

Mate Choice Copying in Humans

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Abstract There is substantial evidence that in human mate choice, females directly select males based on male display of both physical and behavioral traits. In non-humans, there is additionally a growing literature on indirect mate choice, such as choice through observing and subsequently copying the mating preferences of conspecifics (mate choice copying). Given that humans are a social species with a high degree of sharing information, long-term pair bonds, and high parental care, it is likely that human females could avoid substantial costs associated with directly searching for information about potential males by mate choice copying. The present study was a test of whether women perceived men to be more attractive when men were presented with a female date or consort than when they were presented alone, and whether the physical attractiveness of the female consort affected women's copying decisions. The results suggested that women's mate choice decision rule is to copy only if a man's female consort is physically attractive. Further analyses implied that copying may be a conditional female mating tactic aimed at solving the problem of informational constraints on assessing male suitability for long-term sexual relationships, and that lack of mate choice experience, measured as reported lifetime number of sex partners, is also an important determinant of copying.

Keywords Cultural transmission · Facial attractiveness · Facial masculinity · Mate choice · Reproductive strategies · Sexual selection

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Introduction

Copying others' choices occurs across a wide range of human activities. Among the many documented by researchers are examples from marketing, economic and fashion decisions, and even the occurrence of "copycat" crimes following extensive news coverage of particular types of crime (Bikhchandani et al. 1998). In some non-human species, there is evidence that females copy each others' mate choice decisions rather than solely relying on their own judgment of male attractiveness (e.g., Dugatkin and Godin 1992; Grant and Green 1996; Munger et al. 2004; Witte and Ueding 2003). However, in evolutionary human mate choice research, attention has largely been focused on direct choice of mates based on physical and behavioral traits (e.g., Gangestad and Thornhill 1997; Johnston et al. 2001; Jones and Hill 1993; Waynforth and Dunbar 1995), and mate choice copying has been relatively ignored.

Results of mathematical modeling suggest that mate choice copying can allow new trends in mate choice for male characteristics to emerge and spread through a population without any initial inherent female preference for the trait (Agrawal 2001). Not surprisingly, given that new trends in mate choice can rapidly emerge, the existence of mate choice copying has been argued as evidence for social or cultural influence on behavior (e.g., Agrawal 2001; Dugatkin 2000). Although the scientific literature on human mate choice has uncovered substantial evidence that mate choice criteria tend not to vary greatly across cultures or populations (e.g., Buss 1994; Jones and Hill 1993), some evidence for cultural influence has been found. Yu and Shepard (1998) have suggested that cultural influences drive variation in male preferences for female waist-to-hip ratio. They found that in South American Matsigenka villages, access to modern media predicted male preferences more similar to those observed in the United States and Europe. Matsigenka men not exposed to modern media had a dissimilar preference to North American and European men. It is thus possible that Matsigenka men copied the preferences that they observed in the media.

Uller and Johansson (2003) and Eva and Wood (2006) both attempted to show mate choice copying in humans by studying women's preferences for men who exhibited signs of existing commitment to a mate. In Uller and Johansson's study, a wedding ring was visible on male participants. Their results did not show mate copying. In Eva and Wood's study, 38 women rated photographs of men for physical attractiveness. The photographs were accompanied by brief details about the individual. Men described as married were rated as more physically attractive than single men. Perhaps the best evidence to date suggesting human mate choice copying comes from research by social psychologists predating most of the mate-choice-copying research in non-humans: Graziano et al. (1993) found that women's attractiveness judgments of photographs of men were influenced by low attractiveness ratings assigned by their peers.

Mate choice copying may occur as a result of informational constraints on traits required by females for successful reproduction: male genetic quality may be assessed instantly through observation of facial and body traits, but traits such as parenting ability are likely to be more difficult to assess at such low cost. In some species, males who display the highest genetic quality via physical traits also provide the most paternal care (e.g., Linville et al. 1998; Wiehn 1997). In these species

females do not require additional, more-difficult-to-acquire information to make mate choice decisions. However, in other species including humans, physical attractiveness does not appear to provide information about paternal ability, or attractive males may even provide less paternal care (Burley 1988; Qvarnstrom 1997; Sundberg and Larsson 1994; Waynforth 1999).

Given that human females sometimes seek short-term sexual relationships without an expectation of paternal investment (e.g., Gangestad and Simpson 2000), informational constraints on paternal orientation or ability are only likely to be a problem for females seeking long-term commitment from prospective mates. In support of this argument, there is evidence that women favor male physical attractiveness over other traits when seeking short-term relationships (Buss and Schmidt 1993; Gangestad and Thornhill 1997), which is likely to reflect a requirement for good genes when the father is not required for parental investment. In the context of long-term relationships, male potential as a good parent has been demonstrated to have greater salience in mate choice decisions (Berezkei et al. 1997). Given this, it is likely that women who desire short-term partners will focus on physical traits in their judgments and will be less likely to be swayed by the choices of other females.

Age has been demonstrated to affect mate choice copying in non-humans, with younger, inexperienced females relying on copying more than older individuals (Dugatkin and Godin 1993). Similarly, expertise has been noted as an important factor in eliciting copying in economic decisions (e.g., Kirmani and Rao 2000). Given this, it is possible that mate choice copying is also an age- or sexual-experience-dependent strategy.

The present study is a test of three hypotheses: first, that women are influenced by each other's mate choice decisions. Second, variation in women's sexual strategies will predict the likelihood of mate choice copying: women seeking short-term sexual relationships will be less likely to copy, presumably owing to informational constraints on male traits not signaled via physical cues. Third, because of the accumulation of expertise, women with more sexual experience will be less likely to copy.

Methods

Study designs testing for mate choice copying in non-humans typically involve a female observing a second female in the presence of (or mating with) a male (Dugatkin 2000; Munger et al. 2004). The observer's subsequent choice is then analyzed to assess whether she was influenced by her observation of other females' choices. In the present study, 112 university undergraduate women ages 19–23 viewed facial photographs of 46 men and 60 women. The photographs were of university students from a different university and were frontal facial photographs taken at a fixed distance with a standard light-colored background, using a digital camera. The photographs were cropped at the neck to eliminate clothing and were presented to the participants in a Microsoft PowerPoint slide show. Participants were given the following instructions: "Please rate each photograph according to how physically attractive you find the face. Use a 10-point scale, where 1 is very

unattractive, and 10 is very attractive.” The photographs were then randomly separated into 112 male–female pairs, sampling from the pool of photographs with replacement. Two weeks after initially rating the photographs, the women re-rated one male that they had initially rated, but this time the man was pictured in a couple. Participants were told that the couple was currently in a steady “dating” relationship. Two statistical tests of mate choice copying were performed: first a paired *t*-test was carried out to look for differences in attractiveness ratings from the first viewing of the male stimulus to the second viewing, in which a female consort was present. Second, to analyze effects of the attractiveness of the female consort and the male’s initial rating, multiple regression was used. A dependent variable was created that was the change in ratings (rating when pictured with a girlfriend minus initial male rating). The independent variables in this test were participants’ initial attractiveness ratings assigned to the man and woman.

To test whether female age, sexual experience, and mating strategy influenced mate choice copying, mating strategy data were gathered using questions drawn from Simpson and Gangestad’s (1991) sociosexuality inventory, which has been widely used to assess mating strategy (e.g., Brase and Walker 2004; Mikach and Bailey 1999; Ostovich and Sabini 2004). Only items relating to sexual strategy rather than sexual experience were included. Written answers to four questions from the inventory were used: First, participants were asked how many different partners they envisioned having sex with during the next five years. Participants were then asked how strongly they agreed with the following three statements, on 9-point scales: “Sex without love is ok”; “I can imagine myself being comfortable and enjoying casual sex with different partners”; “I have to be closely attached to someone before I could feel comfortable and fully enjoy having sex with him.” In addition, women were asked to report their lifetime number of sex partners, and their age.

Results

Attractiveness ratings given to men when pictured in a couple showed a modest increase over the initial ratings of the men (Table 1). The increase was not statistically significant in a paired *t*-test ($t=0.63$, $p=0.54$).

To test for the influence of the attractiveness rating of the woman and the man’s initial rating, a multiple regression model was run using change in attractiveness rating as the dependent variable. The initial attractiveness ratings for men and

Table 1 Descriptive statistics

Variable	Min.	Max.	Mean	SD
Initial male attractiveness rating	1	9	3.65	2.11
Initial female attractiveness rating	1	8	4.14	1.69
Change in rating	−4	4	0.09	1.51
Sexual strategy score	4	25	14.55	1.33
Reported lifetime sex partners	0	30	2.11	2.10
Age	19	23	20.73	0.86

Table 2 Results of multiple regression model predicting the occurrence of mate choice copying (change in male attractiveness rating from initial rating), and effects on copying of sexual strategy and reported lifetime sex partner number

Independent variable	<i>b</i>	<i>t</i>	<i>p</i>
Initial female attractiveness rating	0.47	3.12	<0.002
Initial male attractiveness rating	-0.26	-1.22	<0.22
Initial female × initial male rating	-0.15	-0.63	<0.53
Sexual strategy	-0.18	-2.23	<0.03
Reported lifetime sex partners	-0.24	-2.92	<0.004

Higher sexual strategy scores indicate preference for short-term sexual relationships. Model adjusted $R^2=0.41$.

women and their interaction were entered in the model as the independent variables, along with reported number of lifetime sex partners, and reported sexual strategy. Age was not a significant predictor of copying, nor was it highly correlated with reported sex partner number ($r=0.09$, $n=112$, $p=0.36$). Age was not included in the regression model, as it is likely that there was insufficient variation in age in the sample of undergraduates to produce meaningful results. The regression results are shown in Table 2. After statistically holding male initial attractiveness rating constant, higher female initial ratings were associated with increased male ratings when pictured in a couple. This suggests that the attractiveness of the female consort influenced women's attractiveness judgments of the men. To depict this effect, the data were plotted: Fig. 1 shows the mate choice copying effect with attractiveness ratings grouped into three attractiveness levels. Ratings of one or two were assigned low attractiveness, ratings of three to five were assigned medium, and five or more were assigned high attractiveness. Figure 1 additionally shows that the mate choice

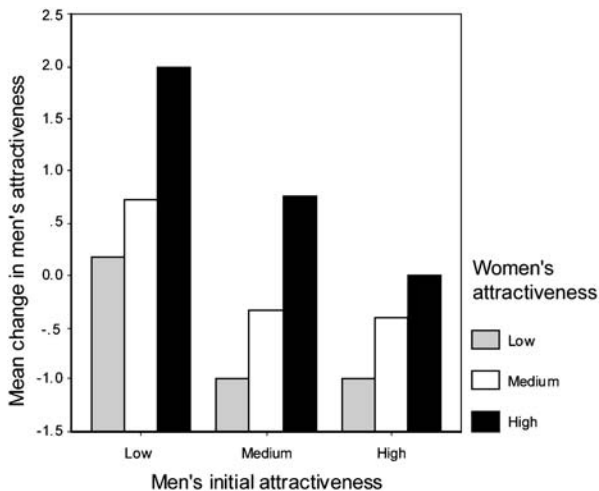


Fig. 1 The mate choice copying effect with attractiveness scores grouped into low, medium, and high categories for men and women. Being paired with a woman from a higher attractiveness group tended to increase men's attractiveness ratings, and being pictured with a woman from a lower group decreased men's ratings

copying effect appears to be consistent across the range of initial attractiveness ratings. With the data grouped, women's initial attractiveness rating remains a statistically significant predictor of the copying outcome variable (ANOVA, for female attractiveness group $F=8.81$, $df=2$, $p<0.0001$).

The regression results displayed in Table 2 show that both reporting orientation towards short-term sexual relationships and reporting more lifetime sex partners were associated with decreased mate choice copying. The results suggest that sexual experience increases women's confidence in their own attractiveness assessments of men independent of sexual strategy, and they are consistent with the hypothesis that copying occurs because of the problem of informational constraints on male traits that are not signaled via facial cues.

Discussion

These findings suggest that human females are influenced by viewing men with physically attractive female consorts. The results did not suggest a simple mate copying effect in which *any* male was judged more attractive when presented with a female. Indeed, being shown with a less attractive female consort caused women to downgrade attractiveness ratings that they had assigned to men when shown without a female consort. The results that women with more sexual experience were less likely to be influenced by the presence of a female consort suggest that copying may be influenced by the need for information on men's suitability for long-term relationships that cannot be obtained from viewing faces as easily as information on good genes. On the one hand, the result that women appear to copy another's mate choice implies that culture could play an important role in human mate choice, as suggested by Yu and Shepard (1998), but it also indicates that copying patterns may reflect female mate-choice requirements that transcend cultures, such as the need for male investment in offspring. In other words, there is no need to invoke culture or cultural transmission to explain some aspects of mate choice copying in human females.

The results are also of interest in light of recent studies showing that male faces may contain other information about likely paternal investment that *can* be readily assessed: a number of researchers have found that male faces vary in masculinity (e.g., Swaddle and Reiersen 2002; Waynforth et al. 2005). Masculine facial structure is likely to be caused by high testosterone levels (Verdonck et al. 1999), which promote mating effort (Booth and Dabbs 1993; Dabbs and Morris 1990; Udry 1988). Women prefer feminine male faces when not in the fertile phase of the menstrual cycle (Penton-Voak and Perrett 2000), and when they express interest primarily in long-term sexual relationships (Waynforth et al. 2005). Thus, it appears likely that women assess potential male parental investment both directly through facial cues and indirectly through mate choice copying.

The present study did not address *which* difficult-to-assess traits women are likely to need to acquire information about through mate choice copying. Non-human studies have focused on male parenting ability (e.g., Qvarnstrom 1997; Sundberg and Larsson 1994), but it is possible that human females copy as a strategy to solve informational constraints on a number of evolutionarily relevant male traits, such as

intelligence, mental health, and social status. Although these may, like paternal orientation, be assessed in part through readily assessable facial cues (e.g., Furlow et al. 1998), future studies could attempt to identify specific traits sought through mate choice copying.

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