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Women's physical attractiveness and short-term mating strategies

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ABSTRACT

The current study examined the relationship between women's physical attractiveness – as rated by themselves and a set of third-party raters – and their mating strategy and sexual experience. Male ($N = 105$) and female ($N = 113$) undergraduates rated the attractiveness of face and body photographs of 93 female undergraduates. Attractiveness ratings – particularly bodily attractiveness ratings – were significantly related to women's mating psychology and behavior. More attractive women reported more sexual experience and a less restricted sociosexual orientation. In addition, some traits better predicted women's perception of their overall attractiveness, and this pattern was further linked to mating strategy: more sociosexually unrestricted women showed a stronger relationship between bodily traits (i.e., body mass index) and overall attractiveness than less sociosexually unrestricted women. Discussion focuses on the findings that a woman's mating strategy is linked to both her self-perceived and objective measures of attractiveness, particularly bodily attractiveness.

1. Introduction

The ubiquity of the "what is beautiful is good" stereotype (Dion, Berscheid, & Walster, 1972) implies that, in addition to attractive women wanting it all (Buss & Shackelford, 2008), attractive women may in fact *get* it all (e.g., Benson, Karabenick, & Lerner, 1976; Luxen & Van de Vijver, 2006; Udry & Eckland, 1984). But what women want, particularly in the mating domain, is complex. No single goal or strategy is preferred by all women or by the same women at different points in time. Although women, on average, have a stronger preference for long-term mating relationships than men, much variability exists within women about the degree to which they pursue short-term and long-term mateships (Buss & Schmitt, 1993; Gangestad & Simpson, 2000; Greiling & Buss, 2000). The current study focused on one variable that was predicted to influence women's mating strategies – physical attractiveness.

Attractiveness is a key predictor of romantic interest and affiliation. Studies consistently document the importance of physical attractiveness in predicting romantic pairings (Asendorpf, Penke, & Back, 2011; Curran & Lippold, 1975; Luo & Zhang, 2009). And although physical attractiveness is important to both men and women, men across cultures prioritize beauty more in potential mates (Buss, 1989), as men place greater value on traits that reliably predicted youth, health, and fertility throughout human ancestral history (e.g., Sugiyama, 2005; Symons, 1979). Consequently, a woman's physical attractiveness is a key component of her overall mate value (Buss, 1994; Symons, 1979).

Women's faces and bodies simultaneously showcase traits correlated with youth, health, and fertility. Faces can reveal youth via round cheeks, large eyes, and narrow jaws (Cunningham, 1986), health via clear skin and facial symmetry (Rhodes, 2006; Symons, 1979), and fertility via estrogen-dependent features, such as full lips, small lower face, and a soft brow ridge (Cunningham, 1986; Rhodes, 2006). Likewise, bodies can reveal youth, health, and fertility through cues such as fluid movement patterns, a rapid gait, body mass index (BMI; Montepare & Zebrowitz-McArthur, 1988; Symons, 1979), and a low waist-to-hip ratio (WHR; Jasienska, Ziomkiewicz, Ellison, Lipson, & Thune, 2004; Singh, 1993; Zaadstra et al., 1993). WHR may even track fertility changes across the menstrual cycle (Kirchengast & Gartner, 2002) and is a key physical trait that can indicate pregnancy, a crucial predictor of a woman's immediate fertility status. Although there is dispute regarding the relative importance of WHR and BMI to a woman's physical attractiveness (Singh, 1994; Swami & Tovée, 2007), WHR may be especially relevant to judgments of fertility and BMI to judgments of health. Thus, both features appear to contribute in distinct ways to overall bodily attractiveness.

Although women's faces and bodies contain overlapping information related to youth, health, and fertility, they differ in their predictive power of each trait. For example, men prioritize bodily information relatively more when making decisions about short-term mating, a context in which immediate fertility is especially important, compared to long-term mating, a context in which cues

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to reproductive value are especially important (Confer, Perilloux, & Buss, 2010; Currie & Little, 2009; Lu & Chang, 2012). Although the face communicates much reproductively-relevant information, the body may more *effectively* communicate information about a woman's immediate fertility status. Thus, the relative richness of information provided by the face and body may differentially impact men's short-term and long-term mating decisions. If so, women's mating psychology may have co-evolved to take men's preferences into account when assessing their own attractiveness as a long-term or short-term mate.

Mating strategies range temporally from short-term (e.g., brief sexual encounters) to long-term (e.g., committed enduring romantic relationships) and can be mixed (Simpson & Gangestad, 1991). Women tend toward a more long-term orientation than men (Buss & Schmitt, 1993) and maintain high standards for mate choice in both short-term and long-term mating contexts, whereas men show lower standards for mate choice in short-term contexts (Kenrick, Sadalla, Groth, & Trost, 1990). Within this overall pattern, however, there are individual differences and conditional adjustments, such as those based on opportunity and quality of available mates (Greiling & Buss, 2000). Women's decision-making mechanisms are predicted to incorporate information about their own attractiveness in estimates of expected mating interest from men, thereby influencing her pursuit of short-term and long-term mateships.

The current study explored the relationship between women's physical attractiveness and mating strategy. Historically, very beautiful women would have been successful at attracting mates for both short-term and long-term mating, but may have more efficiently increased their reproductive success by prioritizing long-term mating relationships with high quality mates (Buss & Schmitt, 1993). Given the evidence that women's faces and bodies track slightly different sets of information about reproductive value and fertility, women's decision-making mechanisms may incorporate the relative levels of their facial and bodily attractiveness to conditionally bias behavior toward the mating strategy that was recurrently more effective (in terms of reproductive success) for that constellation of attractiveness cues.

We explored several questions: (1) Are women's facial, bodily, and overall attractiveness related to particular mating strategies? (2) Do women who perceive themselves as more physically attractive expect more sexual interest from men? (3) Do women with more attractive bodies report greater success in short-term mating? (4) Within women's bodily attractiveness, what is the relative importance of BMI and WHR to overall attractiveness and mating strategy?

2. Methods

2.1. Participants

Two sets of undergraduates participated in this study: the women who served as targets (Phase 1) and the men and women who provided third-party ratings of the target women's physical attractiveness (Phase 2). Ninety-eight women originally served as targets; however, we removed participants who were 31 or older (3 *SD*s above the mean; $n = 3$), and non-heterosexual participants ($n = 2$). This left us with a final sample of 93 women (age $M = 19.27$, $SD = 1.41$). Their reported ethnicities are as follows: 46% Caucasian, 25% Hispanic, 16% East Asian, 7% Black, 3% South Asian, 1% Middle Eastern, and 2% from other ethnicities. Raters consisted of 115 women and 117 men. We excluded data from non-heterosexual individuals ($n = 14$), leaving a final sample of 113 women and 105 men (age $M = 18.68$, $SD = 2.10$). Their reported ethnicities were similar to the sample of target women: 50% Caucasian, 19% Hispanic, 18% East Asian, 5% Black, 5% South Asian, 2% Middle Eastern, and 1% from other ethnicities.

2.2. Materials

2.2.1. Phase 1

The web-based questionnaire for Phase 1 consisted of several components. First, questions elicited ratings of physical attractiveness on 1 (“Extremely unattractive”) to 10 (“Extremely attractive”) scales. The three items were: “How do you think your female peers would rate you on the following qualities?”, “How do you think your male peers would rate you on the following qualities?”, and “How do you rate yourself on the following qualities?” For each question, the women rated their facial, bodily, and overall attractiveness. The second component contained the Revised Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf, 2008) to assess mating strategy. Higher scores indicate more unrestricted sociosexual orientation (stronger proclivity toward short-term mating; $\alpha = .87$). The final component included the Sex and Commitment Contrast instrument (Haselton & Buss, 2000) in which participants rate 15 behaviors conducted by a hypothetical member of the opposite sex (e.g., “complimented your appearance”, “put his hand on your thigh”). Each behavior was rated twice: once for the likelihood that the hypothetical individual would be *sexually* interested in the participant given such behavior, and then for the likelihood that the hypothetical individual would be interested in a romantic *commitment* given such behavior. The rating scale ranged from −3 (“Extremely unlikely”) to 3 (“Extremely likely”). Scores for each set were averaged to create a sexual interest perception score ($\alpha = .91$) and a commitment interest perception score ($\alpha = 80$). Finally, participants estimated the number of partners within the past year with whom they engaged in kissing, sexual touching, oral sex, and vaginal intercourse as measures of recent sexual experience.

2.2.2. Phase 2

Photographs from Phase 1 (see Section 2.3.1 below) were standardized with an image editing program (Adobe Photoshop CS) for presentation on a 15 inch monitor (facial photos were 327 wide by 400 pixels high; body images – front and side – were presented as a single image at 583 pixels wide by 400 pixels high. Several photographs ($n = 15$; 8% of all photographs) were damaged on the camera and discarded. The entire instrument for rating these photographs consisted of 154 pages (77 women's faces, 77 women's bodies) presented in a web-based format. On each page, either the face or composite body photo was presented. The order of presentation was randomized prior to instrument creation; all participants completed the ratings in the same order. Participants rated each photograph on a 10-point scale ranging from 1 (“Very unattractive”) to 10 (“Very attractive”). They also indicated whether they knew the individual pictured (these constituted fewer than 1% of the ratings and were removed from analysis).

2.3. Procedure

2.3.1. Phase 1

Female participants entered the lab and provided informed consent. Then they completed the web-based questionnaire privately in cubicles. The experimenter and participant completed a second informed consent procedure for the photo and measurement portion of the experiment. Six participants opted out of this portion; six participants chose to participate in the measurements but not the photographs; and one completed the photographs and measurements except for weight. Consenting participants were instructed to change (in a private room) into clean gym clothes provided by the experimenters (black t-shirt, black gym shorts,

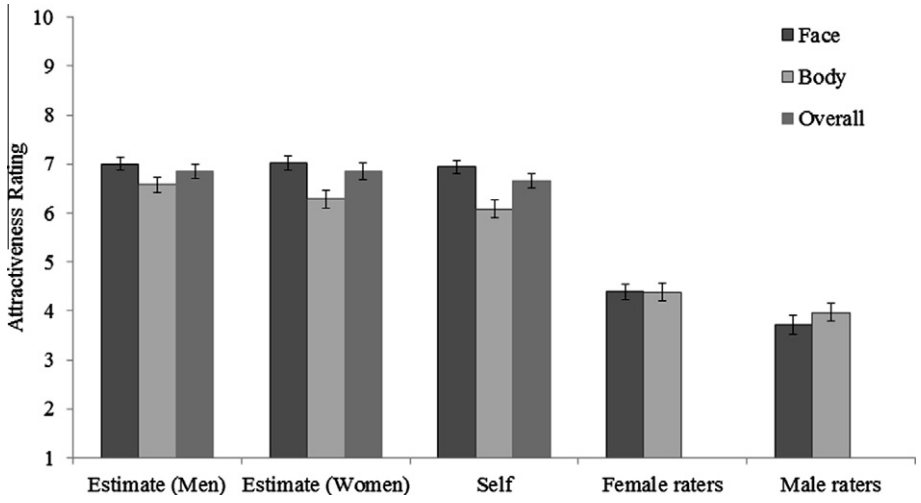

Fig. 1. Ratings of facial, bodily, and overall attractiveness by rater. *Note:* Error bars indicate 95% confidence intervals.

Table 1
Correlations between women's attractiveness ratings, SOI-R scores, and self-reported sexual experience in the past year.

	Self-ratings and estimates						Third-party ratings			
	Self Face	Self Body	Men Face	Men Body	Women Face	Women Body	Men Face	Men Body	Women Face	Women Body
SOI-R total	.20	.17	.19	.31*	.20	.26	.20	.19	.06	.03
Kissing	.20	.23	.23	.28*	.21	.20	.35*	.39*	.27	.20
Sexual touching	.24	.29*	.23	.32*	.16	.25	.25	.27	.19	.16
Oral sex	.21	.21	.25	.32*	.16	.21	.17	.20	.14	.10
Intercourse	.25	.25	.26	.33*	.11	.23	.23	.18	.11	.09

Note: For self-ratings and estimates, *n*s ranged from 91 to 96. For third-party ratings, *n*s ranged from 70 to 77.
* $p < .01$.

Table 2
Correlations between WHR and BMI and attractiveness ratings.

	Self[a]		Men[b]		Women[b]	
	Face	Body	Face	Body	Face	Body
WHR	−.24*	−.30**	−.53***	−.56***	−.56***	−.58***
BMI	−.22*	−.47***	−.63***	−.79***	−.59***	−.84***

[a] *n*s ranged from 85 to 86.
[b] *n*s ranged from 70 to 74.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

white ankle socks) to control for clothing choice effects. Participants were photographed by the experimenter: one face-only photograph (neutral expression) and two body-only photographs (front view and side view), as per IRB requirements concerning participant privacy. Each photo was taken 7 feet from the participant with a digital camera (Samsung L200-10.2 megapixels). Before arriving at the lab, participants were not aware that they would have their photograph taken; thus, the photographs represent the way participants typically style their hair and apply makeup on an average day. After the photographs, height and weight were measured on a standard medical scale. Then, the experimenter explained how to measure waist and hip circumference and oversaw participants as they took their own measurements (to decrease discomfort). Finally, participants changed back into their own clothing in a private room and were debriefed.

2.3.2. Phase 2

Men and women reported to the lab, provided informed consent, and then completed the web-based rating procedure and provided demographic information. After they finished, the experimenter debriefed them on the purpose of the study.

3. Results

Because participants could skip any question of their choice, and because they could opt out of the measurement or photograph portion of the experiment, there are different *n*s for each analysis reflecting the subset of target women who completed the applicable components in Phase 1. Due to IRB requirements, third-party raters were only able to rate facial and bodily attractiveness and thus could not provide overall attractiveness ratings.

We explored how women's self-ratings and estimates of other-ratings of their face and body compared to male and female third-party raters' actual assessments. First, we examined relative ratings of attractiveness with correlational statistics: significant positive correlations emerged between women's self-ratings of facial attractiveness and facial attractiveness ratings made by third-party men $r(75) = .34$, $p = .003$ and women $r(85) = .39$, $p = .001$; and significant positive correlations emerged between women's self-ratings of bodily attractiveness and bodily attractiveness ratings made by third-party men, $r(72) = .41$, $p < .001$, and women, $r(72) = .47$, $p < .001$.

We analyzed absolute ratings with a 2 (attractiveness component: face, body) × 5 (rater type: self-ratings, estimates of men's ratings, estimates of women's ratings, male raters' actual ratings, female raters' actual ratings) repeated measures ANOVA. The main effects of attractiveness component, $F(1,67) = 9.90$, $p < .01$, $\eta^2 = .13$, and of rater type, $F(4,67) = 183.88$, $p < .001$, $\eta^2 = .73$, were significant, but were qualified by a significant interaction between these two factors, $F(4,67) = 15.75$, $p < 001$, $\eta^2 = .24$. Fig. 1 (face and body

Table 3
Regression models predicting third-party attractiveness ratings by WHR and BMI.

	Body				Face			
	Male raters		Female raters		Male raters		Female raters	
	β	t	β	t	β	t	β	t
BMI	−.71	−7.53***	−.78	−9.18***	−.50	−4.27***	−.40	−3.36***
WHR	−.11	−1.21	−.10	−1.14	−.21	−1.83	−.31	−2.60**
Overall model R^2		.63***		.70***		.43***		.41***

** $p < .01$.
*** $p < .001$.

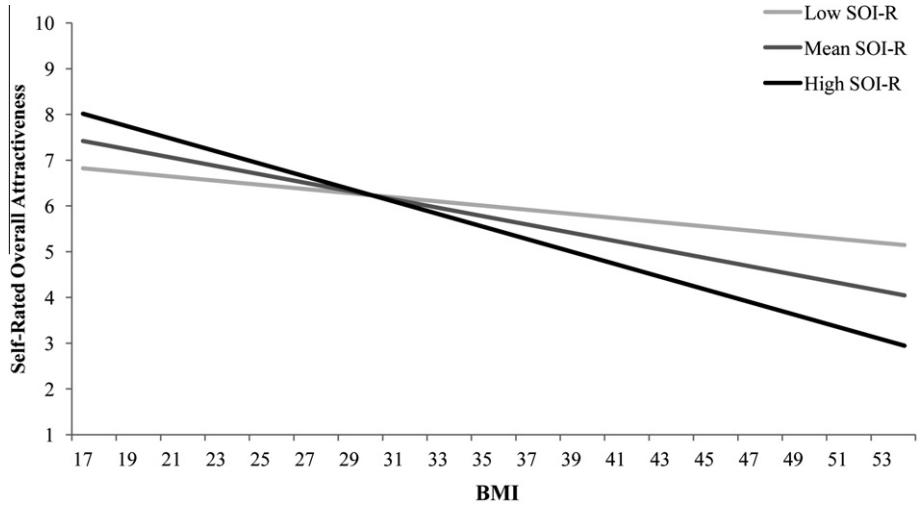

Fig. 2. The interaction of BMI and SOI-R scores on women's self-rated overall attractiveness. *Note:* Low SOI-R refers to one *SD* below the *M*; High SOI-R refers to one *SD* above the *M*.

ratings) shows the main effect of rater type, with women assessing their own attractiveness higher than the raters did, by about three points on the scale. Also visible in Fig. 1 is the significant interaction driven by a smaller difference between facial and bodily attractiveness ratings in self-ratings compared to the difference between facial and bodily attractiveness estimates of men's ratings, which women estimated to be more disparate. For third-party ratings only, male and female raters used similar *rankings* of attractiveness – as their ratings were highly correlated with one another for face, $r(75) = .95$, $p < .001$, and body assessments, $r(72) = .97$, $p < .001$ – but female raters *rated* the faces and bodies in absolute terms as significantly more attractive than male raters did (face: $t(74) = 11.42$, $p < .001$, coefficient of determination $r^2 = .64$; body: $t(71) = 8.37$, $p < .001$, coefficient of determination $r^2 = .50$).

3.1. Mating strategy and sexual experience

Women's mating strategies were related to self-ratings and estimates of other-ratings of attractiveness. Table 1 contains the correlations between women's SOI-R scores and ratings of their own attractiveness, and third-party ratings of the women's attractiveness. Due to the large number of comparisons, we adopted a more conservative α of .01. Third-party ratings (i.e., objective attractiveness) did not significantly correlate with SOI-R scores. Women's SOI-R scores were not correlated with their own ratings of their facial and bodily attractiveness, but were positively correlated with their estimates of how men would rate their bodies (though notably uncorrelated with estimates of how men would rate their faces). Also in Table 1 are the correlations between attractiveness ratings and self-reported number of romantic partners for various sexual behaviors during the past year. Third-party assessments by male raters were significantly positively correlated with women's self-reported kissing behavior. In self-ratings, once again only estimates of how men would rate their bodies – but not faces – revealed significant correlations, this time with all four types of sexual behavior.

3.2. Sexual and commitment interest perceptions

Sexual interest perception scores ranged from −2.60 to 3.00 ($M = 1.32$, $SD = 0.84$) and commitment interest perception scores ranged from −0.67 to 2.47 ($M = 1.46$, $SD = 0.55$).

Women's self-ratings of attractiveness were significantly positively correlated with their sexual interest perceptions (face: $r(93) = .30$, $p = .004$; body: $r(93) = .31$, $p = .002$; overall: $r(93) = .29$, $p = .005$), but not commitment interest perceptions (face: $r(93) = -.06$, $p = .56$; body: $r(93) = .11$, $p = .29$; overall: $r(93) = .05$, $p = .65$).

3.3. WHR and BMI

Because bodily attractiveness predicted women's overall attractiveness, mating strategy, and sexual experience, we analyzed the roles that specific components of bodily attractiveness – WHR and BMI – played in these ratings. First, WHR and BMI were positively correlated with one another, $r(85) = .60$, $p < .001$. Second, WHR and BMI were significantly negatively correlated with ratings

of both body and facial attractiveness (see Table 2). Previous research has questioned whether BMI or WHR is a better predictor of overall attractiveness. A linear regression model with WHR and BMI entered simultaneously was significant in predicting self-rated overall attractiveness, overall model: $F(2,82) = 9.79$, $p < .001$, $R^2 = .19$, but BMI ($\beta = -.30$, $t = -2.44$, $p = .02$) emerged as the only significant predictor (WHR: $\beta = -.19$, $t = -1.51$, $p = .13$). We conducted analogous regression analyses for third-party men's and women's ratings of facial and bodily attractiveness, provided in Table 3. BMI was a significant positive predictor of men's and women's facial and bodily attractiveness ratings, but WHR was a less consistent predictor.

To tie these results into the relationship between women's self-perceived attractiveness and mating strategy, we conducted separate regression analyses to determine whether BMI or WHR interacted with total SOI-R scores to predict women's self-ratings of overall attractiveness. WHR and SOI-R did not show a significant interaction effect, $p = .39$. BMI and SOI-R did, however, show a significant interaction effect; the full model was significant, $F(3,78) = 7.84$, $p < .001$, $R^2 = .23$. This model contained the predictors of SOI-R ($\beta = 1.00$, $t = 2.44$, $p = .02$), BMI ($\beta = -.09$, $t = -0.55$, $p = .58$), and their interaction ($\beta = -0.91$, $t = -2.14$, $p = .03$). As Fig. 2 illustrates, BMI was a better predictor of women's self-ratings of overall attractiveness at higher levels of SOI-R (+1 *SD*: $\beta = -.70$, $t = -4.04$, $p < .001$) than at lower levels of SOI-R (−1 *SD*: $\beta = -.22$, $t = -1.77$, $p = .08$).

4. Discussion

Women's self-rated attractiveness – particularly bodily attractiveness – correlated with mating strategy and sexual experience. The more women rated themselves to be attractive (and estimated that others would rate them to be), the more recent sexual experiences they reported and the more they endorsed an unrestricted mating strategy. Also related to mating strategy was women's tendency to infer greater sexual interest – but not commitment interest – from a hypothetical man. This replicates an effect documented in men: those pursuing a short-term mating strategy, or who consider themselves attractive, tend to overperceive sexual interest from the opposite sex (Perilloux, Easton, & Buss, 2012).

The higher men rated a woman's attractiveness, the greater the number of kissing partners she reported having in the past year, similar to previous studies (Hughes & Gallup, 2003; Rhodes, Simmons, & Peters, 2005; Stelzer, Desmond, & Price, 1987). Given this correlation, we cannot infer causality, but can speculate about possible causal mechanisms. Perhaps women who perceive themselves as more attractive may seek out, or agree to, more sexual experiences because they expect to receive greater benefits, given their self-perceived mate value. Alternatively, women who engage in more sexual behavior, particularly short-term mating, may obtain more evidence indicating that men find them attractive and this feeds into their self-assessment mechanisms, resulting in higher self-ratings of attractiveness. It may also be that women pursuing a short-term mating strategy spend more time on their appearance (e.g., exercise, makeup) than women who tend toward more long-term relationships, and that men notice and selectively respond more to women who invest more effort in their appearance. These causal arrows could be fruitfully investigated in future research.

The relationship between attractiveness and mating strategy differed between facial and bodily attractiveness. Women's mating strategy and sexual experience variables correlated significantly with bodily attractiveness variables, but did not reach significance with facial attractiveness variables. This is true even though objective body measurements were moderately positively correlated (*r*s ranged from .34 to .47) with facial attractiveness across self and third-party ratings in our sample. Thus, even though there is a high degree of overlap in information provided by the face and body, body information might be prioritized in short-term mating contexts, reflecting previous research (Confer et al., 2010; Currie & Little, 2009; Lu & Chang, 2012).

We examined the relative importance of WHR and BMI in female attractiveness. Some researchers argue that WHR has the benefit of identifying current pregnancy status and possibly small fluctuations in fertility across the menstrual cycle not reflected by BMI (Kirchengast & Gartner, 2002). Others claim that BMI is a more powerful predictor of overall health and attractiveness (Swami & Tovée, 2007). In the current study, BMI turned out to be a better predictor of attractiveness than WHR, as indicated when WHR dropped out as a predictor when both were entered simultaneously into a regression analysis of self-rated overall attractiveness. Furthermore, a significant interaction emerged between BMI and mating strategy, but not so with WHR: women who were more oriented toward short-term mating showed a stronger negative correlation between self-rated overall attractiveness and BMI. Thus, women's self-perceptions of overall attractiveness are more strongly influenced by their bodily attractiveness if they are pursuing short-term mating, a context in which men appear to prioritize bodily information (Confer et al., 2010; Currie & Little, 2009; Lu & Chang, 2012).

4.1. Limitations and future directions

IRB requirements precluded the use of tight-fitting clothing in the photos. The looser style of clothing used may have allowed for better estimation of BMI than WHR, thereby handicapping WHR as a predictor of attractiveness. Future studies could obtain body photos that are simultaneously diagnostic of WHR and BMI via tight or body-baring clothing. The IRB guidelines also prohibited showing the women's faces and bodies simultaneously, precluding overall attractiveness assessments from third-party raters. Future studies could collect overall attractiveness ratings, perhaps by having photos rated by a sample of strangers, or by using a small number of confederates in the lab who unobtrusively rate each participant's overall attractiveness.

4.2. Conclusions

The current study assessed the relationship between women's mating strategies and their self-perceived and other-perceived attractiveness. Bodily attractiveness proved particularly relevant to women's mating patterns: the more attractive the woman believed her body was to others, the more oriented she was toward short-term mating. Perceptions of certain components of attractiveness proved more predictive of overall attractiveness than others, dependent on the woman's mating strategy: women more oriented toward short-term mating exhibited a stronger relationship between bodily information, BMI in particular, and their self-perceived overall attractiveness than women less oriented toward short-term mating. Overall, results suggest that a woman's mating strategy and her attractiveness self-assessment mechanisms are intimately related, and closely attuned to bodily information.

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References

Asendorpf, J. B., Penke, L., & Back, M. D. (2011). From dating to mating and relating: Predictors of initial and long-term outcomes of speed-dating in a community sample. *European Journal of Personality, 25*, 16–30.

Benson, P. L., Karabenick, S. A., & Lerner, R. M. (1976). Pretty pleases: The effects of physical attractiveness, race and sex on receiving help. *Journal of Experimental Social Psychology, 12*, 409–415.

Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences, 12*, 1–49.

Buss, D. M. (1994). *The evolution of desire: Strategies of human mating*. New York: Basic Books.

Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: A contextual evolutionary analysis of human mating. *Psychological Review, 100*, 204–232.

Buss, D. M., & Shackelford, T. K. (2008). Attractive women want it all: Good genes, economic investment, parenting proclivities, and emotional commitment. *Evolutionary Psychology, 6*, 134–146.

Confer, J. C., Perilloux, C., & Buss, D. M. (2010). More than just a pretty face. Men's priority shifts toward bodily attractiveness in short-term versus long-term mating contexts. *Evolution and Human Behavior, 31*, 348–353.

Cunningham, M. R. (1986). Measuring the physical in physical attractiveness: Quasi-experiments on the sociobiology of female facial beauty. *Journal of Personality and Social Psychology, 50*, 925–935.

Curran, J. P., & Lippold, S. (1975). The effects of physical attraction and attitude similarity on attraction in dating dyads. *Journal of Personality, 43*, 528–539.

Currie, T. E., & Little, A. C. (2009). The relative importance of the face and body in judgments of human physical attractiveness. *Evolution and Human Behavior, 30*, 409–416.

Dion, K., Berscheid, E., & Walster, E. (1972). What is beautiful is good. *Journal of Personality and Social Psychology, 24*, 285–290.

Gangestad, S. W., & Simpson, J. A. (2000). The evolution of mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences, 23*, 675–687.

Greiling, H., & Buss, D. M. (2000). Women's sexual strategies: The hidden dimension of extra pair mating. *Personality and Individual Differences, 28*, 929–963.

Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in cross-sex mind reading. *Journal of Personality and Social Psychology, 78*, 81–91.

Hughes, S. M., & Gallup, G. G. (2003). Sex differences in morphological predictors of sexual behavior: Shoulder to hip and waist to hip ratios. *Evolution and Human Behavior, 24*, 173–178.

Jasienska, G., Ziomkiewicz, A., Ellison, P. T., Lipson, S. F., & Thune, I. (2004). Large breasts and narrow waists indicate high reproductive potential. *Proceedings of the Royal Society of London, Series B: Biological Sciences, 271*, 1213–1217.

Kenrick, D. T., Sadalla, E. K., Groth, G., & Trost, M. R. (1990). Evolution, traits, and the stages of human courtship: Qualifying the parental investment model. *Journal of Personality, 58*, 97–116.

Kirchengast, S., & Gartner, M. (2002). Changes in fat distribution (WHR) and body weight across the menstrual cycle. *Collegium Antropologicum, 26*, 47–57.

Lu, H. J., & Chang, L. (2012). Automatic attention towards face or body as a function of mating motivation. *Evolutionary Psychology, 10*, 120–135.

Luo, S., & Zhang, G. (2009). What leads to romantic attraction: Similarity, reciprocity, security, or beauty? Evidence from a speed-dating study. *Journal of Personality, 77*, 933–963.

Luxen, M. F., & Van de Vijver, F. J. R. (2006). Facial attractiveness, sexual selection, and personnel selection: When evolved preferences matter. *Journal of Organizational Behavior, 27*, 241–255.

Montepare, J. M., & Zebrowitz-McArthur, L. (1988). Impressions of people created by age-related qualities of their gaits. *Journal of Personality and Social Psychology, 55*, 547–556.

Penke, L., & Asendorpf, J. B. (2008). Beyond global sociosexual orientations: A more differentiated look at sociosexuality and its effects on courtship and romantic relationships. *Journal of Personality and Social Psychology, 95*, 1113–1135.

Perilloux, C., Easton, J. A., & Buss, D. M. (2012). The misperception of sexual interest. *Psychological Science, 23*, 146–151.

Rhodes, G. (2006). The evolutionary psychology of facial beauty. *Annual Review of Psychology, 57*, 199–226.

Rhodes, G., Simmons, L. W., & Peters, M. (2005). Attractiveness and sexual behavior: Does attractiveness enhance mating success? *Evolution and Human Behavior, 26*, 186–201.

Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology, 60*, 870–883.

Singh, D. (1993). Adaptive significance of female physical attractiveness: Role of waist-to-hip ratio. *Journal of Personality and Social Psychology, 65*, 292–307.

Singh, D. (1994). Is thin really beautiful and good? Relationship between waist-to-hip ratio (WHR) and female attractiveness. *Personality and Individual Differences, 16*, 123–132.

Stelzer, C., Desmond, S. M., & Price, J. H. (1987). Physical attractiveness and sexual activity of college students. *Psychological Reports, 60*, 567–573.

Sugiyama, L. S. (2005). Physical attractiveness in adaptationist perspective. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 292–343). Hoboken, NJ: Wiley.

Swami, V., & Tovée, M. J. (2007). The relative contribution of profile body shape and weight to judgements of women's physical attractiveness in Britain and Malaysia. *Body Image, 4*, 391–396.

Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford University Press.

Udry, J. R., & Eckland, B. K. (1984). Benefits of being attractive: Differential payoffs for men and women. *Psychological Reports, 54*, 47–56.

Zaadstra, B. M., Seidell, J. C., Van Noord, P. A. H., Te Velde, E. R., Habbema, J. D. F., Vrieswijk, B., & Karbaat, J. (1993). Fat and female fecundity: Prospective study of body fat distribution in conception rates. *British Medical Journal, 306*, 484–487.