

Facial attractiveness

Health

Biological markets

## ABSTRACT

Although much of the research on human mate preference assumes that mate preference and partner choice will be related to some extent, evidence for correlations between mate preference and mate choice is mixed. Inspired by biological market theories of mate choice, which propose that individuals with greater market value will be better placed to translate their preference into choice, we investigated whether participants' own attractiveness modulated the relationship between their preference and choice. Multilevel modeling showed that experimentally assessed preferences for healthy-looking other-sex faces predicted third-party ratings of partner's facial health better among women whose faces were rated as more attractive by third parties. This pattern of results was not seen for men. These results suggest that the relationship between mate preference and mate choice may be more complex than was assumed in previous research, at least among women. Our results also highlight the utility of biological market theories for understanding the links between mate preference and partner choice.

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## 1. Introduction

Models of human mate choice derived from theories of sexual selection (e.g., (Gangestad & Scheyd, 2005; Gangestad & Simpson, 2000; Jennions & Petrie, 1997; Kokko, Brooks, Jennions, & Morley, 2003; Thornhill & Gangestad, 1996) are frequently tested and supported by studies that measure self-reported or experimentally assessed preferences for physical traits (Fink & Penton-Voak, 2002; Little, Jones, & DeBruine, 2011; Miller & Todd, 1998; Thornhill & Gangestad, 1999). A key assumption of these studies is that preferences obtained through self-report or by judging the attractiveness of unfamiliar individuals will, to some extent, reflect actual partner choice. However, since mate choice in humans is mutual (Roberts & Havlíček, 2013; Stewart-Williams & Thomas, 2013) and constrained by the availability of potential partners (Perrett et al., 2002; Pollet & Nettle, 2009), preference for certain characteristics in laboratory studies may not necessarily predict choice of a real-life partner with those characteristics.

Evidence for a correlation between mate preference and mate choice in humans is mixed. For example, in a study that assessed mate choice using a speed-dating paradigm, Li et al. (2013) found that self-reported preferences for physically attractive partners predicted the

attractiveness of the partners people actually chose. By contrast, another speed-dating study found no relationship between self-reported preferences for physical attractiveness and actual partner choices (Todd, Penke, Fasolo, & Lenton, 2007). The different results in these studies could reflect methodological differences; for example, Li et al. (2013) assessed partner choice following online interactions, while Todd et al. (2007) assessed partner choice following face-to-face interactions.

The studies described above tested for possible relationships between self-reported preferences for physical attractiveness and partner choices. However, other studies have investigated the relationship between experimentally assessed preferences for specific physical characteristics and these characteristics in peoples' actual partners. Both DeBruine et al. (2006) and Burriss, Welling, and Puts (2011) found that women's preferences for experimentally manipulated masculine characteristics in men's faces predicted their own masculinity ratings of their current partner. However, Burriss et al. (2011) observed no significant correlation between women's masculinity preferences and third-party masculinity ratings of the women's current partner.

Another method for investigating possible relationships between mate preference and mate choice is to test whether factors that predict systematic variation in mate preference also predict variation in mate choice. The evidence here is also mixed. On one hand, recent work suggests that oral contraceptive use has similar effects on women's mate preferences and partner choice. Little, Burriss, Petrie, Jones, and Roberts

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(2013) found that women's preferences for masculine men weakened after they started using oral contraceptives and also found that women who met their current partner while using oral contraceptives had, on average, partners with less masculine faces. On the other hand, women's own femininity appears to have different effects on their mate preferences and partner choice. More feminine women show stronger preferences for masculine characteristics in male faces (Penton-Voak et al., 2003; Smith et al., 2009), but do not necessarily have more masculine partners (Cornwell & Perrett, 2008).

According to biological market theories (e.g., Noë & Hammerstein, 1994; 1995), high-market-value individuals might be better able to translate their preference into actual choice. However, studies investigating the link between mate preference and actual partner choice have not considered this possibility. To investigate this issue, we tested whether the relationship between participants' face preferences and mate choices is modulated by their own market value. We did this by examining the relationship between participants' preferences for healthy-looking surface characteristics in other-sex faces and the apparent facial health of participants' current partners. If participants' own market value modulates this relationship, it will be stronger among facially attractive participants (i.e., individuals with high market value) than among relatively unattractive participants (i.e., individuals with low market value).

We investigated the relationship between experimentally assessed preferences for apparent health in faces and third-party ratings of the apparent health of actual partners' faces because (i) health perceptions are thought to play a particularly important role in mate preferences (Stephen et al., 2012; Tybur & Gangestad, 2011); (ii) judgments of apparent health from facial cues are correlated with measures of individuals' actual health (e.g., Kalick, Zebrowitz, Langlois, & Johnson, 1998; Roberts et al., 2005); and (iii) preferences for health cues in other-sex faces, unlike preferences for traits such as masculinity/femininity, do not show large sex differences (Little et al., 2011). We used third-party ratings of our participants' facial attractiveness as a proxy for their market value in light of research indicating that facial attractiveness predicts frequency of mating opportunities and other measures of reproductive potential (e.g., Rhodes, Simmons, & Peters, 2005).

## 2. Methods

### 2.1. Participants

Fifty-one heterosexual romantic couples took part in the study. All individuals were White and between the ages of 18 years and 35 years (men:  $M = 22.3$  years,  $SD = 3.21$  years; women:  $M = 21.6$  years,  $SD = 2.55$  years). The age difference between partners ranged from 0 to 8 years ( $M = 1.50$  years,  $SD = 1.79$  years) and the length of the relationship ranged from 2 to 178 months ( $M = 22.6$  months,  $SD = 27.1$  months). 82% of the relationships were longer than 6 months, and 62% of the relationships were longer than 12 months. Participants were recruited via the University of Aberdeen's student population, meaning that at least one individual in each couple was a student at the University of Aberdeen.

### 2.2. Stimuli for health preference test

First, full-colour images of 50 White male (mean age = 24.4 years,  $SD = 3.99$  years) and 50 White female (mean age = 24.3 years,  $SD = 4.04$  years) faces with neutral expression and direct gaze were taken under standardized lighting conditions and against a constant background. None of these individuals were from the romantic couples. These images were then aligned on pupil position and masked so that clothing was not visible. These images have been used in other recent face perception studies (Fisher et al., 2014; Wang, Hahn, Fisher, DeBruine, & Jones, 2014).

One hundred heterosexual men (mean age = 25.6 years,  $SD = 5.98$  years) and 100 heterosexual women (mean age = 24.1 years,  $SD = 5.08$  years) rated the 50 male face images for health on a 7-point scale (1 = much less healthy than average, 7 = much healthier than average). Inter-rater agreement, as measured by Cronbach's alpha, was high for these ratings (female raters = .97, male raters = .97), and male and female raters' average ratings for each face were highly correlated ( $r = .97$ ,  $p < .001$ ). A different set of 100 heterosexual men (mean age = 26.1 years,  $SD = 5.75$  years) and 100 heterosexual women (mean age = 24.8 years,  $SD = 5.54$  years) rated the 50 female face images for health on the same scale. Inter-rater agreement for these ratings was also high (female raters = .95, male raters = .97), and male and female raters' average ratings for each face were, again, highly correlated ( $r = .97$ ,  $p < .001$ ). None of these raters took part in other aspects of the study.

We excluded 4 of the male face images from the set because of image characteristics that would interfere with the manipulation of color and texture cues of perceived health (e.g., hair over the forehead). No female faces had to be excluded. We then selected the 15 men rated least healthy (mean health rating = 3.03,  $SD = 0.35$ ) and the 15 men rated healthiest (mean health rating = 4.25,  $SD = 0.25$ ). We also selected the 15 women rated least healthy (mean health rating = 2.83,  $SD = 0.29$ ) and the 15 women rated healthiest (mean health rating = 4.32,  $SD = 0.28$ ). Specialist software (Tiddeman, Burt, & Perrett, 2001) was then used to create a prototype face with the average shape, color, and texture information for each of these four sets of faces. Healthy and unhealthy prototypes are shown in Fig. 1.

We then randomly selected 10 individual male and 10 individual female face images from the original set of 50 male and 50 female faces and manufactured two versions of each of these faces: one version with increased apparent health and one with decreased apparent health. Following previous research on variation in preferences for apparent facial health (Jones, Little, et al., 2005; Jones, Perrett, et al., 2005), versions with increased apparent health (high health faces) were manufactured by adding 50% of the linear differences in color



Fig. 1. The healthy (left) and unhealthy (right) prototypes used to manufacture stimuli for the health preference tests.

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