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The Accuracy of Attractive-Body-Size Judgment

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Young women in contemporary industrialized societies often or even characteristically engage in potentially dangerous behaviors designed to attain and maintain [extreme] slimmness, including restrained eating and re-

1 © 1990 by The Wenner-Gren Foundation for Anthropological Research. All rights reserved 0011-3204/99/4004-0006$5.00. The role of Steven T. McGarvey and the students who have assisted with data collection and entry on the Samoan body-image project over the past several years is gratefully acknowledged. Joan Lawrence prepared the illustrations. I thank John S. Allen and Ben Blount for feedback and helpful conversations.
fusal to eat, induced vomiting, overexercising, and using drugs for appetite suppression [Walsh and Devlin 1998]. Many studies have shown that idealization of slim bodies and motivation to achieve them is associated with low self-esteem and distorted perceptions of individuals' own body images. The conventional wisdom is that these body-image distortions are encouraged or perpetuated by thinness-depicting and thinness-promoting [and fat-stigmatizing] media [e.g., Harrison and Cantor 1997, Montaheath and McCabe 1997, Raphael and Lacey 1992, Stephens, Hill, and Hanson 1994, Shaw and Waller 1995]. Certainly, individual-level studies of women in industrialized societies have demonstrated that greater exposure to thinness-depicting media is associated with greater body-image distortion [Harrison and Cantor 1997, Tiggeemann and Pickering 1996, Stice et al. 1994].

This pattern of body-image distortion is considerably more pronounced and more common in women than in men, to the point that it is considered a characteristic female phenomenon.2 Young women are inaccurate in their estimates of their current size, on average imagining themselves to be larger than they are and more distant from an identified ideal.3 Men are more accurate in their own body-size estimates. Women are also less accurate than men in predicting the body sizes found most attractive by their opposite-sex peers. This pattern was first observed in publication in 1985, when Fallon and Rozin demonstrated that American undergraduate women could not accurately predict the body shape that their male peers found most attractive, instead selecting an exaggeratedly slimmer figure, thereby decreasing satisfaction with their own bodies. In contrast, men on average selected a body image that corresponded more closely to women’s ideals and an ideal size that reinforced their own body self-satisfaction [Fallon and Rozin 1985]. This pattern has since been replicated with further samples of undergraduate women, parents of students, partners, adolescents, and older women4 (Cohn and Adler 1992, Cohn et al. 1987, Furnham and Radley 1989, Huon, Morris, and Brown 1990, Lamb et al. 1993, Rozin and Fallon 1988; see also Dwyer et al. 1964; cf. Furnham, Hester, and Weir 1990).

This widely cited finding has been used to demonstrate two distinct and contrary propositions about the causes and context of the body-image distortion. First, it is cited as evidence of the way in which popular media misinform women about their bodies; media images of ultraslim women are internalized by women and result in distorted self-images and conceptions of others’ judgments of their bodies5 (e.g., Martin and Gentry 1997, Ogden and Mundray 1996, Shaw and Waller 1995). Second, in the context of evolutionary approaches to human behavior, the pattern is interpreted to represent evolved sex differences in reproductive strategy. For example, it has been used as evidence that men and women have different evolved notions of the ideal female figure [Singh 1993], that it is each sex’s own evolved preferences rather than the preferences of the other sex that is guiding mating strategy [Ridley 1993:302], and that men have an evolved propensity to desire curvaceous women [Buss 1994:56].

These contrary propositions have yet to be tested adequately against data. The implication of the first proposition is that groups exposed to increased media distortion of female figures should demonstrate greater distortion of women’s estimates of male preferences. The implication of the evolutionary proposition is that the relative female propensity for distorting male preferences should be consistent across socioecological contexts whatever the local notion of ideal body size.6 To date, only one set of data from a “non-Western” setting has been published, so it is difficult to discern whether the pattern of female misjudgment shows significant socioecological variation or is consistent across populations. A study of Arab women shows that they accurately predict the [slim] figure size that male peers judge the most attractive, even though the women prefer on average to be smaller than they consider themselves to be [Ford, Dolan, and Evans 1990].7 There are no examples from traditionally fat-positive societies to compare with the slim-valuing Arab case, and there are no studies of the relative accuracy of male versus female perceptions in nonindustrial settings.

Here I report the results of a study of the accuracy of attractive-body-size judgment in Samoans in two countries. The Samoan case allows comparison of genetically similar Samoans living in distinct environments [e.g., Baker, Hanna, and Baker 1986], one richer in media exposure than the other. It provides a counterpoint to the U.S. and Arab data because Samoan society has traditionally placed high social value on big bodies. Samoan populations have some of the largest average body sizes yet recorded for human groups [McGarvey 1994].

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2. In the United States, women are exposed to and internalize the cultural value of slimmness more than men [Garner et al. 1980] and find cultural ideals of beauty more crucial in developing and maintaining self-esteem. They are more motivated than men to conform to body-size ideals and less satisfied with their bodies, weigh themselves more, perceive weight gain and largeness more negatively, and experience higher levels of low body self-esteem and exercise and eating disorders [Dwyer et al. 1969, Parker et al. 1993, Polivy, Garner, and Garfinkel 1986].

3. The vast majority of this research has been conducted with U.S. undergraduates, and therefore the conclusions are generally relevant only to populations of young, predominantly white, educated middle-class women.

4. Body ideals [and body sizes] become larger with age, but the distortion persists [Stevens and Tiggeemann 1998].

5. Fallon and Rozin [1985] also initially suggested that women could actually be accurately judging male preferences but judging the preferences of their ideal men rather than their peers. This was not supported by subsequent tests [Huon, Morris, and Brown 1990].

6. Ideal or attractive body build is one of the most highly ecologically and culturally varied aspects of female attractiveness [Brown and Konner 1987, Buss 1994, Sohel and Stunkard 1986]. Though highly variable between groups, cultural values about attractive bodies tend to be strongly, consistently, and widely held within them.

7. A Nigerian study seems to suggest that women accurately judged body sizes preferred by their spouses but unfortunately does not describe the relevant data [Akanze 1993].
DESIGN AND DATA COLLECTION

The data presented here are derived from samples of Samoans living in two ecologically distinct environments—the more traditional and rural island setting of Samoa (formerly Western Samoa) and the migrant setting of urban Auckland, New Zealand. There are close genetic, kin, and social relationships between these two populations. Samoans in Auckland constitute a minority group within a large, urban, media-rich environment that—like other industrialized societies—generally idealizes and socially and economically rewards slim bodies. Exposure to thinness-depicting media is considerably greater in Auckland than in Samoa. Samoan women express slimmer body ideals in Auckland than Samoa, despite having larger bodies (Brewis et al. 1998). Measures of perception of attractive bodies were made for 84 women and 77 men in both rural and periurban villages in Samoa and 41 female and 24 male Samoans living in urban Auckland. All participants were between 25 and 55 years of age, and the two field sites were similar in average age.8

To measure the accuracy of judgments of attractive bodies, this study used separate drawn scales of male and female body outlines. The instrument depicted a series of ten figures increasing in size on a continuous scale (see fig. 1). The tool was adapted from that used by Fallon and Rozin (1985) and Ford, Dolan, and Evans (1990), but the figures were made to represent recognizably Samoan body proportions and hairstyles.9 On the scale depicting their own sex, participants were asked to locate their own current size, the size they would most like to be ("ideal"), the average size for their age-group, the size most attractive to the opposite sex, and the upper and lower limits of acceptable body size for opposite-sex peers seeking mates. On the scale depicting the opposite sex, participants identified the average size for their age-group, the size they found most attractive, and the upper and lower limits of body size acceptable to them in a mate. One-tailed and matched-pair t-tests were used to compare means by sex and fieldsite, and sex-fieldsite interactions were assessed by analysis of variance. Testing for age association was done on the basis of age-groups 25–39 and 40–55 years.

RESULTS

The average values of body perceptions reported by each sex at each field site are shown in figures 2 and 3. Samoans of both sexes in both countries identified on average body ideals significantly smaller than the sizes they perceived themselves to be. However, in all cases Samoans accurately predicted the size the opposite sex found attractive, both in general and in their own age-groups (all \( p > 0.05 \)). Further, men and women were very accurate in predicting average size of bodies in their age-groups as perceived by their own and the other sex. The only notable sex difference emerged in views of the acceptability of larger bodies in Auckland, where body size is also on average significantly larger than in Samoa. In an estimate of the largest acceptable body size, women

\( N = 238 \). Women predicted that men would prefer a slimmer figure than they would \( (p < 0.05) \), while men did not make the corresponding prediction.

8. The data reported here are part of a larger study on the ecology of body image in Samoans in three countries, and the sampling strategy is described by Brewis et al. (1998).

9. Using this tool, sex differences in accuracy of judgment were evident in samples of anthropology undergraduates at the University of Georgia and the University of Auckland collected in 1997–98.
showed a tendency to tolerate a larger men’s body than men thought they did, whereas men set a lower limit for tolerable body size than women anticipated they would.

A misjudgment measure was calculated for each individual by subtracting that individual’s own estimate of the size preferred by the other sex from the mean value of most attractive body size reported by that other sex. Both men and women in Auckland had higher average misjudgment values (11.9 downward for women, 13.8 upward for men) than in Samoa (1.8 downward for men, 2.5 downward for women), but this difference was not statistically significant.

CONCLUSION

Samoan men and women identify an ideal body that is significantly smaller than their perceived current size. However, Samoans both in more traditional, rural Samoa and in urban, media-exposed Auckland accurately judge both male and female body-size preferences. This observation is in contrast to the pattern observed in U.S. samples and in concord with the Arab case.

The U.S., Samoan, and Arab cases taken together demonstrate no monolithic pattern of women’s consistently misjudging male preferences or of men’s consistently being more accurate than women. Rather, a more complex socioecology of sex and population differences in attractive-body misjudgment is suggested. Some accounting for this cross-population variation can be suggested with reference to the proximal contexts of Samoan social life and marriage and Samoan views of the value of bodies. Body form is less important as a vehicle for social, economic, conjugal, or reproductive success for Samoan women than it is, for example, for female undergraduates in the United States. Further, in relatively collectivistic Samoan society, where status and family are vital social themes and therefore important considerations in marriage decisions, attractiveness has less salience in these decisions. Further, almost all Samoan women marry, and they expect to marry regardless of their physical attributes and to marry well because of family advantages and opportunities rather than because of those attributes.

Samoan women and men in more media-exposed Auckland and in less media-exposed Samoa are equally accurate in their assessments of their peers’ attractive-body preferences. This suggests that the media model is
insufficient to explain population variation in patterning in women's ability to estimate men's ideals of women's bodies. While media imagery and reinforcement of popular cultural ideas must play a role in promoting and exaggerating women's "misconceptions" about male preferences, this role may be a product or a co-result rather than a single necessary causative factor in the patterning of body-attractiveness misjudgment in samples of Western women.

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**Fig. 3.** Average body-image responses for men's bodies in Auckland and Samoa.
First Estimates of Heritability in the Age of Menopause

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Two independent and complementary studies have recently produced the first estimates of heritability ($h^2$) in the age of menopause [Pecei 1998, Snieder, MacGregor, and Spector 1998]. Snieder, MacGregor, and Spector [1998], using recall data from a large British twin sample, have suggested that 63% of the variation is genetic, and the study reported here, using prospectively collected data from American mothers and daughters participating in the Tremin Trust Menstrual Reproductive History (TTRMRH) project, indicates that 40–50% of variation in the age of menopause may be genetic. In the absence of conclusive evidence of an upward shift in the mean age of menopause [McKinlay, Bifano, and McKinlay 1985; Flint 1978; Gray 1976; Amundsen and Diers 1973, 1970; Post 1971], these heritability estimates suggest that the mean age is maintained at its contemporary value by some degree of stabilizing selection and therefore that there must be some cost to prolonged reproduction in human females even now. In particular, these heritability estimates are interesting because they change the terms of the menopause debate. Whereas previous work has focused on the reproductive ecology of hunter-gatherers in an effort to understand the environment of evolutionary adaptedness and the origin of menopause, the discovery of such substantial positive heritabilities in contemporary populations strongly suggests that there must have been a cost to prolonged reproduction even in agricultural societies over the past 10,000 years. These heritability estimates may also have clinical value. Here I describe my statistical analyses, discuss the reliability of my results, and explore the evolutionary implications of these findings.

Although there is a strong central tendency in the age of menopause, with medians clustering around 50 years in developed countries, considerable variation exists both within and between populations (see Wood 1994). Medians range from 43 years in Central Africa to 51.4 years among Caucasian Americans. Several studies have examined the contribution of various environmen-