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**HUMAN MATE CHOICE: THE EVOLUTIONARY LOGIC OF SEXUAL DESIRE**

**SUPPLEMENTARY MATERIAL**

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**14.1 Origin of mate choice preferences: evolutionary psychology or structural powerlessness**

Studies on expressed preferences reveal nothing about the ontogeny of those preferences. Some social scientists have proposed an alternative to adaptive explanations, which Buss and Barnes (1986) call the ‘structural powerlessness and sex role socialisation’ hypothesis. This suggests that since, in patriarchal societies, women have less access to power and wealth than men, the chief way in which a woman can attain status and acquire resources is to marry up the social ladder (hypergamy) and trade looks for status. The hypothesis fails on the first count, however, of explaining why preferences are remarkably similar across a wide range of cultures. If it is argued that all these cultures share the same features of patriarchy, we then need an even grander theory to explain this. A more serious problem is that the structural powerlessness model makes a prediction at variance with the facts. If women seek high-status males to advance their own standing, it follows that women should be less selective with regard to status and wealth as their own premarital wealth and power increases. The evidence, however, suggests otherwise: high-status women still value high-status men. Buss (1994) found that women with a high income tend to value the financial status of men even more than do women on a lower income.

**14.2 Responses to advertisements.**

Studies on the content of advertisements give no indication of how successful they may be in attracting a mate. Men may advertise resources but there is no indication from the advertisement alone that this is a successful strategy in terms of number of responses to the advertisement. To probe this issue further, Lucila de Sousa Campos and colleagues counted how actual responses to such advertisements in a Brazilian newspaper (the *Folha de Sao Paulo*) varied with the qualities offered. They also examined the effect of age of advertisers on response rate and the content of the advertisements (de Sousa Campos, 2002). Their results were in keeping with evolutionary expectations: they found that the number of responses to female advertisements decreased with the age of the female, while the responses for male advertisers increased with their age. This pattern may be a response to the fact that female fertility and so sexual desirability declines with age, while that of males remains steadier. Males also tend to acquire more resources as they age and become fewer in number (biasing the sex ratio towards females).

In terms of the content of the advertisements, de Sousa Campos et al.(2002) also found that females became less demanding in terms of the age and occupational status of a potential partner as they themselves aged. In contrast, males became more demanding as they aged and more interested in childless partners. Furthermore, as men grew older, they sought females younger than themselves by an increasing number of years. Females preferred slightly older men but this difference only decreased slightly with the woman’s age.

**14.3 WHR and cultural context**

Dugatin (1996) has reported the action of social cues on mate choice even in guppies. Female guppies are known to prefer males with orange colouration, but they have been observed to choose a male with less colouration if other females have already chosen him. The exact function of this is unclear, but such copying may save a female guppy time and thus reduce the energy costs and risks involved in finding a mate. The logic, although not exactly foolproof, may be that if several females have already chosen a male, he must have desirable qualities.To test the possible influence of cultural cues, Yu and Shepard (1998) presented the same images used in Singh’s study on male preferences to one of the few remaining cultures that exists in isolation from Western influences, the Matsigenka indigenous people in southeast Peru. The results were strikingly different from those of Singh’s study of American subjects. The most attractive figure emerged as the one labelled by Westerners as overweight, with a WHR of 0.9. The figure found to be most attractive by Singh’s subjects (of normal weight, with a WHR of 0.7) was labelled by a typical Matsigenka male as having had fever and having lost weight around the waist. In the same study, Yu and Shepard also examined the preferences of South American indigenous people who had been exposed to Western influence and found male preferences to be more in keeping with US standards.

Yu and Shepard (1998, p. 32) conclude that many so-called cross-cultural tests in evolutionary psychology may ‘have only reflected the pervasiveness of western media’. They also point out that an adaptationist explanation is still possible. In traditional societies, physical appearance may be less important in mate choice, since individuals are well known to each other, and couples have direct information, such as age and health status, about each other. In Westernised countries, a daily exposure to strangers may have sharpened our need to make judgements using visual cues.

**14.4 A qualified parental investment model: the effect of levels of involvement**

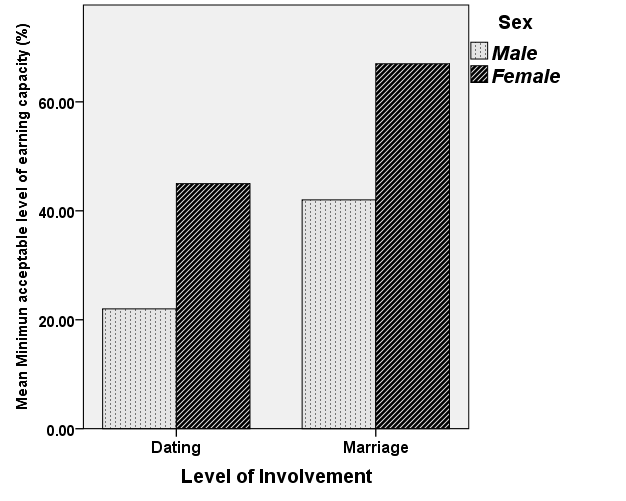
Such questionnaire studies have consistently shown clear differences in the psychology of sexual attraction, but they have also revealed some degree of convergence. Of the top ten criteria for a good long-term partner listed by subjects in a study by Buss and Barnes (1986), seven out of the ten were the same for men and women, although they were of course given different priorities. These were kindness and understanding, intelligence, personality, health, adaptability, creativity and graduate status. We could explain this by arguing that the dimorphism in taste is only slight because of the effect of near-monogamous mating and the large investment made by both males and females in living together and raising children. A subtle way of probing what gender differences might exist beneath the consensus was applied in a study by Kenrick et al. (1990). They argued that humans are different from most other mammals in that there is a large range in the possible amount of investment made by couples in any relationship. It could range, in the case of a male, from a few drops of sperm in a one-night stand to a lifelong commitment to a spouse and the raising of children. With this in mind, Kenrick et al. investigated whether the criteria for choosing a mate varied with the level of involvement in a relationship. The investment implications of different levels of involvement can be expected to vary according to gender (Table 14.1).

**Table 14.1 Degree of involvement and expected implications for investment according to gender**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Level of involvement** | **Date** | **Sexual relations** | **Steadydating** | **Marriage** |
| Investment by female | Low | High | High | High |
| Investment by male | Low | Low | High | High |

It is obvious that progressing from dating to sexual activity is associated with a sharper rise in potential investment implications for women than for men. To study the effect of this, Kenrick and colleagues asked 93 undergraduate students to consider the importance of 24 criteria (physical attractiveness, status and so on) in accepting a mate at the four different levels of involvement. Figure 14.1 shows the findings for earning capacity at two levels of involvement: dating and marriage.

In terms of all the criteria assessed, a number of patterns emerged. As expected, significant differences began to appear at the sexual level of involvement for characteristics defining family values and health, females finding these more important than males once the level of sexual commitment is reached. Women rated status, however, more highly than did men at all levels of involvement.



**Figure 14.1 Minimum level of acceptable earning capacity at different levels of involvement.**

A level of, for example, 67 per cent for females at marriage indicates that, to be acceptable, a male must earn more than at least 67 per cent of other males but could earn less than 37 per cent of all males.

Source: Data from Kenrick, D. T., Sadalla, E. et al. (1990) ‘Evolution, traits, and the stages of human courtship: qualifying the parental investment model.’ *Journal of Personality* 58: 97–116.

It should be noted that this study was of a rather narrow profile of the population in one culture, and it is curious that, for some characteristics, the significance of the gender difference declined from steady dating to marriage. The robustness of these findings in the face of different social conventions and across different population profiles remains to be established.

**14.5 WHR, BMI and local contexts**

Further evidence that the aesthetic judgement of male and female body shapes is related to SES comes from the work of Swami and Tovee (2005a, 2005b) on British and Malaysian subjects. They found that BMI accounted for most of the variance in attractiveness of female body images and that lower SES groups preferred higher BMI figures.

In later work, Swami and Tovee (2006) even found that the degree of hunger in the same subject group could influence attractiveness judgements. In a study using photographic images as stimuli, they found that hungry men preferred women of higher BMI than those preferred by satiated men. As these authors note, such a study provides evidence for a proximate mechanism for the integration and expression of cultural norms at the individual level. One intriguing hypothesis that could account for such hunger-related changes and other aspects of cultural variation in aesthetic judgements is the ‘environmental security hypothesis’ advanced by Pettijohn and Tesser (1999). This theory adopts a behavioural ecological approach to explain the context-dependent nature of attraction. It proposes that when environmental conditions are uncertain, variable or harsh, then individuals will be attracted to others with more mature characteristics. The reasoning behind this is that maturity is likely to be associated with the ability to cope with threatening situations and difficult conditions (you don’t reach maturity if you can’t). Now, since BMI increases with age (as does WHR), this could explain why hungry men prefer women of higher BMI compared to the preferences of satiated men. It could also account for the way body weight and size preferences vary with the SES of various cultures. In effect, the hungry affective state is used as a cue for what the local environment is like.

Swami and Tovée (2007) also tested the preferences of Malaysian men from two different locations – a high SES group from Kuala Lumpur and a low SES group from rural Sabah- they were able to compare ratings of attractiveness according to BMI both within (Kuala Lumpur and Sabah) and between (Malaysian and British) cultures. Table 14.2 shows some of their findings.

**Table 14.2 Peak attractiveness BMI values of females as judged by males in three cultures of differing SES**. The patterns seems to be that low SES cultures favour high BMI body types. Data from Swami, V., & Tovée, M. J. (2007). The relative contribution of profile body shape and weight to judgements of women's physical attractiveness in Britain and Malaysia. *Body Image*, *4*(4), 391-396.

|  |  |  |
| --- | --- | --- |
| Culture | SES as indicated by GDP per capita  (US dollars) | BMI at peak attractiveness (+/- S.D.)  (Kg/m2) |
| Rural Sabah | 2,400 | 25.15 (4.26) |
| Kula Lumpur | 8,000 | 20.35 (3.27) |
| British (Londoners) | 33,700 | 20.74 (1.77) |

Analysing this data revealed that the peak BMI of attractiveness was significantly different between the Sabahan group and the other two (P<0.001). The root cause of these differences has a number of possible explanations. It could be due to differences in media exposure between the groups, the availability of food resources in each group (and hence the health significance of BMI) , some other local unidentified factors or some combination of all these.

The interpretation of why the preferred BMI rises with lower SES groups is still open to question. It may be that it falls as societies develop and become exposed to Western standards, although this then still leaves open the question as to why a lower BMI is associated with more affluent cultures; or it may be an adaptive response to cues of health and fertility in resource-poor cultures.

**14.6 Body shape: Visual experience and body shape preferences – case study of swimmers.**

Both the work of Marlowe on the Hadza and Tovee and Swami on different ethnic communities in the UK point to some sort of influence of commonly encountered body shapes, and locally-determined values attached to these shapes, on aesthetic preferences. Krzysztof Koscinski (2012) explored this theme by hypothesising that people develop a template of a typical phenotype in the population based on perceptual experience; this template is then used as a standard in attractiveness judgements. To test this conjecture in a real, albeit niche, ecological context Koscinski looked at the female body shape preferences of two male groups: swimmers and non-swimmers. The idea was that regular male swimmers will be frequently exposed to images of the body shape of female swimmers and so will prefer a “swimming female body shape” more so than the body shape of a non-swimming female. Body images that could be classed as swimming or non-swimming were generated using computer software and inputs from the dimensions of a sample of real life swimmers and non-swimmers. Generally, compared to non-swimmers, swimmers tended to have above average height, long trunks, broad shoulders, narrow hips, above average arm circumference and higher waist to hip ratios (that is, a less curvy more masculine body shape). BMI was similar in both groups. Given the importance of WHRs in body perception this value was also varied independently for swimmers and non-swimmers. In all five separate analyses (with various controls in place) male swimmers showed a greater preference for a female swimmer body shape compared to the rating of male non-swimmers, WHR was ruled out as a confounding variable. This was a fairly small scale study but important in that it points to the possibility of larger scale studies exploring the relationship between what phenotypes people regularly encounter in their social environment and how this impacts on preferences. One argument is that phenotypic averageness is a signal of good genes since the average might reflect the optimum of continuous traits. Another view is that a preference for averageness is a side effect of the way our neural systems work, and that typical specimens of any category such as watches, cars and so on are easier to process and may cause positive feelings (Reber et al, 2004; Winkielman et al, 2006; Rhodes, 2006). These two views, whilst requiring further exploration, are not mutually exclusive: ease of processing typical examples may reinforce or even form a part of the aesthetic mechanism that generates mate choice preferences.

Attractiveness of bodies and socio-economic factors

There is also another perspective, stemming from the work of sociologists and social psychologists, that suggests that any individual’s response is also grounded in and influenced by a whole range of socio-cultural forces (see Swami and Furnham, 2008). At a most basic level, a person’s sex is a biological designation based ultimately on chromosome patterns. Gender, however, is usually accepted to be a secondary social construct whose characteristics are learned and are acted out in social contexts. Hence whereas the chromosome determination of sexuality shows no cultural variation, gender roles and associated lifestyles vary considerably within and between cultures. So the interesting question arises as to whether these socially –contingent gender roles influence perceptions of physical attractiveness.

An interesting tool in studying these effects is the “masculinity index” (MAS) developed by the Dutch researcher Geert Hofstede. According to this construct, a high MAS value means that a culture expects men to display the traditional and stereotypical signs of masculinity such as assertiveness and physical strength, and be focussed on material success, whilst expecting women to be modest and caring. A low value of MAS means that the culture is less stereotypical in its view of gender roles (Hofstede, 1980,1998). Viren Swami et al (2006) applied these ideas to investigate the role of gender stereotyping (as indicated by the MAS scale) on perceptions of physical attractiveness. Using Hofstede’s measure of MAS they found that Greece scored 31 whist Britain scored 9 – indicating a higher differentiation of gender roles in Greece than Britain. Correspondingly they found that WHR and the traditional idea of a curvaceous body shape was a much stronger predictor of attractiveness for Greek men than for British men. In a follow up study, they also found a similar difference between the ideals of Spanish and Portugese men (from cultures with a high MAS) compared to British men (from a lower MAS culture) in that again WHR was a most important predictor of physical attractiveness in women for men from Spain and Portugal compared to men from Britain (Swami et al , 2007). Such studies show the effect of socio-cultural norms and expectations on judgements of physical attractiveness but their deeper functional significance is not entirely clear. Far from being a challenge to adaptationist thinking this demonstration of cultural influences might be explicable in terms of making decisions that themselves have localised fitness implications. In cultures where the ideals of masculinity and femininity are shapely delineated, for whatever reasons, it may be wise to mate according to these differences

**14.7 The female breast**

In Western cultures, and probably many more, there is a fascination with the enlarged mammary glands of the human female. There are strong cultural mores about when they can be revealed, or should be concealed or only half-revealed. The femininity of a woman is strongly associated with her breasts. Women sometimes pay large sums of money and experience much discomfort to have them reduced or enlarged. In 1996, for example, in the USA, there were 87,700 breast augmentations and 64 per cent of these were women in the age range 18–34. In the same year, there were 57,679 breast reductions, with 45 per cent of these in the 18–34 age range (American Society of Plastic Surgeons, 2007).

There is agreement between the sexes that they are objects of some importance, but what are they for? Most people would take this to be a pointless question, since it is obvious that they are there to provide infants with milk. A consideration of the facts below forces a rethink on this issue:

• Breasts are strongly sexually dimorphic and appear at puberty

• Permanently enlarged breasts are not found among any other primates: most primates have enlarged breasts only during pregnancy and lactation

• Large breasts, although attractive to males, interfere with locomotion, and women athletes engaged in running sports tend to have small breasts

• There is some cross-cultural variation in breast morphology but with no obvious ecological correlates

• The size of a woman’s breasts bears very little relationship to her ability to lactate. Women could supply the necessary nutrition to a baby with much smaller breasts.

It looks, then, as if breasts have not been shaped by natural selection, women would move better without them and their permanently enlarged state is not essential in order to supply milk. Acting as a storage device for fat is a possibility, but storage around the waist would be mechanically more efficient. Breasts are thus prime candidates for good genes or runaway **sexual selection.**

Some studies have shown that breast symmetry correlates with fertility, which suggests a role in the honest advertisement of good genes. The fact that breast size is not negatively correlated with **asymmetry** runs counter to this, however, since a sexual trait that increases in size should become more asymmetrical as the demands of size growth take their toll on symmetry (Thornhill and Gangestad, 1994). Another idea is that breasts (like the male beard) serve as a sign of reproductive value. They develop rapidly at puberty and so signal the onset of reproductive age. It is advantageous for men to mate with women of this age and so they developed a preference for enlarged breasts (Barber, 1995; Marlowe, 1998). Marlowe (1998) also provided a rather neat argument (called the “nobility hypothesis” as to why female breasts develop larger than necessary even as a signal of puberty. Non-protruding breasts imply that the women is prepubescent, protruding firm breasts that she is young and fertile, and sagging breasts that she is older and possibly post-menopausal. Large breasts progressively sag with age since fibrous supporting tissue gradually weakens under the influence of gravity. Hence, breasts are an honest indication of the residual reproductive value of a female

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