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Reading men's faces: women's mate attractiveness judgments track men's testosterone and interest in infants

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This study investigated whether women track possible cues of paternal and genetic quality in men's faces and then map perception of those cues onto mate attractiveness judgments. Men's testosterone concentrations served as a proxy for genetic quality given evidence that this hormone signals immunocompetence, and men's scores on an interest in infants test were chosen as prima facie markers of paternal quality. Women's perceptions of facial photographs of these men were in fact sensitive to these two variables: men's scores on the interest in infants test significantly predicted women's ratings of the photos for how much the men like children, and men's testosterone concentrations significantly predicted women's ratings of the men's faces for masculinity. Furthermore, men's actual and perceived affinity for children predicted women's long-term mate attractiveness judgments, while men's testosterone and perceived masculinity predicted women's short-term mate attractiveness judgments. These results suggest that women can detect facial cues of men's hormone concentrations and affinity for children, and that women use perception of these cues to form mate attractiveness judgments.

Keywords: face perception; mate attractiveness; testosterone; interest in infants

1. INTRODUCTION

In paternally investing species such as humans, the desirability of a male as a mating partner is expected to be a function of two dimensions: his genetic quality and his ability and willingness to provide parental investment (Andersson 1994). Insofar as women possess psychological adaptations that use facial cues to assist in mating decisions, then, such adaptations would be expected to track information about these two dimensions of male mate quality and map perception of such information onto more global mate attractiveness judgments. Empirical evidence for face reading mate preference mechanisms should thus demonstrate, first, that women accurately track facial cues of men's paternal and genetic quality, and, second, that perception of these cues is causally related to women's attraction to men as potential mates.

Recent research has focused on masculinity in men's faces as a cue that may be informative about both heritable fitness and paternal quality (for a review, see Penton-Voak & Perrett 2001). Facial masculinity has been proposed as an honest signal of genetic quality based on evidence that testosterone masculinizes facial physiognomy, with high testosterone in turn being sustainable only by healthier men due to the hormone's immunosuppressive effects (e.g. Grammer & Thornhill 1994; see also Folstad & Karter 1992). Significant associations between women's perceptions of men's facial masculinity and measures of both men's health (Rhodes *et al.* 2003) and circulating testosterone (Penton-Voak & Chen 2004) provide further support for the hypothesis that masculinity signals genetic quality. Facial masculinity has also been proposed as a cue to paternal quality based on the finding that faces altered to look more masculine via computer morphing techniques are rated lower than less masculine faces on dimensions such as 'good father' (Johnston *et al.* 2001) and 'quality as a parent' (Perrett *et al.* 1998). There is no direct evidence, however, regarding the accuracy of women's judgments of paternal quality from face stimuli.

Other research has examined how perception of facial masculinity affects women's judgments of men's attractiveness. Early studies provided some evidence that women rate faces with masculine features such as wider jaws as more attractive (e.g. Grammer & Thornhill 1994), though other research reported that faces with a mixture of masculine and feminine characteristics were generally rated most attractive (e.g. Cunningham *et al.* 1990). Insight into these findings may come from research showing that women generally rate morphed male faces that have been slightly feminized relative to the average male face as most attractive (Perrett *et al.* 1998; cf. Johnston *et al.* 2001) but shift their preferences toward relatively more masculine faces during the fertile phase of the menstrual cycle (Penton-Voak *et al.* 1999; Penton-Voak & Perrett 2000; Johnston *et al.* 2001). The interpretation of this pattern has been that women generally prefer femininity in men's faces as a cue to paternal quality but increase their preference for

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masculinity as a cue to genetic quality when they are most likely to obtain genetic benefits through conception (such interpretation is also supported by research showing stronger preferences for masculinity when rating faces for attractiveness as short-term mates than when rating them for attractiveness as long-term mates; see Little *et al.* 2002; Penton-Voak *et al.* 1999). This position essentially implies a decision rule that uses a single cue of both genetic and paternal quality—degree of masculinity—but alters the mapping between perception of the cue and mate attractiveness judgments based on temporal context and position in the menstrual cycle.

The present study was designed to extend the extant literature on women's perceptions of men's faces. First, we have added a putative measure of men's paternal quality—affinity for children—that allows for an empirical test of whether women can accurately perceive this aspect of mate quality from facial cues. Second, this study is the first to combine putative measures of men's physical and paternal quality, women's perceptions of those qualities from photos of men's faces, and the effects of those perceptions on women's judgments of men's mate attractiveness. As such, this design offers a self-contained test of whether women track cues of genetic and paternal quality when judging men's faces for mate attractiveness.

Men's affinity for children was chosen as a logical indicator of the degree to which men are likely to invest in offspring. Research in subsistence societies has shown that paternal care can strongly improve prospects for infant survival (e.g. Hurtado & Hill 1992), and, as such, there was likely strong selection pressure on ancestral women to choose mates who were likely to invest in offspring. Previous research has found that women's ratings of men's faces match men's self-ratings for traits that may be related to interest in children, such as social warmth and social closeness (e.g. Berry 1991). No research to our knowledge, though, has directly examined accuracy of inferences about affinity for children.

Testosterone concentrations assayed from saliva samples were used as estimates of men's heritable fitness. Although testosterone measured at a single point in time will in some cases misrepresent an individual's typical concentrations, research has indicated fairly high correlations ($r > 0.70$) between salivary testosterone concentrations measured more than a year apart in the same individuals (Granger *et al.* 2004). Furthermore, transient fluctuations in testosterone would likely obscure associations between men's testosterone and their facial features by adding noise to the data; as such, any significant relationships found between testosterone and face ratings are likely underestimates of the true effect sizes.

In the present study, young men completed an interest in infants test, provided saliva samples for testosterone assay, and posed for digital photographs. Young women subsequently rated these photos for the degree to which the men depicted like children, as well as for physical attractiveness, masculinity, kindness, attractiveness as a short-term mate, and attractiveness as a long-term mate. As tests of whether women can accurately perceive cues to men's genetic and paternal quality, we hypothesized, first, that women's masculinity ratings would correlate with men's testosterone, and, second, that women's ratings of how much men like children would correlate with men's scores on the interest in infants test. Based on the expectation that women's short-term mate judgments will focus on cues to genetic quality versus long-term mate judgments being focused more on cues to paternal investment (see Gangestad & Simpson 2000; Little *et al.* 2002; Penton-Voak *et al.* 1999), we also hypothesized that perceived liking of children would predict attractiveness as a long-term mate but perceived masculinity would predict attractiveness as a short-term mate. Exploratory analyses tested for possible interactions between traits in predicting judgments of mate attractiveness.

2. METHODS

(a) *Stimulus photos*

Male stimulus persons were 51 University of Chicago students who were recruited from a university website and paid US$10 for their participation. Five subjects who reported a gay sexual orientation and seven others who refused to have their photos taken were dropped from the data analyses. Ages of the remaining 39 men ranged from 18 to 33 years (mean = 21, s.d. = 2.93).

Participants provided a saliva sample at the start of the study. Samples were collected between 1330 and 1630 h. Since this study was part of a broader investigation of male courtship, subjects in two experimental conditions subsequently engaged in a five minute conversation with a female research assistant during a waiting period; in a control condition, the subject sat alone for five minutes. The two conversation conditions both involved friendly small talk but varied in the amount of eye contact that the confederate made with the subjects. As there were no differences between these two conditions for any variables reported in this study, data from the two conversation conditions were collapsed in tests of whether experimental condition was associated with face ratings. After this manipulation, participants' photos were taken with a digital camera at a standard distance with subjects instructed to look straight into the camera and assume a neutral facial expression. Participants completed a number of written measures at the end of the study, including the interest in infants test (see below).

(b) *Interest in infants test*

Men's interest in infants was assessed with a visual preference test in which subjects were asked to indicate whether they preferred pictures of adult or infant faces when both were presented simultaneously in pairs. Previous research has shown that preferences for infant faces in this test correlate with survey measures of interest in infants and that sex differences on this test are consistent with those found in studies that have measured interactions with infants (e.g. Fullard & Reiling 1976; Maestripieri & Pelka 2002; see also Maestripieri *et al.* 2004). Participants were shown 20 pairs of images and asked to indicate on an answer sheet which image of each pair they preferred. The images included silhouette drawings (face profiles) of adult animals ($n = 5$) and humans ($n = 5$) matched with their respective infant counterparts and color photographs of adult animal ($n = 5$) and human ($n = 5$) faces also matched with their respective infant counterparts. Reliability analyses indicated that number of infants chosen had inadequate internal consistency for the animal stimuli (for silhouettes, $\alpha = 0.37$; for photos, $\alpha = 0.38$). Given this, only the 10

pairs of human stimuli are analyzed here (for human silhouettes, $\alpha = 0.62$; for human photos, $\alpha = 0.67$; for all human stimuli combined, $\alpha = 0.77$). Although the above studies employed the full test, effect sizes were generally larger for the human stimuli: for adult subjects in the Maestripieri & Pelka (2002) study, for instance, sex differences in infant choices were significant for the human but not the animal stimuli. In addition, preliminary results from an ongoing study in our lab demonstrate significant correlations between implicit attitudes toward infants (measured via the Implicit Association Test; see Greenwald *et al.* 1998) and the number of human stimuli chosen in the forced choice test, whereas implicit attitudes are not correlated with the number of animal stimuli chosen (unpublished data). In the present research, infant preference scores were log transformed to reduce skew in the data and number of human infant stimuli chosen did not differ between subjects who spoke with a woman before taking the test and those who did not, $t_{37} = 0.92$, $p = 0.36$.

(c) *Ratings of male face photographs*

Women raters were UCSB undergraduates who participated in exchange for course credit. Twenty-nine women, ages 18–20 (mean = 18.41, s.d. = 0.57), took part in the study. Ovals were placed around the men's faces to obscure information about hairstyles. Women viewed the digital photographs in a standard order one at a time on a computer and advanced through the ratings at a self-paced rate. Two different rating sheets were used. The first instructed the women to rate the photos relative to other young adult men on a 1–7 scale. Each photo was rated for 'likes children,' 'masculine,' 'physically attractive,' and 'kind.' After subjects had rated all of the photos on these traits, subjects were presented with the second rating sheet, instructions for which read: 'Now please rate each man's attractiveness as a short-term romantic partner (e.g. for a brief affair) and as a long-term romantic partner (e.g. for a committed relationship such as marriage). Please remember that you are rating relative to other men, so a rating of 4 indicates that he is about average, a rating of 1 means he is far below average, and a rating of 7 means he is far above average.' Intra-class correlations for the respective rating dimensions were all above 0.90.

On the recommendation of a reviewer, additional raters assessed the degree of positive expression in the men's faces. Five women graduate students (mean age = 24.60, s.d. = 0.89) were instructed to rate how positive each expression was on a scale from 1 to 7 where 1 meant angrier and 7 meant happier. The reliability of the ratings was relatively high ($\alpha = 0.79$) and the faces were on average rated just below the neutral point of the scale (mean = 3.83, s.d. = 1.00).

(d) *Hormonal assays*

Men's saliva samples were frozen at -80° C and later assayed for testosterone at the Endocrine Core Lab of the Yerkes National Primate Research Center. Testosterone was assessed by radioimmunoassay. The intra-assay CV was 7.97%; the inter-assay CV was 8.77% at .65 ng/ml and 6.88% at 5.06 ng/ml. Testosterone concentrations were normally distributed once an outlier three standard deviations above the mean was dropped from the sample (mean = 88.38 pg/ml, s.d. = 27.97). Testosterone was not correlated with time of day across the time range employed in this study.

(e) *Data analyses*

As a first pass at the data, women's ratings were averaged across raters and then correlated with characteristics of the men's faces. Although this technique is very common with rating data, it provides ambiguous information about the accuracy of individual raters since a subset of raters with large correlations can cause large aggregate correlations even if the average rater is not very accurate. As a more sensitive measure of within-rater effects, hierarchical linear regression models were also employed to compute the average within-rater slopes of the relationships between women's ratings as dependent variables and either men's characteristics or women's perceptions of those characteristics as level 1 predictors (see Raudenbush & Bryk 2002). For instance, a regression slope relating masculinity ratings to men's testosterone can be computed for each of the 29 raters in the study; hierarchical regression computes a regression coefficient (γ) that represents the average of these 29 slopes and then tests the null hypothesis that this average slope is zero. Computations were performed using the HLM 6.0 software from Scientific Software International, Inc. and variables were standardized before entry into HLM models in order to make the γ statistic interpretable as a standardized regression coefficient.

3. RESULTS

(a) *Accuracy of women's perceptions: aggregate ratings*

Women's accuracy in judging men's masculinity and affinity for children was first assessed using ratings aggregated across women. Age of the men in the photos was marginally correlated with testosterone concentrations, $r = -0.29$, $n = 38$, $p = 0.057$ and was therefore controlled when computing the correlation between women's average masculinity ratings and men's testosterone. This partial correlation was in fact significant, $r = 0.34$, $n = 38$, $p = 0.039$. Likewise, women's average ratings of the degree to which the men like children were significantly correlated with men's scores on the interest in infants test, $r = 0.38$, $n = 39$, $p = 0.017$. Men's age did not correlate with masculinity or likes children ratings or with scores on the interest in infants test. Finally, men's testosterone and interest in infants scores were not significantly correlated, $r = 0.01$, $n = 38$, $p = 0.94$.

The graduate student raters' mean ratings of positive expression in each man's face were next correlated with men's scores on the interest in infants test. This correlation was surprisingly large, $r = 0.51$, $n = 39$, $p = 0.001$ (see figure 1) and was not appreciably affected by removal of two faces in which the men depicted were smiling, $r = 0.46$, $n = 37$, $p = 0.005$. The mean positive expression ratings for each face also strongly predicted the average likes children ratings made by the undergraduate raters, $r = 0.80$, $n = 39$, $p < 0.001$ and the correlation between the likes children ratings and scores on the interest in infants test was no longer significant after controlling for mean positivity ratings, partial $r = -0.05$, $n = 39$, $p = 0.77$. Positivity of expression thus appears to mediate the relationship between women's judgments of

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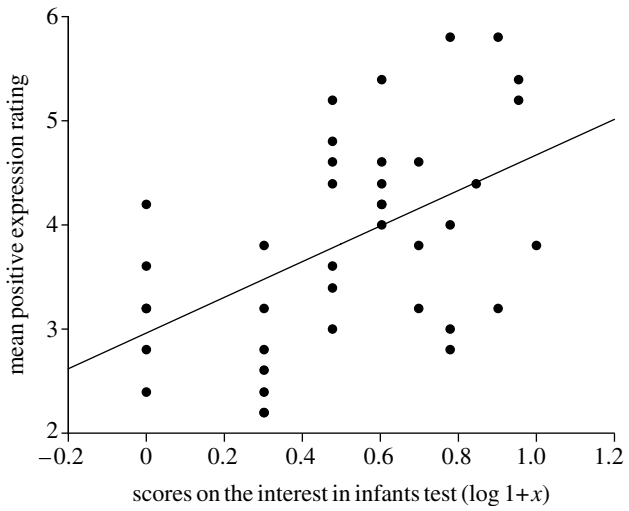

Figure 1. The mean positivity of expression rating for each face photograph plotted against the log transformed scores on the interest in infants test for the men depicted in the photos. $r=0.51$, $p=0.001$.

men's liking of children and men's actual interest in infants. Positive expression ratings, however, were not correlated with either mean ratings of men's masculinity or men's testosterone concentrations (ps >0.20).

Since photos were taken after the male subjects had either spoken with a woman or sat alone, it is possible that facial expressions were affected by this manipulation. There was no significant difference between positive expression ratings of men who spoke with a female confederate ($n=24$), though, and those who sat alone ($n=15$), $t_{37}=1.00$, $p=0.32$. In addition, controlling for exposure to a woman had no appreciable effects on the correlations between scores on the interest in infants test and either positive expression ratings (partial $r=0.50$) or likes children ratings (partial $r=0.36$). Nonetheless, men who spoke with a woman were on average rated as liking children (mean=3.79, s.d.=0.69) more than men who sat alone (mean=3.32, s.d.=0.55), $t_{37}=2.25$, $p=0.03$. Exposure to a woman was unrelated to mean masculinity ratings ($p=0.76$) and did not qualify the correlation between such ratings and men's testosterone (partial $r=0.34$).

(b) *Accuracy of women's perceptions: within-rater analyses*

Hierarchical linear regression models (HLM) were used to estimate the average accuracy of individual women raters. Consistent with the findings for aggregate ratings, raters' likes children ratings were significantly predicted by men's scores on the interest in infants test, regression coefficient $\gamma=0.21$, s.e.=0.03, $t_{28}=7.32$, $p<0.001$. Likewise, controlling for the effect of men's age, women's ratings of masculinity in men's faces were significantly related to men's testosterone, $\gamma=0.22$, s.e.=0.03, $t_{28}=7.01$, $p<0.001$, though such ratings were also predicted by men's age, $\gamma=0.15$, s.e.=0.03, $t_{28}=4.75$, $p<0.001$.

An HLM model with two level 1 predictor variables—men's interest in infants scores and a dichotomous variable assessing whether men spoke with a woman before being photographed—revealed significant effects of both on women's likes children ratings: interest in infants, $\gamma=0.19$, s.e.=0.03, $t_{28}=6.41$, $p<0.001$, exposure to a woman, $\gamma=0.36$, s.e.=0.07, $t_{28}=5.03$, $p<0.001$. When the ratings of each face's degree of positive expression were added to the above model as a third predictor, positivity of expression strongly predicted likes children ratings, $\gamma=0.45$, s.e.=0.04, $t_{28}=12.62$, $p<0.001$, interest in infants scores dropped out as a significant predictor, $\gamma=-0.04$, s.e.=0.03, $t_{28}=-1.17$, $p=0.25$, but exposure to a woman remained a significant predictor, $\gamma=0.28$, s.e.=0.07, $t_{28}=3.87$, $p=0.001$. It thus appears that speaking with a woman induced detectable changes in men's poses that were largely unrelated to either actual interest in infants or perceived positivity of expression. As with the aggregate ratings, HLM models revealed no effects of either positive expression ratings or exposure to a woman on ratings of men's facial masculinity.

(c) *Do men's characteristics predict perceived mate attractiveness?*

HLM models were used to test whether, on average, objective characteristics of the faces predicted individual women's mate attractiveness judgments. The four objective variables associated with the faces—scores on the interest in infants test, testosterone concentrations, age in years, and whether the men spoke with a woman before being photographed—were simultaneously entered into separate HLM models predicting long-term and short-term mate attractiveness judgments. For long-term mate attractiveness, two variables had significant effects: interest in infants, $\gamma=0.14$, s.e.=0.03, $t_{28}=4.29$, $p<0.001$ and age, $\gamma=-0.11$, s.e.=0.03, $t_{28}=-3.10$, $p=0.005$, with age having a negative effect on attractiveness. For short-term mate attractiveness, testosterone ($\gamma=0.11$, s.e.=0.04, $t_{28}=2.88$, $p=0.008$) and interest in infants ($\gamma=0.10$, s.e.=0.03, $t_{28}=3.15$, $p=0.004$) had positive influences and age once again exerted a negative influence ($\gamma=-0.08$, s.e.=0.03, $t_{28}=-2.47$, $p=0.02$). When the same predictor variables were entered into ordinary least squares regression models predicting mean mate attractiveness judgments aggregated across raters, only one variable exerted a significant influence: men's interest in infants predicted long-term mate attractiveness, standardized $b=0.35$, s.e.b.=0.16, $p=0.033$.

(d) *How do women's subjective perceptions of men's traits affect their mate attractiveness judgments?*

The results in (a) and (b) demonstrate that women's masculinity and likes children judgments track men's actual testosterone and interest in infants, but they leave unspecified the effects of masculinity and liking children on perceived mate attractiveness. HLM models were used to test whether, within-raters, faces that were rated higher on these characteristics were also rated higher on mate attractiveness. Consistent with our hypotheses, masculinity in isolation predicted short-term mate attractiveness, $\gamma=0.25$, s.e.=0.05, $t_{28}=4.84$, $p<0.001$ and likes children in isolation predicted long-term mate attractiveness, $\gamma=0.29$, s.e.=0.04, $t_{28}=6.76$, $p<0.001$. Table 1 presents the results of separate HLM models predicting women's long-term and short-term mate attractiveness judgments when all four trait rating dimensions were entered simultaneously. The top panel demonstrates that ratings of likes children still significantly predicted long-term mate judgments even after the influences of physical

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Table 1. HLM regression models relating women's perceptions of men's traits to women's judgments of men's long-term and short-term mate attractiveness. (Degrees of freedom = 28 for all tests. $^{*}p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$.)

variable	coefficient (γ)	s.e.	*t*-statistic
long-term mate attractiveness			
likes children	0.134	0.038	3.54**
masculine	−0.034	0.042	−0.81
physically attractive	0.327	0.065	5.01***
kind	0.126	0.044	2.84**
short-tem mate attractiveness			
likes children	−0.007	0.037	−0.20
masculine	0.112	0.045	2.46*
physically attractive	0.388	0.065	5.95***
kind	0.072	0.038	1.89

attractiveness and kindness were held constant. Masculinity ratings, on the other hand, exhibited a nonsignificant negative relationship with long-term mate judgments exclusive of the influence of the other predictors. This pattern was essentially reversed for short-term mate judgments, with masculinity ratings positively predicting these judgments while ratings of kindness and likes children dropped out of the model as significant predictors.

To test statistically whether masculinity and likes children judgments differentially affected long-term versus short-term mate attractiveness ratings, the long-term mate rating by each woman for each face was subtracted from the corresponding short-term mate rating and these difference scores were then employed as the dependent variable in HLM models. Masculinity ratings had a positive influence on this difference score, $\gamma = 0.16$, s.e. = 0.06, $t_{28} = 2.89$, $p = 0.008$, indicating that the more masculine a woman rated a face the more likely she was to rate the face more attractive as a short-term mate than as a long-term mate. Conversely, likes children ratings were negatively related to this difference score, $\gamma = -0.13$, s.e. = 0.05, $t_{28} = -2.53$, $p = 0.018$, indicating differential preference for this trait in a long-term mate. Effect sizes for these results were slightly larger after controlling for the effects of physical attractiveness ratings.

4. DISCUSSION

The results of this study suggest that women's perceptions of men's faces track actual characteristics of men that are theoretically important for mate choice. From mere photographs, women's ratings of men's liking of children were significantly correlated with men's scores on an interest in infants test, and women's ratings of men's masculinity were significantly correlated with men's testosterone concentrations. Perceptions of masculinity and liking children, in turn, were significant predictors of women's mate attractiveness judgments. Although previous studies have provided evidence suggesting that women differentially track and weight possible cues of paternal and genetic quality in prospective mates (e.g. Gangestad *et al.* 2004; Little *et al.* 2002; Penton-Voak *et al.* 1999), the present study provides the first direct evidence that women's attractiveness judgments specifically track both men's affinity for children and men's hormone concentrations. Given that men's testosterone concentrations and interest in infants scores were uncorrelated, furthermore, the present results suggest the possibility that there exist somewhat independent indices of men's genetic and paternal quality rather than a single dimension in which the two aspects of mate quality trade off against one another.

Women's ability to estimate men's interest in infants from face photographs is perhaps the most novel finding to emerge from this study. Previous studies have inferred that facial masculinity is associated with lower paternal quality based on subjective ratings of faces and possible relationships between masculinity, testosterone, and antisocial traits (e.g. Perrett *et al.* 1998; Penton-Voak *et al.* 1999), but because such studies had no actual measures of traits relevant to parenting, there was no direct evidence that these inferences were accurate. Although it is uncertain to what extent the interest in infants test employed here may predict actual investment as a father, this measure does provide the first face valid external criterion against which women's subjective impressions of paternal quality can be compared. Given women's accuracy in estimating men's interest in infants and the demonstrated importance of liking children for women's mate attractiveness judgments, furthermore, it appears that this test does index some aspect of men's psychology that women both find important and are perceptually tracking via facial cues. As such, this finding contributes original information to our understanding of the facial determinants of mate attractiveness.

The results depicted in figure 1 suggest that perceived positivity of expression may be the subjective cue used by women to infer men's affinity for children. Men who chose more infants in the infant preference test were rated as exhibiting happier expressions even when instructed to produce a neutral expression in the photographs. Past research has shown that photos of subjects instructed to project dominance in an otherwise neutral facial expression were in fact rated as more dominant (Berry & Wero 1993) and a similar process could be in play here whereby men with greater affinity for children both experience and express more positive emotions. The present design, however, does not allow us to rule out the possibility that women inferred positivity of expression from physiognomic cues in the faces that are in turn associated with men's interest in infants. Exposure to women before being photographed might have disentangled these alternatives given random assignment to exposure conditions, but the results indicate that, despite an independent effect of exposure to women on likes children ratings, such exposure was unrelated to the positivity of expression ratings and did not qualify the relationship between actual and perceived interest in infants. Future studies could both measure facial features (sensu Cunningham *et al.* 1990) and manipulate intended positivity of expression as means of determining the extent to which accuracy of liking children judgments is mediated by physiognomic versus expressive cues.

The analysis of how women's subjective trait ratings combined to predict mate attractiveness judgments (table 1) represents a novel technique for inferring mate preferences. One limitation of self-report surveys of mate preferences is that it is uncertain to what extent people have conscious access to the qualities that determine their attraction to others. The technique employed here

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represents a type of perceptual 'policy capturing' (see Wiederman & Dubois 1998) in which inferences about preferences for a particular trait are made by seeing whether faces rated highly on that trait are also rated highly on mate attractiveness without directly asking the raters how much they value the trait in question. The HLM results depicted in part in table 1 (HLM is ideal for these analyses since it estimates preference policies within raters) demonstrate that masculinity was differentially preferred in a short-term mate whereas kindness and liking of children were differentially preferred in a long-term mate. Results in 3 (c) demonstrate similar preference policies for men's actual testosterone and interest in infants.

The positive influences of perceived and actual affinity for children on mate attractiveness judgments is a relatively novel finding within a mate preference literature that has typically emphasized either men's financial resources (e.g. Buss 1989) or possible indicators of genetic quality (e.g. Gangestad & Simpson 2000). The fact that ratings of kindness and likes children were both significant predictors when entered simultaneously into the HLM model predicting long-term mate attractiveness, furthermore, suggests that women were implicitly differentiating these traits and still placing value on affinity for children above and beyond perceptions of general kindness. This finding is consistent with results showing that men depicted as interacting positively with an infant were rated more attractive than men depicted in control conditions, including a condition in which men were helping elderly people and thus exhibiting kindness (LaCerra 1995). Taken together with the present results, such research suggests that men's interest in children may be a relatively underappreciated influence on men's long-term mate attractiveness. This in turn recommends further investigation of both possible measures of paternal quality and the perceptual cues used by women to evaluate this aspect of men's mate value.

In sum, the present study is the first to simultaneously assess both the accuracy of women's perceptions of possible cues to men's paternal and genetic quality and the influence of those perceptions on mate attractiveness judgments. Women appear to map facial cues of testosterone onto masculinity judgments and masculinity judgments in turn positively influence short-term mate attractiveness. Likewise, facial cues of interest in infants are mapped onto judgments of how much men like children and such judgments in turn positively influence long-term mate attractiveness. This overall pattern of results is consistent with the existence of adaptations that read facial cues in the service of facilitating adaptive mate choices.

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