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Short note

Male preference for female pubic hair: an evolutionary view

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With 1 figure and 1 table

Summary: The ectoparasite avoidance hypothesis proposes that human hairlessness was favoured by sexual selection, because hairless individuals suffered from lower parasite loads. Females have seemingly less hairy bodies than men suggesting that the selection toward hairlessness is more intense in females than in males. This study examined male preference for hairy and shaved female genitalia. Pubic hair, although still functional in terms of dissipation of phermononal secretions, was perceived by heterosexual males recruited in the university (age range: 19–38 years, N = 96) as much less attractive as shaved female genitalia. Males who were more disgust sensitive and those who were sexually unrestricted showed a stronger preference for shaved genitalia than others. Self-reported frequency of pornography consumption was associated, contrary to expectations, with a stronger preference for hairy genitalia which suggests that this may be a result of negative frequency dependent selection. Older males also preferred hairy genitalia more than younger males. Overall, these results suggest that a preference for shaved genitalia may be explained by the superficial resemblance of pubic hair with chest hair, which is less developed as in our evolutionary past, perhaps due to the benefits associated with ectoparasite avoidance.

Keywords: parasites; pornography; pubic hair; sociosexuality

Introduction

The absence of fur in humans has received considerable attention (Darwin 1871; Pagel & Bodmer 2003; Prokop et al. 2013; Rantala 1999). Despite a number of proposed hypotheses (see Rantala 2007 for a review), no consensus has been reached. The "ectoparasite avoidance hypothesis" is actually the most prominent hypothesis attempting to explain the loss of body hair in humans (Belt 1874). This hypothesis proposes that hairless skin reduces the risk of being infested by ectoparasites, which are vectors of serious diseases (Prokop & Fedor 2013a; Weiss 2009). Another alternative is that hair loss is linked to efficient sweating (Ruxton & Wilkinson 2011). While perception of male body hair by females has received significant attention (e.g., Dixson et al. 2010; Prokop et al. 2012; Prokop et al. 2013; Rantala et al. 2010), the way in which males perceive female hair is less known (Basow & Braman 1998). This is particularly surprising because females have less body hair than males (Darwin 1871) suggesting that evolutionary pressures favouring hairless skin in females were stronger than pressures on men. On one hand, it can be a result of selection of cases of fertility and youth, but also a selection for parasite-free individuals.

It is widely suggested that pubic hair has been retained to improve dissipation of pheromonal secretions which play a role in sexual communication (Ramsey et al. 2009). Females, however, often engage in pubic hair removal (DeMaria & Berenson 2013; Terry & Braun 2013), particularly when they are young and sexually active (Herbenick et al. 2013). This practise has been well known since ancient times (Herbenick et al. 2010; Ramsey et al. 2009). Research indicates that females remove their pubic hair for reasons related to partner preference (Tiggemann & Hodgson 2008), interest in sex (Herbenick et al. 2013), aesthetics or fashion (Ramsey et al. 2009) and a feeling of cleanliness and sexiness (Cokal 2007; Smolak & Murnen 2011). In ancient Greece, for instance, Athenian women reduced and shaped their pubic hair in order to increase their sexual attractiveness (Blakemore & Jennett 2002). The association between proper hygiene and woman's pubic hair removal can be found in some Middle Eastern societies (Kutty 2005). Particularly prostitutes, who were at high risk of being contaminated by parasites, shaved their pubic hair for personal hygiene and to combat pubic lice (Blakemore & Jennett 2002).

Human mate preferences are mediated by parasite stress (Low 1990; Schaller & Murray 2008; Marcinkowska et al.

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2014). Pubic hair removal by females is associated with a decreased incidence of infestation by human pubic lice in certain parts of the world (Armstrong & Wilson 2006). Objects which pose a potential disease parasite threat are obviously perceived as disgusting, and the emotion of disgust prompts people to avoid potentially deadly parasites (Curtis & Biran 2001; Oaten et al. 2009; Tybur et al. 2009). Genital hairlessness may therefore indicate cleanliness, or a parasite-free environment in the biological sense. Despite pubic hair are, contrary to chest hair, maintained probably by natural selection, they superficially resemble chest hair, which is not considered sexually attractive (e.g. Rantala et al. 2010; Prokop et al. 2013), ultimately due to their associations with ectoparaistes (Rantala 1999, Rantala 2007). Human behavioural avoidance is calibrated to be supersensitive to anything that resembles a parasite threat in order to minimise the likelihood of failing to register the presence of real danger (smoke detector principle, Nesse 2005). Guided by the "ectoparasite avoidance hypothesis" (Hypothesis 1), I predict that 1) pubic hair removal increases female sexual attractiveness (Prediction 1), and that 2) male sensitivity to pathogen disgust (but not to other domains of disgust) is positively associated with a preference for genital hairlessness (Prediction 2).

The risk of being infected by sexually transmitted parasites is higher amongst promiscuous individuals (Johnson et al. 2001; Kyriakis & Hadjivassiliou 2000). Males who employ a promiscuous strategy are more sensitive in cues which signal health in a potential mate (Swami et al. 2008). From an evolutionary perspective, it would be adaptive to pursue short-term partners who were healthy in order to increase one's own reproductive success (Symons 1979), but also to minimise the risk of being infected by parasites (Schaller & Murray 2008). Sexually unrestricted men are hypothesised to value shaved female genitalia more than sexually restricted individuals (Prediction 3).

The perception of pubic hair may be influenced by the increased use of Internet-based pornography where full pubic hair removal is commonly the "norm" (Ramsey et al. 2009). Given that virtually all young men in Western countries have some experience with pornography consumption (e.g., Hald 2006), its effect should not be underestimated. A number of researchers have suggested that pornography consumption lowers the value of marriage (Zillmann & Bryant 1988), increases promiscuity (Træen et al. 2004) and sexual aggression (Kingston et al. 2008). Terry & Braun (2013) have found no effect of pornography consumption on pubic hair removal. As far as I am aware, no systematic research on pornography consumption and the perception of pubic hair of the opposite sex has been conducted as yet. I predict that men with more exposure to pornography have a preference for shaved genitalia more than those who have less positive attitudes toward pornography (Prediction 4).

Methods

Sample

The research was carried out in February 2014. A total of 100 male students (1 homosexual and three bisexuals were removed resulting in 96 males) recruited at the Trnava University (Slovakia) comprised the sample. The age of the participants ranged between 19 and 38 years of age (M = 24, SE = 0.25, n = 96). A total of 60 participants were included in a romantic sexual relationship and remaining 36 single. The online questionnaire began with instructions stating that the research was focused exclusively on men aged 18+ and that the questionnaire contains sexually explicit material. The demographic questions were a) age, b) gender (all participants reported being men) and c) sexual orientation (heterosexual, homosexual, bisexual).

Measuring of perceived disgust

The disgust sensitivity scale was adopted from Tybur et al. (2009) (Cronbach $\alpha = 0.63$). For the purpose of this study, two distinct domains of disgust were chosen: pathogen disgust (PD) (example item: Stepping on dog poop, M = 3.25, SD = 0.66, N = 96) and sexual disgust (SD) (example item: Hearing two strangers having sex, M = 2.10, SD = 0.67, N = 96). Each domain contains 7 Likert scale items (1 = not at all disgusting, 7 = extremely disgusting). Both the subscales had acceptable reliabilities (0.62, and 0.70, respectively). The reliability of the PD domain was relatively low (critical value is 0.7, see Nunnaly 1978), thus some caution must be made when interpreting these data. However, other researchers also reported alpha coefficients in the range 0.43–0.95 (e.g. Goetz & Shackelford 2009). Only the PD domain is designed specifically to measure disgust elicitors caused by sources of various pathogens, while the SD subscale is specifically designed to examine the sensitivity in reproductively costly sexual behaviours. High mean scores in both subscales indicated a high pathogen or sexual disgust sensitivity.

Measuring of sociosexuality

In order to assess attitudes towards sexual behaviour, the Revised Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf 2008, Cronbach $\alpha = 0.82$) was used. This is a 9-item scale which provides an overall measurement of sociosexual orientation. A high SOI-R score indicates an unrestricted sociosexual orientation, in other words, a propensity to engage in more short-term sexual relationships (example item: How many different partners have you had sexual intercourse with on one and only one occasion?). The minimum possible score was 9, and the maximum possible score was 81. The mean SOI score in this study was M = 35.28 (SD = 12.5, range: 11 – 61, N = 96).

Measuring pornography consumption

Consumption of pornography was measured with a single item modified after Hald (2006): "How frequently do you watch pornographic videos?" Possible responses were 1 = never (11.5%), 2 = 1–2 times per month (25%), 3 = at least once per week (35.4%), 4 = 4–5 times per week (18.7%), 5 = daily (9.4 %). The mean score of pornography consumption was M = 2.9 (SD = 1.13, range: 1–5, N = 96).

Stimuli

Pictures of 10 young female genitalia were obtained from freely available web pages. The pairs of pictures were presented in a random order on 10 separate pages (each page contained one shaved and one hairy version of the same genitals). Although genitals themselves are not exactly shaved, e.g. the mons and/or labia majora may be partially or fully shaved, as might the thighs, but not all of the genitalia, the term shaved genitalia was used for pictures apparently lacking pubic hair throughout the text. A forced-choice method was applied similarly as in Rantala et al. (2010) and Prokop et al. (2013), meaning that each participant was allowed to select only one of the two presented pictures. Employing the forced choice method might reveal a greater accuracy by allowing for a direct comparison of preference for shaved genitalia (see Leivers & Simmons 2014). The reliability of the choice of the participants was high (Cronbach $\alpha = 0.78$).

Procedure

The research was carried out online, which affords a high degree of anonymity (Locke & Gilbert 1995; Musch et al. 2001). This would seem to be a particular advantage in the present research, where many questions are extraordinarily personal. Before the web page with the online survey was available, each participant received a unique numerical code to secure their individual identity. The participants were initially asked demographic questions, after that they responded to SOI, PD, SD, and pornography consumption. The preferences for hairy genitalia were coded as 1 (i.e., the deviation from the anchor) and preferences for the shaved version were coded as 0 (i.e., the anchor). To exclude the effect of skin irritation caused by shaving, the photographs were black-and-white following Rantala et al. (2010).

Statistical analysis

Data were distributed according to the Poisson distribution, thus the Generalized Linear Model (GLM) with the Poisson distribution of the dependent variable (a preference for hairy genitalia) was applied. The pornography consumption score was Box-Cox transformed in order to achieve normality. Predictors in the GLM were the variables listed in Table 1. Although no explicit predictions were made for the effect of age, Rantala et al. (2010) found that female preference for male body hair increased with the age of the female. Thus, the effect of age was included in the statistical analyses. Correlation analyses were performed with Pearson correlation (r). The statistical tests were performed with Statistica (v8, StatSoft 2007, Tulsa, OK, U.S.A., http://www.statsoft.com).

Results

A one-sample t-test against no preference (50%, no preference) revealed that among Slovak males, body hair reduced the attractiveness of the female genitalia ($t = 111.95$, df = 95, $p < 0.001$). Percentual preference for shaved genitalia was M = 95.2 % (SD = 8.33, range: 55–100, N = 96). A majority of males (59/96, 61%) preferred exclusively pictures with shaved genitalia (Fig. 1). Furthermore, males who scored high on the pathogen disgust subscale (PD) preferred hairy genitalia less than those who scored less on the PD subscale (Table 1). Sexual disgust was not associated with a preference for hairy genitalia providing further support for a specific association between parasites and pubic hair preference. Sexually unrestricted individuals showed a significant preference for shaved genitalia over hairy genitalia. Older males preferred hairy genitalia more than younger males, but age was not associated with the SOI, pornography consumption, or with the PD and SD subscale ($r = 0.02$, –0.15, –0.2 and –0.12, $p = 0.87$, 0.15, 0.11 and 0.23, respectively).

With respect to other possible associations between variables, it was found that participants who watched pornography more had lower sexual disgust ($r = –0.45$, $p < 0.001$) and were sexually unrestricted ($r = 0.53$, $p < 0.001$). Sexually unrestricted individuals had lower sexual disgust ($r = –0.61$,

Table 1. Generalized Linear Model on preference for hairy genitalia by men.

	Estimate	SE	Wald χ	p
Intercept	–2.75	1.01	7.41	0.01
Sexual disgust	0.14	0.20	0.50	0.48
SOI	–0.03	0.01	5.11	0.02
Age	0.14	0.02	41.08	< 0.001
Pathogen disgust	–0.28	0.13	4.39	0.04
Pornography consumption	0.36	0.15	6.24	0.01
Scale	1.00	0.00		

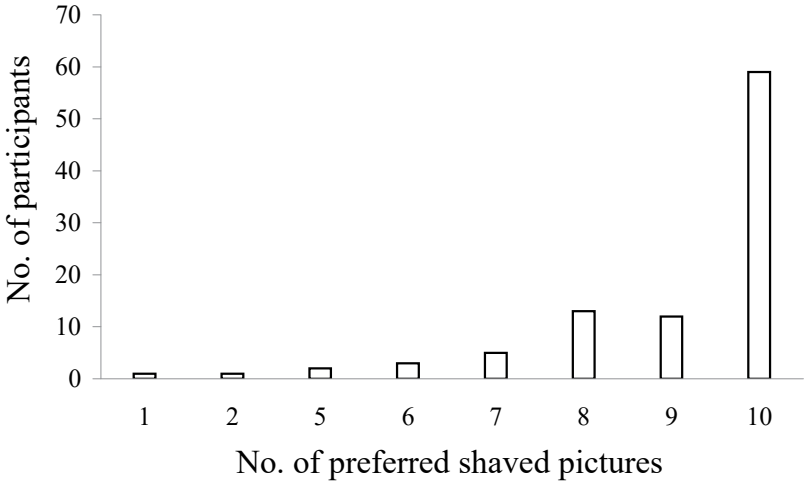

Fig. 1. Descriptive analysis of preference for hairy genitalia by men.

$p < 0.001$). Other associations between variables were not statistically significant (all r's ranged between 0.04 and 0.1, all p's > 0.3).

Contrary to Prediction 4, males who reported more frequent pornography consumption showed significantly stronger preferences for hairy genitalia compared with those who reported less frequent consumption of pornography (Table 1).

Discussion

This study examined male preference for female pubic hair from the evolutionary (the "ectoparasite avoidance hypothesis") and the social (the pornography exposure hypothesis) perspective. Several predictions derived from the "ectoparasite avoidance hypothesis" received support, while contrary results were found for the pornography exposure hypothesis. As far as I am aware, this is the first study which has investigated perception of female pubic hair by males.

As predicted in accordance with the "ectoparasite avoidance hypothesis" (Pagel & Bodmer 2003; Rantala 1999 2007), shaved genitalia were strongly preferred by males compared with hairy genitalia. This is in agreement with Basow & Braman (1998) who showed that females with underarm and leg hair were seen as less sexually attractive. An association such as this can be, however, explained by cultural effects, such as greater exposure to online pornography at present (Ramsey et al. 2009). Males who perceived themselves as more disgust sensitive, however, showed a stronger preference for shaved genitalia than their less disgust sensitive counterparts. Importantly, only pathogen disgust, but no sexual disgust, correlated with a preference for shaved genitalia which provides further support for association between pubic hair and risk of parasite transmission. From the evolutionary perspective, a preference for hairless female bodies could be beneficial, because these individuals in all probability did not suffer from high parasite loads as compared with hairy individuals. Females who took care of children, and were therefore more sedentary, were particularly exposed to parasites (e.g. fleas) which can only complete their life cycle if their host animal lives in a permanently inhabited den or lair (Morris 1994). This is why selection for female hairlessness was stronger than selection for male hairlessness. Although these explanations are primarily concerned with the possible evolution of the loss of body hair in humans (Rantala 1999; Rantala 2007), a superficial resemblance of pubic hair with chest hair could make them less sexually attractive. Therefore, I do not advocate that there are specific selective pressures against the occurrence of pubic hair, but rather that the resemblance with parasite-connoting cues (Nesse 2005) make pubic hair less attractive for men. It may also be that younger males may have been exposed to more cultural information in the media about links between dirt and uncleanliness and germs and disease, or may be more fearful of pathogens because they have less experience of life (Oaten et al. 2009).

A preference for shaved genitalia was associated with low sexual restrictiveness. This association can be explained from the perspective of parasite avoidance, because sexually unrestricted individuals have more sexual partners (McIntyre et al. 2006; Prokop & Fedor 2013b) which increases the risk of being infected by parasites (Johnson et al. 2001; Kyriakis & Hadjivassiliou 2000). Thus, promiscuous individuals are expected to be more sensitive to parasite transmission cues (Swami et al. 2008). Selection for this preference has two mutual benefits: it increases male reproductive success, because healthy females are likely to be fertile (Symons

1979) and reduces the risk of being infected by parasites (Schaller & Murray 2008). Herbenick et al. (2013) found that females who are more interested in sex and those who have casual sexual partners engage in genital shaving more frequently than those who do not. Shaving may possibly serve as protection against parasite transmission for females (Armstrong & Wilson 2006) who may be less likely infected from males. All these results suggest that promiscuous, and, thus, potentially risky sexual behaviour is associated with hairless genitalia, similarly as in ancient times (Blakemore & Jennett 2002).

Another possibility is that shaving genitalia is making adult females "childlike" or prepubertal in their genital appearance (Schick et al. 2010; Tiggemann & Kenyon 1998) and, thus, more attractive for males. This explanation is unlikely, considering that males, particularly those who are sexually unrestricted (Swami et al. 2008; Zelazniewicz & Pawlowski 2011), prefer cues indicative of female sexual maturity (e.g., large breasts and dark areolae, Dixson et al. 2011). Moreover, pubic hair often become less prominent with the decrease of bodily estrogen experienced during menopause (Astore et al. 1979) and older females are, again, less attractive for males compared with younger females (Roney 2003).

An important question how preferences for shaved pubic hair can be judged from an evolutionary perspective arises. First, the occurrence of pubic hair seems to be evolutionary recent and appeared probably after the loss of body hair in humans (Weiss 2009). According to nuclear genetic studies (Rogers et al. 2004), hairlessness in Hominids dates back to 1.2 Ma. This suggests that selection pressures (if any) against the occurrence of pubic hair do not operate for long time and it may be that complete loss of pubic hair will happen similarly as it was in most parts of the human body in our evolutionary past, because evolution is a continuous, never-ending process. Second, there are several examples of human preferences for artificial traits. For example, women's natural underarm and leg hair are less sexually attractive to men than when they are shaved (Basow & Braman 1998); females in different cultures (New Zealand and Samoa) prefer shaved male faces more than natural, full beard (Dixson & Vasey 2012). These examples suggest that sexual and/or natural selection on the level of mate preferences in human still works.

The final prediction concerned frequent pornography consumption influences a preference for shaved genitalia (Ramsey et al. 2009). This prediction was not supported because the results showed the opposite trend: males who reported more frequent pornography consumption preferred shaved genitalia less than those who showed a lower preference for pornography consumption. One explanation for this association can be the negative frequency-dependent sexual selection. This process suggests that the fitness of a phenotype increases as it becomes rarer (Allen & Clarke 1984). Janif et al. (2014), for example, found that clean-shaven male faces were the least attractive for females when clean-shaven faces were the most common compared with males with full beards.

Male age was positively associated with a preference for hairy genitalia. Perhaps it is a result of habituation to pathogen cues (Oaten et al. 2009) or a by-product of changes in the degree of cultural exposure to body hair over a lifetime. It also may be that older males may be more habituated to the hairy genitalia of their partners, because engaging in shaving decreases as the age of female increases (Herbenick et al. 2013). Older men have also more experiences with females presented in older porn movies with intact pubic hair (Ramsey et al. 2009) and the early exposure to pornography could influence their preferences. This question requires further attention. It is also likely that pubic hair is stronger sexual cue for older males, because they were exposed for this cue for longer time (particularly during puberty) than for younger men.

Limitations of the study

A previous study showed that female preference for chest hair in males was not linked to parasite threat (Prokop et al. 2012). This suggests that higher PD and/or preference for shaved females may not be linked to ectoparasite avoidance. This may be especially true in places with low parasite prevalence such as Slovakia (Prokop et al. 2010). Moreover, it is not clear how preferences for short-term versus long-term partners influence preferences for shaved genitalia in real-life situations. Perhaps those males that choose to walk away in this situation are avoiding parasites. Although older males showed different preferences for shaved genitalia than younger males, broader age range of participants is necessary before definite conclusions can be made. Clearly, this study calls for replications in other regions of the world.

Conclusion

To conclude, genitalia lacking pubic hair seem to be more sexually attractive for males than hairy genitalia. The preference for hairlessness may be mandated by local customs. On the other hand, the superficial resemblance of pubic hair with chest hair may motivate pathogen avoidance and make pubic hair less sexually attractive. Shaved genitalia look clean and are particularly attractive for males who pursue a short-term mating strategy. The biological benefits from dissipation of pheromonal secretions probably outweigh the costs associated with parasite transmission, which has probably maintained the existence of pubic hair, regardless of its lower attractiveness to males. Less hairy female bodies indicate that body hair is not associated with sexual attractiveness. Future cross cultural research is required to test the universality of male preferences for shaved female genitalia.

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