

Brief research report

## Preferences for female body size in Britain and the South Pacific

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### Abstract

To assess current attitudes to body weight and shape in the South Pacific, a region characterised by relatively high levels of obesity and traditionally positive views of large bodies, 38 high socio-economic status (SES) adolescent males and 38 low SES adolescent males in Independent Samoa were asked to rate a set of images of real women for physical attractiveness. Participants in both SES settings preferred women with a slender figure, as did a comparison group in Britain, suggesting that the traditional veneration of large bodies is no longer apparent in Samoa. However, the results also showed that low SES adolescents were more likely to view overweight figures as attractive, which suggests that the veneration of slim figures may be associated with increasing SES. Implications of this finding are discussed in conclusion.

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### Introduction

Within the ethnographic and anthropological literature, it is known that cultures differ widely in their attitudes toward ideal body sizes (e.g., Ford & Beach, 1952; Sobal & Stunkard, 1989). One particular cultural milieu that features prominently in the literature is the South Pacific, where large bodies have traditionally held prestige, as they were seen as representing high status, power, authority and wealth (Becker, 1995; Pollock, 1995). A number of studies have indicated that Pacific women and men, typically of older generations,

prefer larger ideal body sizes (Craig, Halavatau, Comino, & Caterson, 1999; Craig, Swinburn, Matenga-Smith, Matangi, & Vaughan, 1996; McGarvey, 1991; Wilkinson, Ben-Tovim, & Walker, 1994). Even where younger Pacific men and women no longer show veneration for heavier ideals (cf. Craig et al., 1999), they nevertheless select ideal body sizes that are larger than those chosen by Western participants.

Some recent studies, however, have highlighted instances of body dissatisfaction and preference for thinness among Pacific women (Becker, Gilman, & Burwell, 2005; Brewis & McGarvey, 2000; Brewis, McGarvey, Jones, & Swinburn, 1998; Williams, Ricciardelli, McCabe, Waqa, & Bavadra, 2006), which suggests a shift towards body size ideals that closely resemble those seen in the West. Brewis et al. (1998), for instance, found high levels of body dissatisfaction and desire to lose weight among Samoan women

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residing in Samoa and New Zealand. A key factor that may underscore this shift in preference is improving socioeconomic development in the South Pacific.

In contexts of low socioeconomic status (SES), a heavier body weight may be preferred because it is an indicator of food resources (Swami & Tovée, 2005, 2006a). In other words, because the primary function of adipose tissue is to store calories, body fat may be a useful predictor of access to food or food availability. By contrast, improved SES is associated with a plethora of socio-cultural changes, particularly new modes of mass media that promulgate a ‘Western’ perception of attractive body sizes (Swami & Tovée, 2005). Through a dissemination of images and discourse linking feminine attractiveness with being thin, any veneration of larger body sizes that may have existed previously is eventually eroded (Becker, 2004).

The prediction of a preference for more slender figures with increasing SES has been documented in a number of national groups (e.g., Furnham & Alibhai, 1983; Swami & Tovée, 2005, 2007; Tovée, Swami, Furnham, & Mangalparsad, 2006). In the present study, we measured preferences for body shape and weight among Independent Samoans of high and low SES, which we compared with an age-matched sample in Britain (high SES). Samoans are a particularly pertinent group in which to study body image transformations, because Samoan culture has traditionally valued larger bodies (McGarvey, 1991). In more recent years, however, practises such as fattening rituals have been set aside, and Samoan bodies have enlarged considerably in recent decades in association with socioeconomic change (Pollock, 1995).

## Methods

### *Participants*

Three groups of male participants were recruited from Britain and the Independent State of Samoa, which consists of two large islands (Upolu and Savai’i) and several smaller islets. Only male participants were recruited in the present study because a corresponding set of male stimuli was not available at the time of study. In addition, asking women to rate images of women for attractiveness introduces methodological concerns (see Swami & Tovée, 2006b).

The first group of participants comprised 38 adolescent males recruited from a school in Apia, the capital city and largest urban centre on Samoa. Apia is located on the northern coast of Upolu, and is dependent to a large extent on tourism (which accounts for some 25% of the

nation’s GDP; New Zealand Ministry of Foreign Affairs and Trade, 2004) and a small manufacturing industry. The city is served by international passenger and cargo ships as well as international air connections to the United States, Australia, New Zealand and other Pacific Islands, and has sustained several centuries of Euro-Western influence.

The second group consisted of 38 participants who were recruited from a rural school on the island of Savai’i. The larger of the two main islands of Samoa, Savai’i is much less developed than Upolu and is home to approximately one quarter of the nation’s population. The economy of the island remains largely dependent on private family remittance from overseas and agricultural exports (agriculture employs some two thirds of the labour force). Compared with Apia, the *Fa’a Samoa*, or traditional Samoan way, remains a strong force in the life and politics of Savai’i (cf. MacPherson, 1991).

Both Samoan groups were compared with a sample of 36 native British adolescent males recruited from two schools in Greater London. Participants in all three settings were recruited by the authors of this study in an opportunistic manner, and were not remunerated for their participation. There were no significant difference in the mean ages of the different groups (Apia  $M = 15.89$ ,  $SD = .80$ , Savai’i  $M = 16.34$ ,  $SD = .97$ , Britain  $M = 16.03$ ,  $SD = .77$ ) [ $F(2, 111) = 2.76$ ,  $p > .05$ ]. There were, however, significant differences in the body mass indices (BMIs) of the different groups (Apia  $M = 23.96$ ,  $SD = 4.20$ , Savai’i  $M = 24.28$ ,  $SD = 3.91$ ; Britain  $M = 22.26$ ,  $SD = 2.14$ ) [ $F(2, 111) = 3.41$ ,  $p < .05$ ], with both Samoan groups being heavier than the British group. Although this is generally consistent with reports that obesity is now highly prevalent in the South Pacific (see Taubes, 1998), it should be noted that all three groups fall within the normal range for BMI.

### Materials

The stimuli used in this study have been used previously and here we present only an overview of the materials (for a fuller discussion, see Swami & Tovée, 2005). Participants rated greyscale images of 50 real women in front view, wearing tight grey leotards and leggings (see Tovée, Mahmoodi, Mahmoodi, Singleton, & Cornelissen, 2002, for an example). So that facial attractiveness would not influence judgements of attractiveness, the heads of the women in the images were obscured. Although the stimuli were generated using British women, the stimuli were presented in greyscale, thus removing the effect of skin tone. The

image set consisted of 10 women drawn from each of the five BMI categories: emaciated ( $<15 \text{ kg/m}^2$ ), underweight ( $15\text{--}18.5 \text{ kg/m}^2$ ), normal ( $18.5\text{--}24.9 \text{ kg/m}^2$ ), overweight ( $25.0\text{--}29.9 \text{ kg/m}^2$ ) and obese ( $>30 \text{ kg/m}^2$ ). The women also varied in waist-to-hip ratio (WHR), a measure of body shape, from .68 and .98.

The images were printed on sheets of paper measuring  $210 \text{ mm} \times 297 \text{ mm}$ , so that each image covered the entire page. This was done to facilitate replication of the procedure at all sites. Participants were presented with a booklet to record their ratings, where the first page consisted of brief instructions and the final page requested participants' demographic details. Other pages in the booklet provided a 9-point Likert scale, which appeared below the question 'How physically attractive is the person in the photograph?' and on which participants were asked to record their ratings.

### *Procedure*

All participants were tested individually. The questionnaire was presented in English for the British group, and a bilingual (English and Samoan) questionnaire was used in Samoa. Any questions were answered by the researchers before the experiment began. Within the image set, individual images were presented in a randomised order, and subjects were presented with the entire set twice. This was done to make participants aware of the range of variability of body features represented in the images, and to encourage participants to use the whole set of attractiveness ratings (1 = least attractive, 9 = most attractive). Participants were only asked to rate the images on the second run through. The entire procedure took approximately 40 min to complete for each participant.

## **Results**

### *Intra-class reliabilities*

As an initial test of whether participants in each group were consistent in their rating of the images, we conducted Shrout-Fleiss intra-class reliability measures (Shrout & Fleiss, 1979). This showed that participants in each group were in high agreement in their ratings: the Shrout-Fleiss  $k$  mean was .96 for the Apia group, .95 for the Savai'i group, and .96 for the British group.

### *Multiple polynomial regression*

Following previous studies (e.g., Swami & Tovée, 2005; Tovée et al., 2002), a multiple polynomial

regression was used to model the contributions of BMI and WHR to the attractiveness ratings. The procedure in these studies has been to include second- and third-order terms for BMI in a multiple regression model. This balances the amount of variance accounted for with the simplest possible regression model. The model, run separately for the different groups, was:

$$y = a + b_{1 \times 1} + b_{2 \times 2} + b_{3 \times 3} + b_{4 \times 4} + e$$

where  $y$  is the attractiveness rating,  $a$  the intercept,  $x_1$  the WHR,  $x_2$  the BMI,  $x_3$  the BMI<sup>2</sup>,  $x_4$  the BMI<sup>3</sup> and  $e$  random error.

Results showed that BMI was a significant predictor of attractiveness ratings for all three groups ( $p < .001$  for all groups), and explained a large percentage of the variance (Apia 69.2%, Savai'i 58.3%, Britain 83.5%). WHR was a significant predictor of attractiveness ratings for observers in Britain and Apia ( $p < .05$ ) but not for observers in Savai'i ( $p > .05$ ). The total variance explained by WHR was considerably smaller than that explained by BMI in all three settings (Apia 12.5%, Savai'i 2.6%, Britain 10.2%).

### *Between-group differences in ideal BMI*

To determine the 'ideal' BMI, third-order polynomials for BMI were fitted to the attractiveness ratings made by all participants in each group, allowing the BMI at peak attractiveness to be calculated. The mean peak BMI calculated in this manner was 21.29 for observers in Apia, 21.30 for Savai'i participants and 20.87 for participants in Britain. There were no overall significant differences between these means ratings [ $F(2, 111) = .67, p > .05$ ], suggesting that participants in all three settings had a similar notion of ideal BMI for attractiveness.

When we plotted the attractiveness ratings against BMI, however, the Savai'i ratings did not appear to show the same fall-off with higher BMI values, as occurred with the Apia and British ratings. In order to investigate these differences, we followed Swami and Tovée (2005) in measuring the attractiveness rating at BMI 35 for each observer. We then carried out a simple one-way ANOVA to determine whether there were significant differences at that point. The results showed significant differences [ $F(2, 111) = 31.48, p < .001$ ], and Tukey HSD post hoc tests revealed that the Savai'i group were rating figures at BMI 35 more positively than the other two groups, who were not significantly different from each other.

### *Between-group differences in WHR preferences*

The multiple regression also suggests that the importance of WHR in attractiveness judgements differs between groups. Attractiveness ratings and WHR is significantly correlated for participants in Britain ( $r = .38, p < .05$ ) and Apia ( $r = .35, p < .05$ ) groups, but not for participants in Savai'i ( $r = -0.16, p > .05$ ). The gradient of this relationship is similar for participants in Britain ( $-8.58$ ) and Apia ( $-8.87$ ), with increasing attractiveness as the bodies become more curvaceous (i.e., the WHR is lower). However, the gradient seems to differ for participants in Savai'i ( $-4.11$ ), suggesting that less curvaceous bodies are regarded as more attractive. To test whether this difference was statistically significant, we carried out a series of dummy regressions (see Swami & Tovée, 2005), which showed that the Savai'i group was significantly different from both other groups ( $p < .05$ ). The British and Apia groups were not significantly different from each other.

### **Discussion**

The results suggest that there is no significant difference in the ideal BMI of a female body across both Samoan observer groups and the British observers. It would appear that the traditional veneration of large bodies in Samoa is no longer evident, insofar as Samoans, like their British counterparts, idealised women with slender body weights as being attractive. In general, these results are consistent with those found among other South Pacific groups (e.g., Craig et al., 1996, 1999; Wilkinson et al., 1994). However, Samoan adolescents on Savai'i, which is characterised by relatively low SES, rated figures with higher BMIs more positively than did participants in Apia or Britain. This is consistent with the earlier suggestion that body size preferences differ in environments with lower resources and/or in a lower SES group within a culture (Sobal & Stunkard, 1989; Swami & Tovée, 2005, 2006a; Tovée et al., 2006).

It seems plausible that the traditional veneration of larger bodies in regions like the South Pacific, and the continuing positive viewing of higher BMIs among Savai'i adolescents, is predicated on a lack of relative resources (Swami & Tovée, 2006a). In contexts of low SES, only high-status individuals are able to increase their body mass, given their greater relative access to food resources. This may explain why obesity was historically common among chiefs and those of high social ranking (Buck, 1932). In such contexts, a heavier

body weight would have been indicative of access to food resources, and may also underscore the association of increased body mass with perceived sexuality, wealth, status, beauty and other social attributes. Conversely, with increasing SES, obesity may have become associated with low social status, as it is typically the rich who are able to keep their weight down (Furnham & Alibhai, 1983).

Improved SES is also associated with an influx of 'Western' notions of attractiveness, which may exacerbate any existing tendencies for venerating thinness. Through a variety of sources, but typically mass media products, the notion of thinness being emblematic of feminine attractiveness becomes embedded within popular culture (Becker, 2004), and erodes any veneration of larger body sizes that may have existed previously. Indeed, Becker et al. (2005) have shown how the introduction of Western-based television in Fiji was associated with Fijian girls' increased desire to be thinner. Along with increasing SES, there has been an increase in the prevalence of obesity in the South Pacific, which may legitimise a fear of fatness, especially among adolescents. The tendency among Samoans of low SES to view higher BMIs as more attractive than their Apia or British counterparts may also be traced back to their relative 'protection' from exposure to Western notions of attractiveness.

In terms of limitations, the numbers of participants in the present study was relatively small, and this limits the generalisability of our findings (though it should be said that this is a common limitation of cross-cultural studies). In addition, differences in SES were measured only informally in the present study based on geographical location and socioeconomic deprivation. It is, therefore, possible that the results of the present study may have arisen due to differences that are sample-specific and which we have not controlled for.

Nevertheless, these findings have important consequences for the study of physical attractiveness and body image in the South Pacific. Inasmuch as improved SES fosters an idealisation of thin women as physically attractive, it seems likely that fat-concern, dieting and ultimately eating disorders will become increasingly common experiences for Samoan women attempting to live up to such ideals. It is, therefore, imperative that researchers elucidate the ways in which cultural factors impact on individual differences in body size preferences, as this may reveal ways of promoting a more positive body image among adolescents both in the South Pacific and in the West.

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