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Original Article

Men's Preferences for Female Facial Femininity Decline With Age

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Abstract

Objectives: Women tend to have a smaller chin, fuller lips, and rounder eyes than men, due in part to the effects of estrogen. These features associated with facial femininity have been found to be positively associated with fertility. Although young men in their 20s typically judge facial femininity as more attractive than facial masculinity, at all ages, men with higher sexual desire and testosterone levels tend to show a marked preference for feminine faces. In the current study, we extend this research using a large cross-national sample to test the hypothesis that facial femininity preferences will be stronger among younger men than among older men. We also tested whether these preferences are influenced by self-reported sexual openness, national health indices, and gross national income.

Method: We quantified attractiveness judgments (i.e., preferences) among 2,125 heterosexual men (aged 17–73 years) for female faces that were manipulated to appear more or less feminine using a computer graphics program.

Results: Facial femininity preferences decreased with age, being highest among men in their 30s and lowest among men in their 70s. This pattern was independent of men's sexual openness and cross-national variation in health and socioeconomic development.

Discussion: Our study shows that men's preferences for facial femininity are age dependent. At the proximate level, differences in preferences could reflect age-related declines in testosterone levels. These age-related declines in preferences could benefit older men, who are less able to invest in mating effort, and thus may opt out of competition with younger men for mates with potentially higher fertility.

Keywords: Attractiveness—Cognition—Gender differences—Sexual dimorphism—Sexual preferences

The face is the primary source of information during social interactions and is particularly important in judging one's physical attractiveness (Little, Jones, & DeBruine, 2011). People allocate visual attention more rapidly and for longer toward attractive faces (Maner et al., 2003; Sui & Liu, 2009) and ideally prefer to date and associate with facially attractive people (Little et al., 2011). Cross-cultural studies have consistently demonstrated the importance of physical attractiveness in mate preferences (Buss, 1989), especially facial characteristics (Little et al., 2011). Given that both

women and men contribute to raising offspring, it has been suggested that partner preferences may have evolved to prioritize bodily and facial characteristics that provide information regarding long-term health (DeBruine, 2014; Jones, 2014; Little et al., 2011).

Gender differences in facial shape have received much attention in studies linking facial morphology to underlying health and attractiveness (DeBruine, 2014; Jones, 2014). During pubertal development, women have higher levels of circulating estradiol than men, which is associated with sexual dimorphism in body fat around their hips, buttocks, thighs, and breasts (Lassek & Gaulin, 2007, 2008) and facial features such as higher cheekbones, a rounder forehead, smaller chin and nose, and rounder eyes (Farkas, 1987). The aggregate differences between women and men in this combination of facial features are often referred to as "facial femininity" (Little et al., 2011). The female sex hormone estradiol is also positively associated with women's fertility (Lipson & Ellison, 1996), and higher levels of follicular phase estradiol have been reported among women with narrower waists and larger breasts (Jasienska, Ziomkiewicz, Ellison, Lipson, & Thune, 2004) and among women with more feminine looking faces (Law Smith et al., 2006). Some studies also find that women with more feminine faces reported higher maternal tendencies (Law Smith et al., 2012).

Evolutionary theorists have argued that preferences for feminine facial and bodily cues in women have evolved in men because these features provide biological information that may enhance reproductive success (Gangestad & Scheyd, 2005). Consistent with these theories, men tend to report higher attractiveness ratings for feminine facial and bodily characteristics than more masculine female faces and bodies (Brooks, Shelly, Jordan, & Dixson, 2015; Dixson, Duncan, & Dixson, 2015; Jones, 2014; Rhodes, 2006; Singh, Dixson, Jessop, Morgan, & Dixson, 2010). Although men may consistently state higher preferences for female facial femininity, not all men are able to attract and retain highly feminine mates, so that the strength of preferences may vary between men (Jones, 2014). According to sexual selection theory, males of many species engage in competition with other males to increase their likelihood of being selected as a mate by attractive females, giving rise to physical characteristics that enhance their dominance among males and attractiveness to females (Dixson, Dixson, & Anderson, 2005; Emlen, 2008; Grueter, Isler, & Dixson, 2015; Puts, 2010). Thus, male–male competition may produce variation among men in the strength of their preferences for more feminine mates (Jones, 2014).

Interestingly, the circumstances that could contribute to variation in men's preferences for women's facial characteristics are not fully understood (Janif, Brooks, & Dixson, 2015; Jones, 2014; Little, DeBruine, & Jones, 2014). Among young men in their early 20s, preferences for feminine female faces are strongest among those men reporting higher sexual desire (Jones, Little, Watkins, Welling, & DeBruine, 2011) and preferences for facial femininity are positively correlated with men's testosterone levels (Welling et al., 2008). Although men do not undergo a homologous age-related change in reproduction to menopause, there are notable decreases in libido, energy, and sexual attractiveness as men age (Bribiescas, 2006). These physiological and behavioral changes coincide with natural age-related declines in men's circulating testosterone (Harman, Metter, Tobin, Pearson, & Blackman, 2001). Thus, it is possible that men's preferences for feminine female faces are highest among younger men and decline as men age.

To our knowledge, no study has examined whether men's preferences for facial femininity in women change with age. In the current study, we use a cross-national sample of 2,125 heterosexual men aged 17–73 years to explore whether preferences for female faces, experimentally manipulated to vary in femininity, differed with age. We predicted that preferences for facial femininity would be strongest among young adult men aged 20–35 years, decrease steadily thereafter, and would be lowest among the oldest participants. Although we were primarily interested in whether male preferences for female facial femininity varied with age, previous research has shown that prevailing cultural and social factors also may influence the strength of men's preferences for women's facial femininity. Preferences for female facial femininity are higher among men from countries with better national health indices (Marcinkowska et al., 2014) and greater urban development (Scott et al., 2014). Further, individual differences in sexual openness and willingness to engage in casual sexual relations are also positively associated with men's preferences for facial femininity (Sacco, Jones, DeBruine, & Hugenberg, 2012). Therefore, in addition to testing the hypothesis that men's preferences for facial femininity would be greatest among young adult men aged 20–35 years, we tested a second hypothesis that facial femininity preferences would be stronger among men from countries with high indices of national health (Marcinkowska et al., 2014), among men with high income (Scott et al., 2014), and among men with higher sexual openness (Sacco et al., 2012).

Materials and Methods

Photographic Stimuli

Photographs of women's faces, aged 18–24 years and of European ancestry, were randomly chosen from previous research (Rantala et al., 2013) and manipulated using the computer graphics program PSYCHOMORPH (Tiddeman, Burt, & Perrett, 2001) on a femininity–masculinity scale. Twenty pairs of images were created, each containing a masculinized and a feminized version of the same face generated by adding or subtracting 50% of the linear difference between an average male and female face. Each pair of stimuli differed only in sexually dimorphic characteristics of facial shape (DeBruine, Jones, Smith, & Little, 2010). Pairs of stimuli were randomized in an online survey wherein participants

were asked to pick the face they thought was most sexually attractive in each pair.

Participants and Procedure

Data were collected via an online survey, which was translated in each country by research collaborators who spoke the national language fluently. Participants were recruited using local websites, University web pages or within Universities through information boards advertising the online address. We used a two-alternative forced-choice task wherein participants were asked to choose the face they considered to be most sexually attractive. Individual preferences for facial femininity were computed as the proportion of feminized stimuli selected by each participant across the 20 slides.

After completing the forced-choice tests, participants completed the revised sociosexuality inventory (SOI-R; Penke & Asendorpf, 2008). Sociosexuality is defined as one's overall orientation toward uncommitted sex and willingness to enter casual sexual relations (Schmitt, 2005). The SOI-R is a 9-item scale that quantifies an individual's sexual openness across past behavioral experiences, attitudes toward uncommitted sex, and sexual desire (Penke & Asendorpf, 2008). In the present study, we collapsed across the 9 items within the SOI-R and used a global measure of orientation toward uncommitted sex (Cronbach's $\alpha = .675$).

As men's preferences for female facial femininity differ across sexual orientations (Glassenberg, Feinberg, Jones, Little, & DeBruine, 2010; Petterson, Dixson, Little, & Vasey, 2015), in the final analysis, we did not include men who identify as bisexual or homosexual ($n = 197$), indicated by scores of 3 or higher on the Kinsey Scale (Kinsey, Pomeroy, & Martin, 1948). The final sample included 2,125 heterosexual men between 17 and 73 years of age (mean age = 27.2 years) from 28 countries (Table 1). These data have been partially reported in a previous study (Marcinkowska et al., 2014), which was restricted to men

Table 1. The Country-specific Correlations Between the Femininity Preference Index and Men's Age (Spearman rank correlation coefficients based on preference values averaged by age classes), National Health Index (NHI) and Gross National Income (GNI) for the year 2009

		Spearman rank correlation				
Country	Number of participants	r_s	Number of age classes	p Value	NHI	GNI (USD)
Australia	42	−0.10	5	.87	1.81	40,030
Brazil	39	−0.09	6	.87	−2.42	11,420
China	45	−0.90	5	.04	−1.58	8,390
Colombia	41	−0.70	5	.19	−2.07	9,560
Croatia	17	0.04	7	.93	0.47	18,780
Czech Republic	20	0.67	5	.22	1.96	24,490
Estonia	128	−0.83	8	.01	1.11	20,850
Finland	582	−0.81	11	.0026	2.81	37,660
France	159	0.37	11	.26	1.78	35,910
Germany	12	−0.30	5	.62	1.95	40,190
Islamic Republic of Iran	107	0.30	5	.62	−2.41	11,420
Japan	51	−0.20	4	.80	3.67	34,670
Latvia	27	0.30	5	.62	−1.41	19,090
Mexico	113	−0.67	8	.07	−1.61	16,720
Nepal	222	−0.60	5	.28	−4.6	1,260
New Zealand	39	−0.89	7	.0068	0.74	23,737
Nigeria	13	−0.31	5	.61	−6.96	29,420
Poland	48	−0.67	7	.10	0.46	20,260
Portugal	22	−0.40	4	.60	1.70	24,620
Romania	33	0.00	4	1.00	−1.44	15,780
Russian Federation	67	−0.80	9	.0096	−2.36	21,210
Kingdom of Saudi Arabia	9	−0.40	4	.60	−1.63	24,700
Singapore	43	—	2	—	3.17	59,380
Slovakia	143	0.21	7	.64	0.18	22,300
Spain	19	1.00	4	<.0001	2.02	31,220
Sweden	33	−0.61	10	.06	3.21	42,210
United Kingdom of Great Britain and Northern Ireland	40	0.31	6	.54	1.14	35,950
United States of America	11	−0.61	7	.14	0.06	48,820

aged 17–45 years and did not consider age-related variation in preferences for facial femininity.

National Health Index and Gross National Income

To account for possible cross-national differences in men's preferences for female facial femininity, we included the National Health Index (NHI) and gross national income (GNI) as predictors. NHI is a composite variable based on eight characteristics: adult mortality rate, under-5 mortality rate, infant mortality rate, neonatal mortality rate, maternal mortality rate, life expectancy at birth, healthy life expectancy, and years of life lost to communicable diseases (DeBruine, Jones, Crawford, Welling, & Little, 2010). All base values were taken from the World Health Organization Statistical Reports from most recent accessible year (www.who.int/whosis; for details see Marcinkowska et al., 2014). GNI for the year 2009 was taken from the World Bank (http://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD).

Statistical Analysis

Numbers of respondents varied among countries and across age groups. By averaging the data by country and age class, this problem was resolved, yielding samples of comparable sizes. Age (in years) was transformed into 11 age classes (17–22, 23–27, 28–32, 33–37, 38–42, 43–47, 48–52, 53–57, 58–62, 63–67, and 68–73 years). Because our previous analyses found significant variation between countries in men's preferences for female facial femininity (Marcinkowska et al., 2014), individual preferences were averaged by age classes separately for participant's country of origin.

Distributions of the response variable (preference for femininity) and the main explanatory variable (respondent's age) were highly skewed and could not be normalized, thus Spearman rank correlation coefficients were calculated for each country. A meta-analysis was used to test how similar men's age-related preferences for femininity in women's faces were cross-nationally and to explore the sources of variation among countries. To calculate effect sizes (ESs), individual correlation coefficients were z-transformed and weighed by their sample size using the MetaWin program (version 2.1.4; Rosenberg, Adams, & Gurevitch, 2000). In this study, negative ES values indicate decreases in femininity preferences with increases in participants' age.

To estimate the mean ES, we used a random effects model with 95% confidence intervals (CI_{95}). The effect was considered to be statistically significant if the CI_{95} did not include zero. Statistical relationships among the country-specific ESs, GNI, and NHI were explored via meta-regression. We measured variation in the ESs among and between countries with large (>100) and small (<100) numbers of participants by calculating heterogeneity indices (Q_T and Q_B, respectively) and testing these against the chi-square distribution. Finally, we calculated Rosenthal's fail-safe number, which is the estimated number of countries with nonsignificant correlations between men's age and preference for facial femininity that should be added to our data to make the detected effect nonsignificant.

Results

Correlations between men's age and preferences for facial femininity varied cross-nationally, ranging from significantly positive in Spain to significantly negative in China, Estonia, Finland, New Zealand, and the Russian Federation (Table 1). Meta-analysis demonstrated a significant negative association between men's age and preferences for facial femininity across countries (mean ES = –0.43; CI_{95} = –0.17 to –0.71). The decline in preferences for facial femininity with age was robust, so that Rosenthal's fail-safe number was 101, more than 3 times greater than the number of countries (27) for which we calculated ESs. Continuous meta-analyses demonstrated an absence of among-country variation in preferences with respect to NHI (p = .66) and GNI (p = .62). The effect did not differ between countries with relatively small (≤100) and large (>100) numbers of respondents (Q_B = 0.02, df = 1, p = .88), suggesting that our estimates of the strength of the relationships between men's age and femininity preferences were not affected by among-country variation in the numbers of respondents.

The absence of significant variation among countries in the strength of the association between men's age and preferences for facial femininity (Q_T = 24.6, df = 26, p = .54) justified averaging the data across the countries. The resulting pattern demonstrated a significant decline in men's preferences for facial femininity with advancing age (Figure 1), from 74% among men aged 30 years to 66% among men aged 70 years. However, SOI scores did not differ across age groups (r_S = .05, n = 11 age classes, p = .87).

Discussion

Although men typically rate feminine female faces as more attractive than masculine faces, a growing body of research

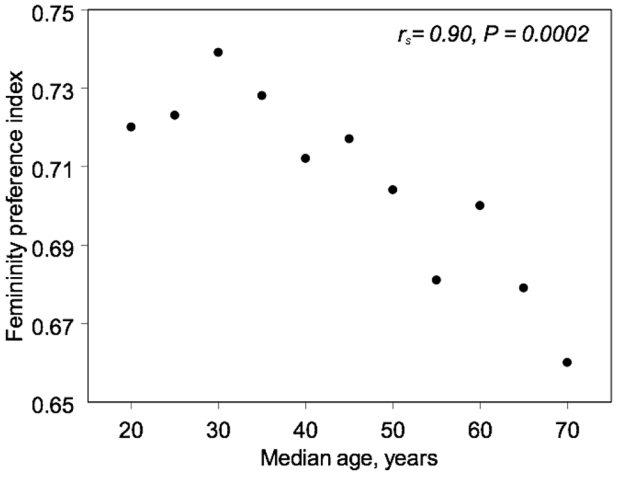

Figure 1. The relationship between men's age and their preferences for female facial femininity.

has highlighted a number of factors that are associated with variation in the strength of men's preferences for facial femininity (Jones, 2014). For example, men rated feminine faces as more attractive when considering a short-term than a long-term relationship (Little, Jones, Feinberg, & Perrett, 2014), if they reported high self-perceived attractiveness (Burriss, Welling, & Puts, 2011; Little et al., 2014), had high self-reported sexual desire (Jones et al., 2011), and higher testosterone levels (Welling et al., 2008). In the current study, we report the first evidence that men's preferences also vary systematically with age, being greatest among men aged 20–35 years and declining steadily with advancing age.

We found that preferences for feminine female faces decreased among men who were older than 35 years, which was surprising as men typically prefer cues of youth when judging female physical attractiveness (Little et al., 2011), and irrespective of their age tend to judge women in their mid-20s as most attractive (Antfolk et al., 2014). The decline in the strength of facial femininity preferences we identified began around the age of 40–45 years and was most pronounced among men aged 60–73 years, which coincides with typical age-related decreases in men's testosterone (Bribiescas, 2006). Given the positive association between testosterone and preferences for facial femininity among men in their 20s (Welling et al., 2008), a possible proximate mechanism contributing to the age-related decline in men's preferences for facial femininity could be the decline in circulating testosterone.

From an evolutionary perspective, the negative association between men's age and preferences for facial femininity may reflect a trade-off between the benefits of mating with feminine women and investing in the mating effort that is potentially required to attract and retain feminine partners. Given that men's testosterone, levels of energy, sexual motivation, and sexual attractiveness decline with age (Bribiescas, 2006; Feldman et al., 2002; Harman et al., 2001) and male–male competition is likely to be more pronounced among younger men than among older men (Bribiescas, 2006), older men may weigh the costs of engaging in competition with other men against the benefits of selecting a more feminine mate. Alternatively, as women outlive men, the sex ratio among older people is low and male–male competition for sexual partners is also likely to be low.

An important limitation of our study was the lack of direct measures of testosterone from our participants. Therefore, we are unable to evaluate empirically whether the age patterns detected here are attributable to age-related declines in circulating testosterone. Interestingly, longitudinal research among young men in their 20s revealed that men with higher baseline levels of testosterone were more likely to marry and have children than men with lower baseline testosterone (Gettler, McDade, Feranil, & Kuzawa, 2011). Further, married fathers who spent more time with their children had lower testosterone than fathers who were less directly involved in childcare (Gettler et al., 2011). These findings suggest that testosterone is associated with trade-offs between mating effort and paternal investment. Future longitudinal research spanning the age range reported in our study comparing measures of testosterone, mating effort, and paternal investment against femininity preferences would therefore be valuable.

Previous research has reported that preferences for facial femininity among young men younger than 45 years of age were lowest in countries where the NHI is highest (Marcinkowska et al., 2014). However, in the current study we show, using a larger sample of respondents that spanned a wider age range than previous research, that the significant negative relationship between preferences for facial femininity and men's age was independent of cross-national differences in NHI. Cross-national concordance in our sample may be associated with consistencies between populations in prevailing cultural depictions linking femininity and youth to women's beauty. Indeed, recent research has shown that preferences for facial femininity were higher among men living in large industrialized countries than among men living in small-scale traditional cultures with less urban development and less exposure to Western media themes (Scott et al., 2014). Given that our study was limited to Western industrialized cultures, it would be beneficial for future research to investigate whether age-related declines in men's preferences for facial femininity extend to smaller-scale societies.

Our findings may have relevance to social gerontologists studying partner preferences among older men. For example, cross-cultural studies of sexual satisfaction among older couples revealed that as long-term couples transition from midlife to older age, men reported greater desire for intimacy and women reported greater sexual satisfaction (Heiman et al., 2011). Given that previous research has shown that younger men state higher preferences for feminine female faces when judging short-term than long-term relationships (Little et al., 2014), it would be interesting for future research to investigate whether greater romantic attachment among older men is associated with lower preferences for more feminine looking women. For the present, our results suggest that men's preferences for facial femininity are age dependent and coincide with age-related differences in testosterone, possibly reflecting trade-offs between mating effort and preferences for femininity as men age.

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Conflict of Interest

Authors have no competing interests.

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