

# Male friends, not female company, make a man more attractive

Markku Milonoff<sup>1</sup>, Petri Nummi<sup>2</sup>, Outi Nummi<sup>2</sup> & Esa Pienmunne<sup>2</sup>

<sup>1</sup>) Lukonmäentie 110, FI-37600 Valkeakoski, Finland (e-mail: markku.milonoff@pp.inet.fi)

<sup>2</sup>) Department of Forest Ecology, P.O. Box 27, FI-00014 University of Helsinki, Finland

Received 10 Jan. 2007, revised version received 25 May 2007, accepted 20 Aug. 2007

Milonoff, M., Nummi, P., Nummi, O. & Pienmunne, E. 2007: Male friends, not female company, make a man more attractive. — *Ann. Zool. Fennici* 44: 348–354.

Mate choice is often considered independent, but recently attention has been paid to social influences on mate preference, i.e. non-independent mate choice. Especially in humans, mate preference may be influenced by reactions and opinions of other individuals. One type of non-independent mate choice documented in a wide variety of taxa is copying the choice of other females. Although humans may not be a species in which mate choice copying is most likely to occur, many aspects of the human mating system may have favored mate choice copying, and the possibility of copying in humans has been suggested. Apart from other women's choice, women can use evaluations by other men as a mate choice criterion, because a man's friends can reveal a lot about his social skills and status. We used image processed photographs to study the effect of male friends and the occurrence of mate choice copying in teenage females. We tested if male or female company affected the attractiveness of men in photos or influenced the respondent's willingness to date the men. A positive effect of male company was detected, but no indication of mate choice copying was found. During the evolution of human social skills, a support group and recognized status within it may have been important resources for raising offspring. Although no indication of mate choice copying was found, copying in humans may be a complicated process, and it may appear in circumstances different from our test arrangement.

## Introduction

Preference for particular mates and particular traits of mates are widely documented, and these preferences can play an important role in evolutionary processes (Andersson 1994). In this respect, humans are no exception (Gangestad & Simpson 2000). There is strong evidence that mate selection tactics in men and women are different (e.g. Feingold 1990, 1992). Physical attractiveness is important for both genders, but,

in general, men value it more than women, who value more socioeconomic status and behavioural characteristics (Buss 2004). Mate choice is mostly considered independent, but recently more attention has been paid to social influences on mate preference, i.e. non-independent mate choice (e.g. Westneat *et al.* 2000). One type of non-independent mate choice is mate choice copying, where mating decisions of individuals, typically females, may be influenced by mating decisions of others (Pruett-Jones 1992, for the

definition of mate choice copying *see* Kraak 1996, Brooks 1998, Westneat *et al.* 2000). In addition to mate choice copying, mate preference may be influenced by reactions and opinions of other individuals. The adaptive value of such behaviour is that it may be the most effective, and sometimes even the only, way to gain information about features affecting fitness benefits resulting from mate choice (for mate choice copying, *see e.g.* Stöhr 1998 and references therein). Reliable information on socioeconomic status and behavioural characteristics, which women value, may be difficult to acquire.

Indications of mate choice copying (for other alternatives *see* Westneat *et al.* 2000) has been documented in invertebrates (Shuster & Wade 1991), fish (Dugatkin 1992, Dugatkin & Godin 1992, Schlupp & Ryan 1997, Grant & Green 1995, Witte and Ryan 2002, Munger *et al.* 2004, Godin *et al.* 2005, Widemo 2006), birds (Galef & White 1998 Swaddle *et al.* 2005, reviewed in Höglund *et al.* 1995), and mammals (Clutton-Brock *et al.* 1989, but *see* Clutton-Brock & McComb 1993). Mate choice copying by females is most likely to occur in polygynous or promiscuous species in which males provide offspring with little or no parental care, and where it is relatively easy to observe the mate choice of other females (Wade & Pruett-Jones 1990). This is the case in most lekking species (Höglund *et al.* 1995). At least in some lekking species, such as black grouse *Tetrao tetrix*, mate choice copying produces a situation where only a fraction of males (20%) get nearly all (ca. 90%) of the matings (Alatalo *et al.* 1992). Recent models show that mate-choice copying may also evolve when young females are poor at evaluating male quality (Dugatkin & Godin 1993, Höglund & Alatalo 1995, Stöhr 1998), and when delaying reproduction is costly (Dugatkin & Höglund 1995).

Because the breeding system of humans is slightly polygynous, and because males often contribute considerably to parental care (Alexander *et al.* 1979, Borgerhoff Mulder 1998), humans may not be a species in which mate-choice copying occurs (*see* Wade & Pruett-Jones 1990). However, one of the best-documented cases of mate choice copying is the guppy (*Poecilia reticulata*), in which males look after their progeny alone (Dugatkin 1992, *see also* Widemo

2006 for pipefish *Syngnathus typhle*). Mate choice copying was also recently demonstrated in a monogamous bird (Swaddle *et al.* 2005). In addition, many aspects of human mating may have favored mate choice copying. Human females can have extra-pair copulations, and a considerable portion of children are conceived by men other than the social partner (Bellis & Baker 1990). This increases the actual degree of polygyny and skews the distribution of matings.

The evaluation of a male's quality can be difficult because humans are skillful cheaters, especially in the field of mate choice. A direct comparison of potential mates may take a long time or even be impossible. A male's popularity among other females is easily identified and mate choice copying could have evolved to shorten the evaluation period. For young females, choosing between males may be particularly difficult and other female's conceptions can give information on the quality of potential mates. In any case, 'social spying' may provide valuable information of a potential mate's characteristics that females value, and which can be inherited by descendants (cf. sexy son theory Fisher 1930). Copying may also play a role in choosing extra-pair mates when the attractiveness of a man is especially important (Scheib 2001).

Women could also use the evaluation of other men as a mate choice criterion, because a man's friends can reveal a lot about his social skills and status in a group. During human evolution, social skills have been important in bonding within and between family groups (Buss 1994). Social skills have been favored because groups with socially skillful men may, for example, have avoided dangerous conflicts by negotiating and capitalized on smooth cooperation (Hames 1996). Research conducted in different cultures show that socially recognized men are preferred mates (Geary *et al.* 2004 and references therein). A support group — and recognized status within it — has also been valuable since cooperation has probably been an important resource for raising offspring (*see* Hames 1996).

There is some evidence that women's opinions of a man's attractiveness are influenced by opinions of other women (Graziano *et al.* 1993, Dugatkin 2000), which may indicate that mate choice copying occurs among humans. How-



**Fig. 1.** An example of a photo used in the research. The original photo (background removed) is on the right. The picture used in the test series A (all persons around the man removed) is on the left. For those men who had company in the test series B, the picture used was identical to the original photo. For those men who had no company in the test series B, the picture used was identical to the picture in series A.

ever, the evidence is scarce and equivocal (for the absence of wedding ring effect *see* Uller & Johansson 2003). To our knowledge, the effect of male friends on the attractiveness of men has not been studied.

In this article, we use the term ‘mate-choice copying’ in a broad sense to cover situations where the opinion of a woman of a man’s attractiveness is affected by other women’s opinions. The effect of male friends on a man’s perceived attractiveness is considered to be an example of socially influenced mate choice. Image processed photographs were used to study the effect of males’ friends and the occurrence of mate choice copying in teenage females. We test if male or female company affects the attractiveness of men in photos.

## Material and methods

Ten men (nine men aged 20–28 years and one man aged 42 years, *see* Results for the effect of higher age), dressed in their own casual clothes (shirt and trousers), were photographed sitting behind a table. These subjects had two informally dressed persons around them (aged 16–20): seven men had two attractive (opinion of the authors) women, one man (aged 42 years) had a man and an attractive woman, and two men had two men next to them. The setting was the same in all of these original photos; the persons around were keenly looking at the man in the middle, and the man was looking at the person on the left (Fig. 1).

Two test series were produced from these ten original photos by using an image processing program (Fig. 1). The background was removed from all the photos. In test series A, all the persons around the man were removed, i.e. all men in the center were sitting alone. In test series B, the two women around four of the focal men were removed, but other persons were left in the pictures. After this manipulation, series B consisted of four photos in which a man was alone, three photos of a man with two women, two photos of a man with two men, and one photo of a man (aged 42 years) with a man and a woman. The men in the center of the photos were identical in these two test series. The two test photo (85 × 53 mm) series were printed in the same order on different A4 sheets.

Test series A or B were presented to two different randomly selected groups of girls aged 16–18 years (series A:  $n = 67$ , mean = 17.3 years; series B:  $n = 71$ , mean = 17.2 years,  $t = 0.581$ ,  $p = 0.562$ ) from the Valkeakoski senior secondary school (each girl saw either series A or B). The girls were requested to rank the attractiveness of the men in the center of the photos (1 = most attractive, 10 = least attractive; *see* Appendix). The women in test series B were told to be a *naisystävä* (in Finnish), i.e. a kind of a lady friend, of the man in the middle. The word was chosen to give the impression that the relationship between the women and the men is sexual, but that they do not date regularly. Hence, the respondents knew that the women in the photos were sexually interested in the man in the middle, but that he was still available. In test series B, the

men around the man in the middle were told to be considered his friends. The questionnaire had alternative questions concerning the eye color of the respondent and her assumption of the aim of the test ("The research studies: (a) characteristics of the respondent, (b) physical characteristics of the man, (c) elements around the man, (d) clothing of the man, (e) facial expression of the man"; see below).

To test the effect of female company, we used only those seven men who were in series B either alone ( $n = 4$ ) or with two women ( $n = 3$ ). The ranks used in the statistical testing were recalculated to correspond with the ranks inside this group (1 = most attractive, 7 = least attractive). This way, the other photo manipulations (i.e. men with male company) did not confound the results. Because a change in the rank of one man affects the ranks of others, we used the mean rank of the three men with two women in the test. This mean was compared between test series A and B. If female company makes a man seem more attractive (i.e. mate choice copying), the mean rank of those men should be better (= lower rank) in test series B (with female company) than in series A (alone).

We also tested the willingness to date the man in the photo with a smaller group of respondents (aged 16–17 years; series A:  $n = 50$ , mean = 16.2 years; series B:  $n = 16.1$ , mean = 16.1 years,  $t = 1.311$ ,  $p = 0.194$ ). In this test, we tried to ensure that the attractiveness ranking in the first test reflected the sexual interest of the respondents.

Three other photos in which the focal man had company (either male company or male and female company) were used for two reasons. First, to test the effect of male company: if male company makes a man seem more attractive, the ranking of the man with two men should be better in test series B than in series A. Secondly, to test the effect of company in general: if company in general makes a man seem more attractive, the ranking of men with company (regardless of sex), should be higher in test series B than in series A). To test the effect of male company, we used only those men (aged 20–28 years) who were in series B either alone ( $n = 4$ ) or with two men ( $n = 2$ ) and recalculated the ranks to correspond with the ranks inside this group (1 = most attractive, 6 = least attractive).

We also compared the ranks of the man (aged 42 years) with one woman and one man in series B with his ranks in series A (together with those four men which were alone in series B, 1 = most attractive, 5 = least attractive).

The four different combinations (alone, with two females, with two males, and with a male and a female) served to conceal the true focus of the test. If the aim of the test had been obvious it may have affected the choices of the respondents. The question about eye color served the same purpose. To ensure that subjects did not guess the aim of the test, we asked them to choose the right alternative from five possible aims. Those who chose the right alternative (alternative c) were excluded from the analysis ( $n = 7$  in series B of the first test and  $n = 7$  in series B of the second test).

The distributions were normal and the differences in ranks were tested using  $t$ -tests. The persons in the photos and the respondents knew that they were participating in research, and all gave their approval.

## Results

The mean attractiveness rank of the men with female company in test series B was almost similar in both test series (Table 1). According to 95% confidence interval ( $-0.373$ – $0.277$ ), even an increase of 0.4 ranks in the average rank (= 0.4 lower rank) would have been detected.

In the test of dating interest, the average willingness to date the men with two women in the photos was even lower (= higher rank) than in the case when they were alone in the photos (Table 2). However, this difference was not statistically significant.

In both tests, the rank of men with two male companions was significantly better (= lower rank) than in the case when they were alone (Tables 1 and 2). The company of one woman and one man improved a man's ranking (= lower rank), but the difference was not statistically significant. This result was based on only one man who was much older (aged 42) than his company in the photo and than the respondents. Accordingly, this age difference may affect the result. However, this bias did not affect other

tests in which photos of the older man were not included.

## Discussion

Male company significantly influenced the results, thus the experimental arrangement seemed capable of detecting effect of companions on a man's attractiveness. However, because the ranks of all men with company did not improve (i.e. men with female company), company in general did not have an effect.

The increased attractiveness of men with male company may suggest that male friends were interpreted as indicators of the strength of a man's social network. This network may not only imply solid social skills, but may also provide support for the hypothetical family unit of the respondent (Hames 1996). Social status and the characteristics that help a man achieve status may be passed on to his descendants. Research strongly suggests that socially successful men, or men that have potential for social success, are preferred mates (Geary *et al.* 2004 and references therein). Male friends are also one of the most typical gender-

related attributes implying masculinity (Twenge 1999 and references therein). Although masculine qualities are not always favored, their importance for mate choice is especially high near ovulation and in short term relationships (Gangestad & Simpson 2000, Buss 2004).

Contrary to the effect of male company, there was no indication of improved rank of men with female company. One reason for the lack of the effect could be that mate-choice copying may have an influence only if men are considered otherwise unattractive. However, the rank of a man that was considered unattractive was even lower with female company in the second test (man number 9; in first test recalculated A-rank mean = 4.31 and B-rank mean = 4.13,  $t = 0.922$ ,  $p = 0.358$ ; in second test A-rank mean = 4.32 and B-rank mean = 4.89,  $t = 3.578$ ,  $p = 0.001$ ). The result concerning mate-choice copying was negative even though the respondents should have been the most potential mate choice copiers, i.e. young inexperienced females (Dugatkin & Godin 1993, Höglund & Alatalo 1995, Stöhr 1998). In accordance with our result, Uller and Johanson (2003) found that women did not prefer engaged men (i.e. so-called wedding ring effect).

**Table 1.** The effect of company to the average rank of the attractiveness of men in the test photos (1 = most attractive). In the test where all the men were alone, the number of respondents was 67; in the test where some of the men had company, it was 71.

	Effect of two women		Effect of two men		Effect of one woman and one man	
	Alone	With company	Alone	With company	Alone	With company
Mean	4.35	4.30	4.46	3.86	4.54	4.41
SD	0.91	1.01	0.76	1.06	0.88	1.13
<i>t</i> -test	$t = 0.291$ , $p = 0.772$		$t = 3.808$ , $p < 0.001$		$t = 0.746$ , $p = 0.457$	

**Table 2.** The effect of company to the average rank of willingness to date with the men in test photos (1 = most desired). In the test where all the men were alone, the number of respondents was 50; in the test where some of the men had company, it was 36.

	Effect of two women		Effect of two men		Effect of one woman and one man	
	Alone	With company	Alone	With company	Alone	With company
Mean	4.47	4.74	4.29	3.83	4.70	4.44
SD	0.88	0.57	0.74	1.09	0.58	0.97
<i>t</i> -test	$t = 1.593$ , $p = 0.115$		$t = 2.313$ , $p = 0.023$		$t = 1.525$ , $p = 0.131$	

However, Graziano *et al.* (1993) found that women were influenced by other women's attractiveness ratings and Dugatkin (2000) reported a possible copying effect from a dating survey. In these surveys, women were given written information about the men and they knew that the men were available for dating. The different experimental arrangement and knowledge regarding the men may help explain the different results. The target of our experiment was to explore immediate subconscious effects of female company. In the surveys of Graziano *et al.* (1993) and Dugatkin (2000), the respondents drew conclusions from written information. The processes leading to the outcome may be very different. Women in all of these other surveys were also a few years older (undergraduates at a university) than in our survey.

Our test may have in some respect been more realistic than surveys in which respondents can draw conscious conclusions from written information. However, our study does not completely refute the possibility of mate-choice copying in humans. Our research merely showed that in a situation where young females were offered a limited amount of visual information, mate copying did not occur. Mate-choice copying in humans may be induced by many kinds of behavioral or verbal information that was not available in our test. Copying in humans may well be a more complicated process than in other species (Uller & Johansson 2003). Even the term 'mate-choice copying' (according to Pruett-Jones 1992) may be unsuitable for humans because other people can influence the choosers although they are not choosing mates for themselves (*see* Brooks 1998 and Westneat *et al.* 2000 for terms related to mate-choice copying). For example, although older females (e.g. relatives) would not actually choose younger males as mates, they can consciously or subconsciously give information to young female choosers. In our opinion, socially-influenced mate choice may be a more appropriate term, which would encompass the influence of both sexes, including the effect of male friends.

## Acknowledgements

We thank the students of Valkeakoski Senior Secondary School for participating in the test and students of biology

course 6/01 (Heini Andersen, Ari Jokela, Päiviikki Kantala, Heikki Koivisto, Ilona Kyykoski, Jenna Nousiainen, Pekka Rinta-Opas, Mikko-Matias Räsänen, Petra Salonen, Johanna Tirri) for carrying out the test. Friends of Juhani and Tuuli Nummi helped in the arrangements of photographing. We are grateful to all of them. We also thank Heikki Sarmaja for fruitful discussions and anonymous referees for constructive suggestions. Mike Starr kindly commented the language of the MS.

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**Appendix.** The average rank of men in the first test series. The number of the man refers to the position of the photo in the test series.

Test group	No. of man	A (All men alone, <i>n</i> = 67) Mean ± SD	B (Some men with company, <i>n</i> = 71) Mean ± SD
Alone in both tests	1	4.91 ± 2.00	4.61 ± 2.70
	3	6.49 ± 2.50	5.22 ± 2.97
	6	3.13 ± 2.04	5.18 ± 2.33
	8	3.38 ± 2.40	3.96 ± 2.63
With two women in test series B	4	3.69 ± 1.90	3.96 ± 2.18
	9	8.03 ± 2.02	7.79 ± 2.37
	10	4.90 ± 2.32	4.58 ± 2.30
With two men in test series B	5	5.13 ± 2.60	4.39 ± 2.55
	7	7.16 ± 1.67	6.77 ± 1.83
With one woman and one man in test series B	2	8.60 ± 2.23	8.52 ± 2.35