ELSEVIER

Evolution and Human Behavior 31 (2010) 348–353

Evolution and Human Behavior

Original Article

More than just a pretty face: men's priority shifts toward bodily attractiveness in short-term versus long-term mating contexts

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Initial receipt 7 January 2010; final revision received 1 April 2010

Abstract

Studies of physical attractiveness have long emphasized the constituent features that make faces and bodies attractive, such as symmetry, skin texture, and waist-to-hip ratio. Few studies, however, have examined the reproductively relevant cues conveyed by faces and bodies as whole units. Based on the premise that fertility cues are more readily assessed from a woman's body than her face, the present study tested the hypothesis that men evaluating a potential short-term mate would give higher priority to information gleaned from her body, relative to her face, than men evaluating a potential long-term mate. Male and female participants (N=375) were instructed to consider dating an opposite sex individual, whose face was occluded by a "face box" and whose body was occluded by a "body box," as a short-term or long-term mate. With the instruction that only one box could be removed to make their decision about their willingness to engage in the designated relationship with the occluded individual, significantly more men assigned to the short-term, compared to the long-term, mating condition removed the body box. Women's face versus body information choice, in contrast, was unaffected by the temporal dimension of the mating condition. These results suggest that men, but not women, have a condition-dependent adaptive proclivity to prioritize facial cues in long-term mating contexts, but shift their priorities toward bodily cues in short-term mating contexts.

Keywords: Evolutionary psychology; Attractiveness; Sexual strategies theory; Fertility; Reproductive value

1. Introduction

The importance of physical attractiveness and the biological correlates of various attributes has received much empirical attention since Darwin (1871) noted the precedence given to physical attractiveness, especially in women: "In civilized life man is largely, but by no means exclusively, influenced in the choice of his wife by external appearance" (p. 738). Despite much research having been devoted to attractiveness, most studies have focused on the specific features that contribute to overall attractiveness (for a review, see Sugiyama, 2005). Symmetry (Perrett et al., 1999), averageness (Langlois & Roggman, 1990; but see Grammer & Thornhill, 1994 for sex-specific effects), and sexual dimorphism (Johnston, Hagel, Franklin, Fink, & Grammer, 2001) have been shown to affect facial attractiveness. Contributors to bodily attractiveness include waist-to-hip ratio (Singh, 1993) and body mass index (Tovée, Maisey, Emery, & Cornelissen, 1999). Other specific bodily traits, such as muscularity (Frederick & Haselton, 2007), breast size (Furnham & Swami, 2007), and leg length (Sorokowski & Pawlowski, 2008) have been the focus of recent empirical research. Lacking, however, is research on the relative importance of faces and bodies as whole units, and whether the prioritization of facial or bodily attractiveness is dependent upon the intended duration of the mating context (short-term versus long-term mating)—a context of well-documented importance in mate preferences (Buss & Schmitt, 1993).

Aspects of physical attractiveness have been hypothesized to be "attractive" because they have been recurrently and closely associated with individuals' health, age, and hormonal status throughout human evolutionary history (Symons, 1979; Williams, 1975). Certain fitness-dependent cues relating to a woman's *current fertility* and her *reproductive value* (a measure of *future* reproductive potential that is strongly correlated with a woman's age) are conveyed

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1090-5138/$ – see front matter © 2010 Elsevier Inc. All rights reserved.
doi:10.1016/j.evolhumbehav.2010.04.002

through the face and body with substantial overlap. For example, a woman's current fertility can be assessed through increases in facial (Roberts et al., 2004) and bodily attractiveness (Kirchengast & Gartner, 2002) that occur at ovulation. Similarly, health-correlated cues of reproductive value can be conveyed through both the face and the body. Pocked-marked facial skin, for example, reveals a history of disease (Buss, 1994), while increased leg length is correlated with a multitude of health benefits: lower risks of cardiovascular disease (Gunnell, Whitley, et al., 2003), diabetes (Davey Smith et al., 2001) and cancer (Gunnell, May, Ben-Sholomo, Yarnell, & Smith, 2003). Finally, age-dependent cues also related to reproductive value, such as taut facial skin and firm breasts (Symons, 1979), can be diagnosed through a woman's face and body. Clearly, information regarding a woman's fertility and reproductive value can be gleaned from both her face and body.

Nevertheless, one component, the face or the body, may convey relatively richer information about a particular health or hormonal status variable than the other. Thus, our central hypothesis is that *although many cues regarding a woman's health and fertility can be gleaned from both her face and her body, each component conveys a subset of cues that are not conveyed by the other component.* The results of several studies have indicated that the face and body make independent contributions toward overall attractiveness (e.g., Currie & Little, 2009; Peters, Rhodes, & Simmons, 2007), supporting the tenability of this basic premise. We hypothesized that a woman's face provides relatively richer information regarding her reproductive value; and conversely, that a woman's body conveys stronger cues to her current fertility. These two dimensions peak at different ages, necessitating a tradeoff such that one could not secure a woman who is simultaneously at the pinnacle of reproductive value and fertility. In human populations, reproductive value peaks around age 17, whereas fertility peaks around age 24 (Buss, 1994; Symons, 1979; Williams, 1975). Accordingly, Jones (1996) notes that "…male preferences may have led to the evolution both of cues in the female figure that advertise sexual maturity and of cues in the face that advertise youth" (p. 103; see also Symons, 1979).

Empirical evidence supports the premise that female faces and bodies provide information that is not entirely redundant. Facial features appear to be particularly effective cues of youth and health. Aside from obvious facial indicators of youth, such as homogeneous skin and the absence of wrinkles and sagginess (Fink, Grammer, & Thornhill, 2001), preferences have also been demonstrated for neotenous facial traits (e.g., large eyes; Cunningham, 1986). Features such as these are considered "feminine" because they are sensitive to the rise in estrogen levels that accompanies puberty and persists throughout a woman's reproductive lifespan (Thornhill & Gangestad, 2008). As women age and approach menopause, however, androgens increase relative to estrogen levels, causing their facial features to take a more masculine form (e.g., thinner lips; Gangestad & Scheyd, 2005), rendering specific facial features effective proxies for assessing a woman's age and consequently, her reproductive value.

Women's bodies provide a window to several variables related to their *current fertility* (as contrasted with reproductive value) that cannot be ascertained through their facial characteristics alone. A woman's body shape is subjected to what Singh (1993) refers to as a "wide first pass filter," a quick heuristic that unconsciously evaluates whether a woman is currently capable of conceiving. For example, information obtained from a woman's waist-to-hip ratio (WHR) informs three concerns paramount to a woman's reproductive condition: (1) pregnancy status, (2) fertility, and possibly, (3) ovulatory status. First, as a woman progresses through pregnancy, her WHR exceeds 1.0, a clear indication that she is currently incapable of conceiving. For example, a young pregnant woman has high reproductive value, but a fertility of zero. This highlights the fact that fertility and reproductive value are partially dissociable, and that bodily cues are a powerful source of information regarding current fertility. Second, women with unusually high WHRs have greater difficulty conceiving than women with sex-typical WHRs (Singh, 1993, Zaadstra et al., 1993); therefore, the hormonal profile necessary for conception can be assessed through a woman's WHR. Finally, based on evidence that women's WHRs may slightly decrease at ovulation (Kirchengast & Gartner, 2002), a woman's figure could also reveal whether or not she is at peak cycle fertility. In addition to waist-to-hip ratio, a woman's body mass index signals her ability to sustain pregnancy and lactation (Lake, Power, & Cole, 1997) as well as her supply of the fatty acids that support fetus neurodevelopment (Lassek & Gaulin, 2008). Bodily traits such as these can be appraised at a glance to assess a woman's current fertility.

Historically, a man's reproductive success depended in part on selecting a mate high in fertility with appreciable reproductive value. However, because there are substantial costs involved in exclusively attempting to secure such a woman (e.g., missed sexual opportunities), men typically make tradeoffs that depend on whether a short-term or long-term mate is sought. Theoretically, for men pursuing a short-term mate, a woman's current fertility is more paramount than her reproductive value (Buss & Schmitt, 1993). Thus, unlike men pursuing a long-term mating strategy, men pursuing short-term mating opportunities should possess evolved psychological mechanisms that are activated less by cues to a woman's reproductive value than by cues to her current fertility. This logic formed the basis of our prediction: *Men assigned to evaluate a woman a short-term mate would give higher priority to information gleaned from her body than from her face, compared to men assigned to evaluate a woman as a long-term mate.*

Although there is compelling evidence that both sexes have evolved short-term and long-term mating strategies (Buss & Schmitt, 1993), individuals naturally differ in the

extent to which they pursue one mating strategy over another, a construct labeled sociosexual orientation (SOI-R) (Gangestad & Simpson, 1990). We hypothesized that SOI-R would affect the relative priority given to facial and bodily cues, in addition to the effect of the mating condition to which participants were assigned. Based on the same rationale for the assigned short-term and long-term mating contexts, we anticipated that those who naturally pursue short-term relationships (as measured by the SOI-R, with higher scores indicating less restricted SOI-R; Penke & Asendorpf, 2008) would assign a higher priority to bodily attractiveness than those pursuing mainly long-term committed relationships. Our central hypothesis would receive additional support if both the individual differences in SOI-R and the contextual effects that result from assigning participants to mating conditions produce similar patterns of information prioritization.

We saw no *a priori* grounds for predicting that women would experience an analogous conditional shift in body versus face priority across the two mating contexts for two reasons. First, women were predicted not to differentially prioritize cues of current fertility because men's fertility does not show the same precipitous age-dependent drop-off as women's fertility. As a result, there has been relatively weaker selection pressure on women to attend to such cues. Second, to the degree that women seek physical indicators of good genes in a mate (Gangestad & Thornhill, 1997; Penton-Voak et al., 1999), hormonally dependent characteristics indicative of good genes appear to be equally reflected in men's faces and bodies (Folstad & Karter, 1992; Gangestad, Thornhill, & Yeo, 1994; Thornhill & Gangestad, 1993). Previous research has shown that testosterone-based cues of masculinity (e.g., wide jaw) are correlated with actual and perceived health (Rhodes, Chan, Zebrowitz, & Simmons, 2003). Because such cues have also been correlated with fluctuating asymmetry as assessed through the face and the body (Gangestad, & Thornhill, 2003), information about a man's health can be gleaned from both sources. Thus, in contrast to men, we expected no difference in the priority that women would give to a man's facial and bodily attractiveness as a function of mating context.

2. Methods

2.1. Participants

The sample consisted of 381 university students (194 male, 187 female) who agreed to participate in exchange for course credit. The data from six participants who did not identify themselves as heterosexual were excluded, resulting in a data set of 192 men (age M=18.85, SD=1.29) and 183 women (age M=18.69, SD=1.45). Approximately one quarter of the sample (51 men and 57 women) reported being in a committed romantic relationship.

2.2. Materials and procedure

Two clothed, full body photographs, one of a man and one of a woman, were purchased from a stock photography database for use in the present study. Individual difference measures, including sex, relationship status, and participants' SOI-R (Penke & Asendorpf, 2008), were obtained from participants prior to experimentation.

After accessing the experiment online, participants viewed an image of an opposite sex individual whose face was occluded by a "face box" and whose body was occluded by a "body box." A stick figure was superimposed over the face and body boxes to indicate which part of the photographed individual lied underneath (see Fig. 1). Having been randomly assigned to one of two mating conditions, participants were instructed to first imagine themselves as single and then to consider the possibility of dating the opposite sex individual behind the boxes as either a short-term mate (i.e., one night stand) or a long-term mate (i.e., a committed relationship partner), depending on their assigned condition. To experimentally test the relative importance of facial and bodily attractiveness, participants were instructed that they could only remove one box (the "face box" or "body box") to inform their decision about whether or not they would engage in the designated relationship with the occluded person.

After participants selected a box to remove, they were asked, "When you made your decision about which box to remove, how did you prioritize information gathered from the face versus the body?" Participants responded on a seven-point Likert scale wherein a score of 1 indicated that information from the face was much more important, a score of 4 indicated that information from the face and body was equally important, and a score of 7 indicated that information from the body was much more important. Thus, the two dependent variables were (1) choice of which occluding box to remove, and (2) quantitative judgments about the relative priority of information gleaned from the face versus the body. Although unnecessary, the face or body of the opposite sex individual underneath was subsequently revealed, in accordance with each participant's selection. Participants were fully debriefed as to the purpose of the study.

3. Results

3.1. Face versus body box choice

To evaluate whether participants chose to remove the face or body box more often, we first conducted an exploratory analysis which revealed a general trend to choose the face box over the body box in male participants (face: 61%; χ^2_1=9.19, N=192, p_{rep}=.99, φ=.22) and in female participants (face: 69%; χ^2_1=27.55, N=183, p_{rep}>.99, φ=.39). We then conducted χ^2cross-tabulation analyses within each sex to examine the effect of mating context on box choice, taking

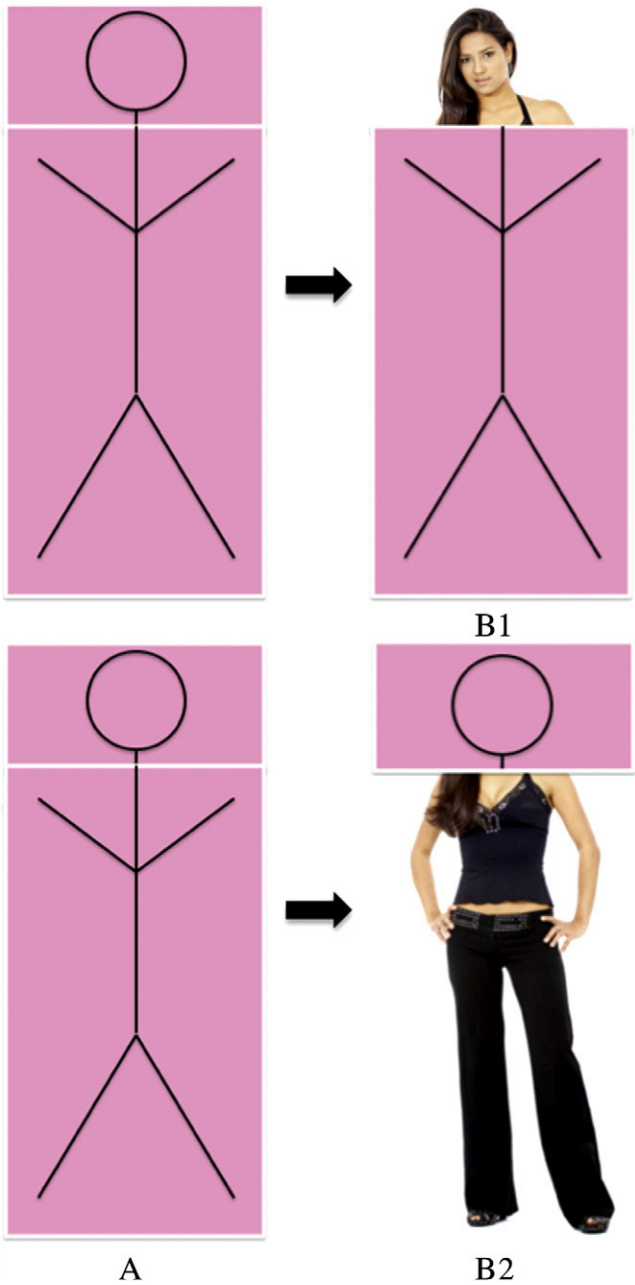

Fig. 1. Demonstration of the box removal procedure (for male participants). Column (A) represents the opposite sex image that is first presented to participants occluded by a "face box" and a "body box." Column (B) represents the image that is presented to participants upon removal of the "face box" (B1) or "body box" (B2).

into account the inherently unequal expected frequencies of box choice. Table 1 presents the observed and expected frequencies for each mating condition by sex. Men removed the face box when told to consider the target as a long-term mate with greater frequency than expected by chance (observed 68; expected 55.5). In contrast, men removed the body box when told to consider the target as a short-term mate with greater frequency than expected by chance (observed 52; expected 39.5), χ^2_1=13.81, N=192, p_{rep}>.99, φ=.27. Women did not differ from chance levels in their choice for box removal, χ^2_1=0.99, N=183, p_{rep}=.75, φ=.07. Fig. 2 illustrates box choice within each mating condition by sex, compared to the frequencies expected by chance.

Table 1
Cross-tabulation of box choice by long-term or short-term mating context and sex

Males		Face box	Body box	Females		Face box	Body box
LT	Observed	68	23	LT	Observed	60	22
	Expected	55.5	35.5		Expected	56.9	25.1
	% within LT	75%	25%		% within LT	73%	27%
ST	Observed	49	52	ST	Observed	67	34
	Expected	61.5	39.5		Expected	70.1	30.9
	% within ST	49%	51%		% within ST	66%	34%
Total		61%	39%	Total		69%	31%

LT, long term; ST, short term.

3.2. Rated priority assigned to facial and bodily information

Collecting Likert scale data on the priority that participants assigned to the information from the face and body boxes allowed us to also conduct t-tests within each sex. For this variable, higher scores indicated a greater priority placed on information from the body box. Two females who did not respond to this question were not included in the analyses for the priority variable. In line with the prediction, men who were told to evaluate the target as a short-term mate assigned the body box significantly higher priority (mean±S.E.=3.75±0.15) than did men told to evaluate the target as a long-term mate (mean±S.E.=3.00±0.13), t_{190}=−3.72, p_{rep}>.99, d=.52. Women assigned similar priority to the body box in both the short-term (mean±S.E.=3.21±0.15) and long-term mating conditions (mean±S.E.=2.93±0.15), t(179)=−1.32, p_{rep}=.82, d=.19.

3.3. Individual differences in SOI-R

To explore the hypothesis that the priority given to facial or bodily information is affected by an individual's SOI-R, we correlated participants' priority scores with their SOI-R

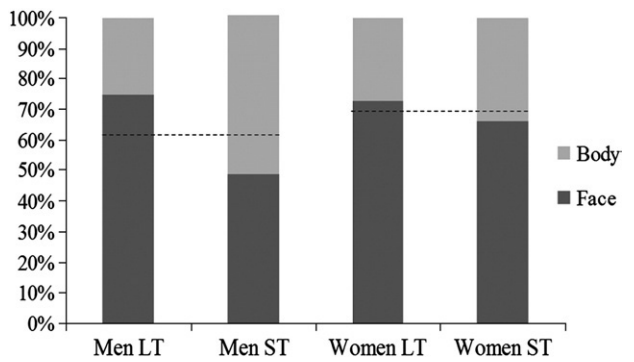

Fig. 2. Frequency distribution of box choice by mating context and sex. Expected frequencies of box choice, based on average frequencies by sex, are indicated with dashed lines.

scores, with higher SOI-R scores indicating less restricted sociosexual orientation. For women, only the SOI Desire subscale score was significantly correlated with their box priority ratings, r=.18, N=175, p_{rep}=.963. For men, however, their overall SOI-R score, as well as all subscales, were significantly correlated with their box priority ratings (SOI Total: r=.25, N=183, p_{rep}=.994; SOI Behavior: r=.14, N=188, p_{rep}=.923; SOI Attitude: r=.25, N=189, p_{rep}=.994; SOI Desire: r=.19, N=188, p_{rep}=.971).

4. Discussion

Simply assigning men to a short-term mating condition, as opposed to a long-term mating condition, caused them to increase the priority given to information obtained from a woman's body. Women assigned to the short-term and long-term mating conditions all gave greater priority to information obtained from an opposite sex individual's face. These results, as shown through both box choice and priority ratings, empirically support the hypothesis that men attend to bodily cues more in short-term than long-term mating contexts. In contrast, women's relative preferences were unaffected by mating condition, suggesting that women consistently prioritize facial cues over bodily cues. The adaptive shift in men's mating psychology was also reflected as a stable individual difference in men's SOI scores, with unrestricted men giving greater priority than restricted men to information obtained from a woman's body. Thus, men who most benefit from assessing current fertility, as opposed to reproductive value, showed greater interest in a woman's bodily cues.

Despite the conditional shift that focused men's interest toward a woman's body, both men and women chose to reveal the face of the opposite sex image at greater than chance levels when collapsed across conditions (despite the smaller absolute size of the face box, which one could argue contains less information than the larger body box). If the purpose of removing the face or body box was to assess overall attractiveness, these results are consistent with previous research indicating that the face is a better predictor of overall attractiveness than the body (Furnham & Reeves, 2006; Peters et al., 2007; Riggio, Widaman, Tucker, & Salinas, 1991). Because health is valued in both short-term and long-term mates, and because indicators of a robust immune system, such as symmetry, averageness, and sexual dimorphism, are abundantly accessible from an individual's face, facial attractiveness should be given greater weight, all else equal, than bodily attractiveness. Moreover, the face can convey social signals, such as reciprocal romantic interest, which are valued across sex and mating contexts.

The obtained pattern of results mirrors the findings of Currie and Little (2009) who showed that ratings of facial attractiveness better predicted overall attractiveness than did ratings of bodily attractiveness. Likewise, Currie and Little discovered a context-dependent shift in male raters, wherein ratings of bodily attractiveness better predicted ratings of overall attractiveness in a short-term relationship context than in a long-term relationship context. These findings provide convergent evidence that a woman's face and body convey at least somewhat non-redundant cues of female mate quality (but see Thornhill & Grammer, 1999).

Given that our results were obtained from a relatively young sample, future studies should replicate these results using a more diverse sample of participants. The forced choice procedure used in the present study allowed us to isolate the variables of interest in order to illuminate a context-dependent shift; however, this approach sacrificed ecological validity in regard to the mate assessment circumstances of everyday life. Methods that are more ecologically valid allow multiple cues to be assessed at once, for example, by allowing cues indicative of genetic quality and parental investment capacity to be evaluated simultaneously (Perilloux, Webster, & Gaulin, 2010). Within most cultures, men and women typically utilize cues from both a potential mate's face and body to assess his or her desirability as a mate. Thus, future studies should utilize a methodology that can elucidate how participants simultaneously assign relative priorities to both faces and bodies.

The current study provides evidence that for men, but not for women, priority shifting takes place based on the pursuit of short-term and long-term mating strategies. This methodology is conducive to many avenues of future research which aim to differentiate the relative importance placed on facial and bodily traits in a context-dependent manner, such as whether women's priorities of short-term and long-term mates' faces and bodies vary across the menstrual cycle along with documented fluctuations in sexual desire (Penton-Voak et al., 1999). Traits associated with SOI-R (Thornhill & Gangestad, 2008) and traits associated with parenting effort (Roney, Hanson, Durante, & Maestripieri, 2006) may be expressed in unequal concentrations across a man's face and body.

The present study utilized an evolutionarily informed perspective to hypothesize and document an increase in the relative importance of bodily information to men in a short-term mating context. Our hypothesis received further support when men who were dispositionally inclined to short-term mate showed a similar shift toward bodily cues as men in the assigned short-term mating condition. This study provides the empirical support for the hypothesized sex differences in the prioritization of facial and bodily attractiveness, while adding to a cumulative body of evidence highlighting the importance of temporal context in predicting mating decisions.

Acknowledgments

The authors thank Greg Hixon for his verification of our statistical procedures and members of the Buss Lab for their helpful feedback.

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