

Facial correlates of sociosexuality

Lynda G. Boothroyd^{a,b,*}, Benedict C. Jones^{a,c}, D. Michael Burt^{a,b},
Lisa M. DeBruine^c, David I. Perrett^a

^a*School of Psychology, University of St Andrews, Fife, Scotland, UK*

^b*Department of Psychology, University of Durham, Durham, England, UK*

^c*School of Psychology, University of Aberdeen, Aberdeen, Scotland, UK*

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Abstract

Previous studies have documented variation in sexual behaviour between individuals leading to the notion of ‘restricted’ individuals (i.e., people who prefer long-term relationships) and ‘unrestricted’ individuals (i.e., people who are open to short-term relationships). This distinction is often referred to as sociosexual orientation. Observers have been previously found to distinguish sociosexuality from video footage of individuals, although the specific cues used have not been identified. Here we assessed the ability of observers to judge sexual strategy based specifically on cues in both facial composites and real faces. We also assessed how observers’ perceptions of the masculinity/femininity and attractiveness of faces relate to the sociosexual orientation of the pictured individuals. Observers were generally able to identify restricted vs. unrestricted individuals from cues in both composites and real faces. Unrestricted sociosexuality was generally associated with greater attractiveness in female composites and real female faces and greater masculinity in male composites. Although male observers did not generally associate sociosexuality with male attractiveness, female observers generally preferred more restricted males’ faces (i.e., those with relatively strong preferences for long-term relationships). Collectively, our results support previous findings that androgenisation in men is related to less restricted sexual behaviour and suggest that women are averse to unrestricted men.

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1. Introduction

Across individuals, there is variation in the tendency to which each person engages, or is prepared to engage, in short-term sexual relationships. The most commonly used tool for assessing relative interest in short-term sexual relationships is the Sociosexual Orientation Inventory (SOI) developed by Simpson and Gangestad (1991). The SOI was developed to assess individual propensity to engage in short-term sexual relationships. A high score on the SOI indicates an ‘unrestricted’ sociosexuality (i.e., being more open to short-term sexual relationships) while a low score indicates a

‘restricted’ sociosexuality (i.e., being less willing to engage in short-term sexual relationships).

Using the SOI, Gangestad, Simpson, DiGeronimo, and Biek (1992) demonstrated that female observers could accurately assess the sociosexual orientation of men solely from visual cues such as their appearance and body language. In the Gangestad et al. study, observers rated the sociosexuality of men after viewing silent video-taped footage of them talking to a camera as if to a potential date. While this video technique produced high ecological validity, it cannot distinguish whether the observers were using cues related to the physical appearance or the body language of the video-taped males.

It may, however, be possible to assess sociosexuality based on physical appearance alone in the absence of movement cues. Less restricted sociosexuality (i.e., greater willingness to engage in short-term relationships) has been shown by Clark (2004) to be linked to greater masculinisation

* Corresponding author. Department of Psychology, University of Durham, South Road, Durham, DH1 3LE England, UK.

E-mail address: l.g.boothroyd@dur.ac.uk (L.G. Boothroyd).

in female cognitive (better mental rotation ability) and physical (smaller second-fourth digit ratio) traits. Such masculinisation may also be visible in female faces, possibly leading to a more masculine appearance (see Schaefer, Fink, Mitteroecker, Neave, & Bookstein, 2005, for evidence regarding digit ratio and facial shape; although cf. Koehler, Simmons, & Rhodes, 2004). Clark also found evidence that less restricted females rated themselves as being more attractive. Contrastingly, Rhodes, Simmons, and Peters (2005) found that more feminine-looking females and more masculine-looking males reported having had more sexual partners (although more feminine-looking females also reported having had more long-term partners, suggesting that opportunity for relationships may mediate the association between femininity and number of sexual partners, rather than the sociosexual orientation of feminine women).

In males, less restricted sociosexuality has been linked to decreased fluctuating asymmetry in both the face and body (Thornhill & Gangestad, 1994; Simpson, Gangestad, Christensen, & Leck, 1999). Similarly, Rhodes et al. (2005) found that women with more symmetric-looking bodies reported having more sexual partners. Low levels of fluctuating asymmetry are considered to be attractive in potential partners' faces (Penton-Voak et al., 2001, Rhodes et al., 2001) and thus we hypothesise that less restricted (and ergo more symmetrical) individuals should be more attractive. Indeed, amongst males, possession of attractive traits such as low levels of fluctuating asymmetry should positively predict an interest by that male in short-term relationships, because their 'valuable' genes are in demand (Gangestad & Simpson, 2000). Therefore it may be that observers can use these cues (attractiveness, symmetry and masculinity) to distinguish between individuals with unrestricted (short-term) and restricted (long-term) relationship strategies purely on the basis of facial appearance in static images.

Although we know of no published studies linking the sociosexuality of individuals to their facial appearance in static photographs, several studies to date have found that observers can predict an individual's behaviour based solely on appearance in a photograph. For instance, Berry and Wero (1993) showed that observers could accurately determine which psychology students would be most likely to agree to deceive experimental participants. Similarly, Yamagishi, Tanida, Mashima, Shimoma, and Kanazawa (2003) found that observers could identify the individuals who were likely to cheat in prisoner's dilemma tasks. Most recently, Penton-Voak, Pound, Little, and Perrett (2006) found that observers could accurately ascribe certain aspects of five-factor personality scores to strangers' faces. Like deception and core personality, sexual behaviour is a domain of social behaviour which it may be advantageous for an observer to be able to predict in both potential partners (for instance, avoiding unsuitable long-/short-term mates before expending energy in pursuit) and also in potential rivals, selection for which would result in a generalised ability to judge the likely sociosexual orientation of others (see, e.g.,

Boothroyd, Jones, Burt, & Perrett, 2007, for evidence of males and females showing similar judgments of males' apparent fidelity).

The studies reported here assessed both the facial characteristics associated with sociosexuality and whether observers were sensitive to such facial cues. Study 1 used composite facial images, while Study 2 used photographs of real faces in a correlational method.

2. Study 1

Study 1 used facial composites of unrestricted (open to short-term relationships) and restricted (prefer long-term relationships) individuals. The principle of averaging images means that randomly varying traits across two groups will tend towards average in composites, while traits that are significantly different between groups will be more clear in composites (Perrett et al., 1994). Thus, this method is ideal for detecting subtle structural differences between groups (e.g., a larger, squarer jaw in the case of masculine males) and for assessing whether groups of observers are sensitive to these differences. If Gangestad et al.'s (1992) results regarding perceptions of sociosexuality in video-clips were due to the physical appearance of the men and can thus be generalised to judgments of static facial images, it would be predicted that observers will rate the composites of unrestricted individuals as being more open to short-term relationships than the composites of restricted individuals. Furthermore, if observers are able to identify an individual's sociosexual orientation, it should affect whether they would be likely to consider a long-term relationship with that individual. Therefore, composites of unrestricted individuals may be judged attractive for short-term relationships, but relatively unattractive for long-term relationships. Finally, given the evidence discussed above regarding sexual behaviours, sociosexual orientation and androgenisation, it can be predicted that facial composites of unrestricted individuals would appear more masculine than those of restricted individuals.

2.1. Stimuli

Composite facial images were created based on sociosexuality and were used in both Sample 1a and Sample 1b. Volunteers from 2 year-long cohorts ('batch 1': 55 females, 67 males, mean age=20.6 years and 'batch 2': 77 females, 62 males, mean age=20.0 years) of St Andrews University students were each photographed twice (once with a neutral expression and once smiling) with a digital camera (resolution set at 1200×1000 pixels) under standardised diffuse-lighting conditions with identical backgrounds. They also filled out the SOI (Simpson & Gangestad, 1991) to assess their sociosexual orientation. Computer graphic averaging (Rowland & Perrett, 1995; Tiddeman, Burt, & Perrett, 2001) was used to create pairs of composite face images: a male pair and female pair for each year. Each pair consisted of one composite of the individuals scoring in the

highest quartile on the SOI (unrestricted individuals; i.e., those most open to short term relationships) and a composite of the individuals scoring in the lowest quartile on the SOI (restricted individuals; i.e., those least open to short term relationships). Both smiling and neutral expression composites were created. For technical reasons, smiling images of Batch 1 males were not available and so no composite image could be made. Thus, in total there were 4 pairs of female stimuli and 3 pairs of male stimuli. The details of the individuals whose photographs were entered into each composite can be found in Table 1 and male and female neutral Batch 1 images are shown in Figs. 1 and 2, respectively.

2.2. Sample 1a

2.2.1. Participants

One hundred and fifty-three ‘observers’ (100 female, mean age=24.9±5.5 years) assessed the faces on sociosexuality, while a further 85 ‘observers’ (54 female, mean age=24.1±6.1 years) assessed the faces on attractiveness and masculinity/femininity. Participants were recruited across the internet from sites advertising online psychology experiments, and from the experimenters’ own websites. To exclude multiple responses by individual observers, each time the experiment was started the application generated a participant reference number; only data from unique reference numbers and IP addresses were analyzed.

2.2.2. Procedure

Observers followed a link to an initial questionnaire in which they indicated their sex, age and sexual orientation (on a 1–7 Likert scale, 7 being exclusively heterosexual). As the study assessed opposite sex attractiveness, observers who indicated a tendency towards homosexuality (scoring less than 4 on the sexual orientation question) were excluded from analyses.

Following the questionnaire, observers were presented with the pairs of composite face images side by side on screen (see Boothroyd et al., 2005, for an image of the test used). An extended forced choice methodology was employed in which participants indicated which face from each pair embodied the trait in question more, and



Fig. 1. Extended forced choice testing program as used in Sample 1b displaying the Male Batch 1 pair composite images of restricted (left) and unrestricted (right) individuals. In Sample 1a, a similar program was used with the labels next to the buttons.

also the extent to which this was true by choosing from the options ‘guess’, ‘slightly more’, ‘more’ and ‘much more’. Their choices were recorded as an 8-point scale ranging from 0 (indicating a strong feeling that the *restricted* composite was higher on the trait) to 7 (indicating a strong feeling that the *unrestricted* composite was higher on the trait). The order of trials and the position of the stimuli were randomised.

Observers in the group assessing perceived sociosexuality were shown each face pair once and asked each time to “choose the individual that you feel is more open to short-term relationships, one night stands and the idea of sex without love”.

All other observers were presented with three blocks of trials in which they were asked to assess which face looked more masculine, feminine or attractive, respectively. The order of the blocks of trials was randomised among participants.



Fig. 2. Female Batch 1 composites of restricted (left) and unrestricted (right) individuals.

Table 1

Sample sizes, mean (S.D.) sociosexuality scores and mean (S.D.) ages of individuals whose faces were entered into the composite images

Sex	Batch	Image	<i>n</i>	Sociosexuality score	Age (years)
Female	Batch 1	Unrestricted	14	49.3 (12.3)	20.9 (2.6)
		Restricted	14	11.9 (4.5)	19.6 (1.1)
	Batch 2	Unrestricted	13	51.9 (28.3)	20.2 (1.6)
		Restricted	14	8.1 (3.0)	19.9 (1.5)
Male	Batch 1	Unrestricted	17	88.0 (31.0)	22.1 (4.2)
		Restricted	17	10.7 (4.5)	20.0 (1.5)
	Batch 2	Unrestricted	15	92.5 (56.2)	20.6 (1.5)
		Restricted	15	22.8 (9.7)	19.6 (1.4)

Higher scores indicate a more unrestricted strategy, i.e., being more open to short-term relationships.

2.2.3. Results

For each characteristic, the average male and female stimulus pair scores were calculated. As all these scores were found to be normally distributed (all Kolmogorov–Smirnov $z < 1.3$), parametric statistics were used in the analysis.

One-sample t -tests were used to compare scores against the scale mid-point of 3.5 (indicating no preference/choice for either face); it was found that, overall, observers could successfully distinguish between restricted and unrestricted composites (male stimuli: mean=3.969, $t_{152}=3.987$, $p<.001$; female stimuli: mean=3.811, $t_{152}=3.765$, $p=.001$). However, when observers were split by sex, male observers were unable to distinguish between the female composites ($t_{53}=0.075$; all other results remained significant at $p<.05$).

Unrestricted female composites were viewed as significantly more attractive than their restricted counterparts by both male and female observers (male observers: mean=3.885, $t_{34}=2.593$, $p<.05$; female observers: mean=4.027, $t_{53}=4.001$, $p<.001$). However, the unrestricted male composites were viewed by observers as significantly *less* attractive than their restricted counterparts by both male and female observers (male observers: mean=3.173, $t_{34}=2.116$, $p<.05$; female observers: mean=3.118, $t_{53}=2.232$, $p<.05$).

Unrestricted male composites were judged as significantly more masculine than restricted male composites (mean=4.913, $t_{84}=13.576$, $p<.001$), while unrestricted female composites were judged as significantly more feminine than restricted female composites (mean=3.753, $t_{84}=3.474$, $p \leq .001$). Although the results for the male faces held for both sexes of observer with $p<.05$, when observers were split by gender, male observers did not consider unrestricted and restricted female composites to differ in femininity ($t_{37}=0.920$).

2.3. Sample 1b

2.3.1. Participants

Forty-two ‘observers’ (21 female; mean age=23.4±2.7 years) were students at the University of St Andrews and recruited through a general laboratory advertisement.

2.3.2. Procedure

Observers completed the experiment in a laboratory setting on a computer, using a non-internet version of the same methodology employed with Sample 1a (see Fig. 1 for screen cap). The experiment differed from Sample 1a in that observers were asked to assess opposite sex composite image pairs for attractiveness as a long- or short-term partner, rather than general attractiveness, and apparent SOI was assessed using the slightly simpler question: “Which of these faces looks more open to short-term relationships and sex without love?”.

The face image composite pairs were presented in six blocks of trials. In the first two blocks, participants assessed only the opposite sex faces for attractiveness as a long-term partner in one block and attractiveness as a short-term

partner in the other block (the order of these two blocks was randomised). In the third block, observers assessed the attractiveness of the pairs of same sex faces. In the final two blocks, participants assessed the masculinity and sociosexuality of all of the face pairs. The order of the last two blocks was randomised. Throughout the experiment, the left–right position and order of presentation of face pairs in each block were randomised.

2.3.3. Results

Average scores for male and female stimulus pairs in each block were calculated using the same method employed in Sample 1a.

Both male and female observers considered the unrestricted sociosexuality female composites more attractive than the more restricted female composites (males assessing long-term: mean=3.976, $t_{20}=2.63$, $p<.05$; males assessing short-term: mean=3.929, $t_{20}=2.50$, $p<.05$; females assessing same-sex attractiveness: mean=4.238, $t_{20}=3.49$, $p<.01$). Female observers considered composites of restricted males to be more attractive than composites of unrestricted males for long-term relationships (mean=2.952, $t_{20}=2.20$, $p<.05$) but showed no significant preference for short-term relationships ($t_{20}=0.55$). Male observers had no preference either between unrestricted and restricted male composites ($t_{20}=0.04$).

Observers correctly considered the unrestricted female composites as less restricted than the restricted female composite (mean=3.810, $t_{41}=3.49$, $p<.01$), but did not differentiate significantly between the male composites in terms of sociosexuality ($t_{41}=1.69$).

The unrestricted male composites were seen as more masculine than restricted male composites (mean=4.611, $t_{41}=6.77$, $p<.001$), but there were no significant differences in the perceived masculinity of female composites ($t_{51}=0.66$).

There was no significant effect of observer sex on any of the masculinity or sociosexuality ratings (all $F<1$, $p>.1$). Judgments of masculinity and attractiveness did not correlate with judgments of perceived sociosexuality in either male or female composites (all $r<0.233$, $p>.1$).

3. Study 2

Study 1 found evidence that observers are sensitive to cues to sociosexuality in composite facial images — either through explicit identification of unrestricted images (for which there is partial evidence) or, amongst women, through aversions to unrestricted males with whom long-term relationships would be unsuitable — and that unrestricted male faces appear more masculine. Study 2 built upon Study 1 in two key aspects. Firstly, despite the advantages of composites, as discussed in Study 1 above, one might argue that composites are *too* controlled when considering behavioural attributions and that observers must be able to detect differences in real faces if we are to claim that they are capable of differentiating between social partners in reality.

Therefore, Study 2 was conducted using real individual faces rather than composites.

The second change in Study 2 was the manner in which apparent sociosexuality was tested. While in Study 1 observers assessed each face pair once for sexual restrictedness, in Study 2 observers were asked to rate each individual face on four separate indices based on the SOI. Thus, we were able to assess whether observers are equally sensitive to all domains of sociosexuality, or whether for instance, opportunity-mediated behavioural domains emerge as easier to ‘see’ than purely attitude-based questions.

3.1. Stimuli

Fifty Durham University undergraduates (25 female; mean age=20.6±1.2 years) were photographed under standardized lighting and subsequently completed the SOI questionnaire, as in Study 1. Photographs were cropped to show only the face and immediately surrounding hair and were standardized in size.

3.2. Sample 2a

3.2.1. Participants

There were 17 ‘observers’ (8 female, mean age=25.0±4.2 years) who were recruited by word-of-mouth through undergraduates at universities other than Durham and who completed the study through the internet.

3.2.2. Procedure

Observers rated same-sex images for attractiveness and rated all images for masculinity (the scale ran from ‘very feminine’ to ‘very masculine’ for male images, and vice versa for female images) and sociosexuality based on the following four questions (questions from the SOI on which these are based are given in parentheses):

How many sexual partners would this person have in a given year? (Qs 1&3)

How likely is this person to have a one night stand? (Q2)

How likely is this person to fantasise about someone other than their current partner? (Q4)

How likely is this person to think sex without love is okay? (Q5)

All questions were responded to on scales from 1 to 7 and images were presented in a random order within each block of trials.

3.2.3. Results

There were significant positive correlations between all perceived restrictedness (i.e., apparent SOI) ratings and all components of the SOI scores of the photographed individuals (all $r_s > 0.27$, all $p < .07$, two-tailed; see Table 2 for detailed figures), with the exception of reported and rated number of sexual partners within the last year, neither of which correlated with any other measure (all $p < .25$; see Table 2 for details). Furthermore, individuals’ full SOI scores were significantly correlated with the mean rated SOI across all four questions ($r_s = 0.367$, $p < .05$). The correlation between SOI score and mean perceived SOI remained significant after controlling for individual’s age and sex, same-sex ratings of attractiveness, and masculinity/femininity. Furthermore, results remained significant when male and female observers’ judgments were analysed separately. There was a trend for higher SOI to be associated with greater perceived femininity in female faces ($r_s = 0.399$, $p = .098$, $n = 23$) but no further significant correlations.

3.3. Sample 2b

3.3.1. Participants

Following the exclusion of 49 individuals who did not complete the whole test, there were 422 ‘observers’ (183 female, mean age=22.7±3.8) recruited through the internet from lists of online psychology studies.

3.3.2. Procedure

The stimuli were divided into same sex pairs that were matched for attractiveness using attractiveness ratings from Sample 2a ($t_{19} = 1.3$, $p = .2$) but that differed in SOI score ($t_{19} = 5.8$, $p < .001$). Wherever possible, adjacent individuals on the attractiveness rankings were formed into a pair; where three faces had the same mean attractiveness score, the two most differing in SOI score were used as a pair. This resulted in a total of 10 male and 10 female face pairs.

Opposite sex observers then assessed which face in each pair they would prefer for a short-term relationship

Table 2

Correlations between self-reported SOI (individual questions and full score) and observers’ ratings of SOI and mean rated SOI

SOI question		Perceived SOI				Mean rating
		Rating q1	Rating q2	Rating q3	Rating q4	
		No. of partners in a year	One-night stands	Extra-pair fantasies	Attitudes	
1	No. of partners last year	0.097	0.204	0.168	0.232	0.166
2	No. of partners in 5 years	0.118	0.335*	0.279 [†]	0.404**	0.277 [†]
3	No. of one-night stands	0.208	0.362*	0.366*	0.441**	0.344*
4	Extra-pair fantasies	0.123	0.355*	0.321*	0.412**	0.307*
5–7	Attitudes	0.042	0.288 [†]	0.310*	0.305*	0.236
	Full SOI	0.188	0.411**	0.382**	0.472**	0.367*

* $p < .05$, ** $p < .01$, [†] $p < .07$.

and for a long-term relationship using the same method as in Sample 1b. Order of long- and short-term choices was counterbalanced, and the order of pairs within blocks was randomized. Judgments were averaged across all 10 pairs for each block to form long- and short-term preference scores.

3.3.3. Results

Males demonstrated significant preferences for the higher SOI female faces for both long- and short-term relationships (short: $t_{233}=7.313$, $p<.001$; long: $t_{233}=4.591$, $p<.001$). By contrast, females demonstrated significant preferences for the lower SOI male faces for both types of relationship (short: $t_{174}=4.167$, $p<.001$; long: $t_{233}=3.095$, $p<.01$). Preference scores did not significantly differ between long- and short-term contexts (male: $t_{238}=0.859$; female: $t_{182}=1.692$).

Furthermore, results remained significant when the face pairs were treated as the unit of analysis. When scores were averaged together for each pair across participants, the higher SOI female faces and the lower SOI male faces (once a single outlier, Pair 9, where women strongly preferred the higher SOI face, was removed) were judged as significantly more desirable for both types of relationship (all $t>2.3$, all $p<.05$, $df=9$ and 8, respectively).

4. Discussion

These studies first sought to determine whether observers were able to identify sociosexually restricted vs. unrestricted individuals by static facial cues alone. The results (summarised in Table 3) suggest that observers are indeed able to distinguish between individuals on the basis of sociosexuality, although in Sample 1a males had difficulty identifying unrestricted female composites, and in Sample 1b both sexes of observer had difficulty identifying unrestricted male composites. These results combined therefore show very strong evidence for the ability of women to identify sociosexual orientation in others, particularly other women, and more limited evidence for the ability of males to make the same judgments. This suggests that the accuracy of Gangestad et al.'s participants in judging sociosexuality from video footage may have been at least partially due to the physical appearance of the stimulus males.

Our studies were also designed to investigate whether facial attractiveness and masculinity may be associated with sociosexuality. Unrestricted female composite faces were seen as more attractive than restricted female composites by both sexes, suggesting that attractive women's unrestricted scores may be the result of more attractive women having greater sexual opportunities and thus developing a less restricted outlook. Male preferences for unrestricted females for long-term relationships (Samples 1b and 2b) are also surprising as one might expect that males would avoid long-term relationships with females who may be more likely to be unfaithful (see, e.g., Buss & Schmitt, 1993), especially where (as in Study 2) overall attractiveness (as judged by women) has been controlled for. As neither the sociosexuality questionnaire nor the description of it given to the raters explicitly includes infidelity, it may be erroneous to assume unrestricted sociosexuality in these women was necessarily associated with greater likelihood of extra-pair copulations. Alternatively/additionally, the selective advantage to males in reduced mating effort may have been sufficient to drive a preference for unrestrictedness in spite of any costs from long-term relationship breakdown.

In contrast to men judging female faces, women in Samples 1a and 2b consistently preferred the restricted male faces. In Sample 1b, despite having no particular preference between the unrestricted and restricted male composites for short-term relationships, women significantly preferred the restricted males for long-term relationships (although it should be noted this difference between short- and long-term was not found amongst the women rating real faces in Sample 2b). Furthermore, these patterns of results do not appear to be due to differences in the inherent attractiveness of the faces (as judged by male observers); indeed, contrary to expectation, any greater symmetry which may have existed in the real faces (which Thornhill & Gangestad's, 1994 data would predict) did not translate into greater attractiveness. This suggests that when seeking a partner, women may be attracted to males more likely to engage in long-term relationships, and, furthermore, that women have (as sex differences in parental investment and potential reproductive variance

Table 3
Summary of observer perceptions of unrestricted vs. restricted faces

Stimulus sex	Study/sample	Apparent sociosexuality	Same-sex attractiveness	Opposite sex attractiveness	Apparent masculinity
Male	Sample 1a	(Composites; online)	+	–	+
	Sample 1b	(Composites; laboratory)	ns	ns	+
	Study 2	(Real faces; online)	+	ns	ns
Female	Sample 1a	(Composites; online)	+ ^b	+	– ^b
	Sample 1b	(Composites; laboratory)	+	+	ns
	Study 2	(Real faces; online)	+	ns	– (trend)

+: Unrestricted face seen as having more of the trait; -: unrestricted face seen as less of the trait; ns: not significant.

^a Long-term only.

^b Female observers only.

would predict) been subject to stronger selection in this regard than men (who have potentially more to gain from short-term matings).

In both Samples 1a and 1b, it was found that composites of unrestricted males were seen as more masculine compared to composites of restricted males, although no correlation was found amongst the real faces, which perhaps suggests the differences are subtle and may be masked in real faces by individual variation. The link between sociosexuality and perceived masculinity in male composites complements Rhodes et al.'s (2005) results (showing that more masculine-looking males report more sexual partners) and suggests that unrestricted sociosexuality may be related to increased testosterone levels. Testosterone is thought to increase facial masculinity (e.g., Verdonck, Gaethofs, Carels, & de Zegher, 1999) and may be associated with less investment in relationships, as indexed by time men spent with their partner (Gray, Kahlenberg, Barrett, Lipson, & Ellison, 2002). Furthermore, men and women perceive more masculine male faces as being poorer parents and possessing less of the characteristics important in a long-term partner (Perrett et al., 1998); this research therefore suggests such perceptions may have some validity.

Among female faces, there appeared to be no consistent link between sociosexuality and perceived masculinity/femininity, suggesting that more promiscuous behaviour in women in these samples is not due to higher levels of androgens (cf. Clark, 2004); indeed, the data hint more at a trend in the other direction such that unrestricted women might be more feminine, which would support Rhodes et al.'s (2005) findings. It is intriguing that the three studies which have tested for relationships between putative markers for female androgens (facial masculinity: current sample and Rhodes et al; digit ratio and mental rotation ability: Clark) and aspects of sexual behaviour (SOI: current study and Clark; number of sexual partners: Rhodes et al) appear to report different patterns of results. This may be due in part to androgens exerting different influences on different physical and behavioural traits depending on timing of exposure (i.e., in utero vs. in adulthood). Further research may offer important insights into this issue and potentially resolve these inconsistent findings.

Finally, it is important to consider that in Samples 1b and 2a, observers' perceptions of sociosexuality in the faces did not relate directly to observers' perceptions of masculinity. This suggests that although observers may have some valid basis for categorising faces on the basis of sociosexuality, the apparent masculinity of the faces may not necessarily drive this categorisation.

In summary, the research presented here demonstrated the presence of static facial cues that observers can use to predict other individuals' sexual attitudes and behaviours. Observers are broadly able to identify individuals who are more likely to be interested in short- or long-term relationships. Furthermore, this information may be used by women to avoid men who are less likely to engage in a long-term

relationship, potentially maximizing the possible benefits of women's choices for long-term partners.

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