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Cross-cultural, body weight and gender differences in the body size perceptions and body ideals of university students

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Abstract A study of 1131 young adults (22.4 ± 5.3 years of age, mean ± SD) investigated the hypothesis that there would be cross-cultural, body weight and gender differences in their body size perceptions and ideals. Males were more likely to be overweight or obese (BMI ≥ 25) compared to females (25% versus 9%) and females were more likely to be underweight (BMI < 20, 37% versus 13%) with no cultural differences. Forty-three per cent of overweight or obese males were satisfied with their current body size and 9% wanted to be bigger. Among underweight women, 42% wanted a slimmer body and 43% were satisfied with their current body size. Asian males were more likely than southern European males to desire a bigger body (42% versus 16%). Northern European males of normal body weight perceived themselves as smaller than other males and preferred a slimmer ideal female. Overweight or obese northern European males were more likely to desire a bigger body. Asian women were more likely than northern European women to desire a bigger body (17% versus 6%). Body image should be considered prior to dietary counselling and nutrition education in order to make treatment and education relevant and effective. **(Aust J Nutr Diet 1999;56:144–150).**

Key words: body weight, body image, cross-cultural, body size perception, obesity, ethnic.

Introduction

Body weight concerns and, in particular, the prevalence of overweight and obesity are becoming increasingly important public health issues (1–3). In addition, the problem of deliberate weight loss among young women and the associated problems of poor body image, dietary restraint and disordered eating are prevalent in Westernised countries (4–5).

Body image research among adults has focused largely on gender differences and the association between self-perceptions and eating disturbances (6–8). Whilst concern with body size and shape and body dissatisfaction has been well documented among women and teenage girls with particular reference to dissatisfaction with specific body parts such as thighs, abdomen and hips (8), little is known about the body image of overweight or obese adults and, in particular, the body size preferences of overweight or obese males.

Concern with body shape and size affects men as well as women, but men generally report less body dissatisfaction than women and are less likely to be involved in weight loss practices (8–12). Studies have examined the association between ethnic or cultural factors and body weight perceptions and weight concerns among adults. There is some evidence that young adults from different ethnic or cultural groups have differing perceptions of their body weight and shape and that some cultures prefer bigger male and female ideals when compared to the norms of Western society. Studies in the USA have shown that despite being more overweight, African American women are less concerned with the pursuit of slimness than white American women (13–14). A comparison of college students in Africa and the USA found that the larger ideal body size was more common in both sexes among the Africans and that they were less likely to have dieted to lose weight than students in the USA (15). A similar preference for larger body ideals among different ethnic groups has been found in other studies (16–18). Other studies report similarities between cultural and ethnic groups in the prevalence of weight concerns, the slim female ideal, and the mesomorphic male ideal (19–20). A large study of European university students from 21 different countries reported between-country differences in those who were dieting and trying to lose weight, and differences in body size perception (21).

The current study investigated the hypothesis that there would be cross-cultural, body weight and gender differences in the body size perceptions and ideals of young Australian adults.

Methods

Participants

Australian students from five universities were approached to volunteer for the study. University students were chosen in order to compare a relatively homogeneous group. Universities were randomly selected from a list of the 13 universities located in New South Wales (22). University lecturers from a wide variety of non-medical, non-nutrition related courses including humanities, sciences, arts, education, commerce and business studies agreed to participate. Only students who had been residents of Australia for three years or more were eligible to participate in order to reduce between-country differences in body image.

Questionnaire

A questionnaire was developed using the body perception scale of Sorensen and Stunkard et al. (23–24) which consists of a series of nine male and nine female body shape drawings ranging from very underweight (score 1) to very obese (score 9). A higher score represents a greater desired body size. The participants were asked to select the figures which they perceived represented their current body shape and size (current self score), their ideal body shape and size (ideal self score) and their perception of the

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ideal female body (ideal female score), and the ideal male body (ideal male score). From each of these selections a mean score and standard deviation were derived according to the methodology developed by Fallon and Rozin (6).

Participants were asked to report their age and gender. The ethnic and cultural background of participants was self-reported using seven categories of: northern European or Caucasian (e.g. United Kingdom, Canada, South Africa); Aboriginal or Torres Strait Islander; southern European (e.g. Greek, Italian, Yugoslavian); Asian (e.g. Chinese, Vietnamese, Thai, etc); Pacific Islander or Maori; Middle Eastern (e.g. Arabic, Lebanese); or 'other'. The height and weight of participants was self-reported to the nearest 0.5 centimetre and 0.1 kilogram respectively. Participants who were unable to report their height and weight in metric units were advised to report it using imperial measures. The body mass index (BMI, weight[kg]/(height[m])^2) was calculated from the participants' height and weight. Participants were classified as underweight if their BMI was less than 20; normal weight if their BMI was 20 to 24.9; overweight if their BMI was 25 to 29.9 and obese if their BMI was 30 or more.

Procedure

The questionnaire was administered by the author and volunteer university lecturers to the entire class during the students' normal lecture times. Participants were advised that their participation in the study was voluntary, confidential and that there were no right or wrong answers. The study protocol was approved by the University of Sydney Human Ethics Committee and its equivalent at each of the other participating universities.

Data analyses

The data were analysed using the Statistical Package for the Social Sciences (SPSS Inc, Cary, NC, SPSS Base Version 7.5 for Windows, 1997). Differences in categorical data (BMI group, cultural background) were analysed using corrected χ^2 analyses. To assess differences in mean scores within groups and between groups of gender, BMI and cultural background, one-way analysis of variance (ANOVA) tests were used. Follow-up tests including χ^2 analyses (2×2 contingency tables) and protected t-tests were used to compare between-group differences to determine which groups differed significantly. A P-value of < 0.05 was selected to determine statistical significance.

Results

A total of 1131 university students (65% female) from two city and three regional universities participated in the study. The response rate was 96%. As the numbers of participants of Aboriginal or Torres Strait Islander (n = 12), Middle Eastern (n = 8), Pacific Islander or Maori (n = 3), African (n = 2), and other (n = 2) ethnic backgrounds were small, statistical analyses to examine cross-cultural body perception differences included only those participants of northern European, southern European and Asian background (n = 1104). The demographic and anthropometric details of respondents (northern European, southern European and Asian only) are given in Table 1. Male students were significantly older, taller and heavier than the female students ($P < 0.001$) and there were more students from northern European or Caucasian background ($P < 0.01$). There were no differences in age between ethnic groups.

Body weight

Males were more likely to be overweight or obese compared to females (24.7% versus 9.4%) and females were more likely to be underweight (37.1% versus 13.1%, $\chi^2 = 89.3$, df = 2, $P < 0.001$). This relationship was true among males and females of northern European ($\chi^2 = 69.2$, df = 2, $P < 0.001$), southern European ($\chi^2 = 20.3$, df = 2, $P < 0.001$) and Asian background ($\chi^2 = 10.9$, df = 2, $P < 0.001$).

The classification of participants as underweight, normal weight, overweight or obese is given according to their cultural background in Figure 1. Among the female participants, those of Asian background were more likely to be underweight compared to those of northern European and southern European backgrounds respectively (55.2% versus 34.9% and 39.8%, $\chi^2 = 9.6$, df = 2, $P < 0.001$). A similar trend was observed among the male participants, with those of Asian background more likely to be underweight compared to males of northern European and southern European backgrounds respectively (28.0% versus 10.6% and 6.5%, $\chi^2 = 14.1$, df = 2, $P < 0.001$).

Table 1. Gender differences in the self-reported age, ethnic background and anthropometric details of university students

	Females (n= 721)		*Males (n= 383)*	
	mean ± SD[a]	*95% CI*[b]	*mean ± SD*[a]	*95% CI*[b]
Age (years)	21.6 ± 4.7		23.2 ± 6.0***	
Height (cm)	166.2 ± 7.3	165.6–167.2	177.5 ± 8.4***	176.6–178.3
Weight (kg)	58.7 ± 8.9	58.1–59.4	74.2 ± 12.2***	72.9–75.4
BMI	21.3 ± 3.1	21.1–21.6	23.5 ± 3.3***	23.2–23.8
Ethnic background	*% (n)*		*% (n)*	
Northern European, Caucasian	76.4 (551)		76.7 (294)**	
Southern European	14.3 (103)		8.4 (32)	
Asian	9.3 (67)		14.9 (57)	

P-values compare mean gender differences. ** significantly different at $P < 0.01$; *** significantly different at $P < 0.001$.
(a) SD, standard deviation.
(b) CI, confidence interval.

Desired body size

Among the male participants, 29% indicated that they wanted to be slimmer, 41% were satisfied with their current body size and 30% wanted to be bigger. Among females, 59% wanted to be slimmer, 30% were satisfied with their current body size and 11% wanted to be bigger. The differences in desired body size between males and females were statistically significant ($\chi^2 = 188.7$, df = 2, $P < 0.001$).

The comparison of desired body size by cultural background and gender is given in Figure 2. Females of Asian background were more likely than those of northern European background to desire a bigger body (16.7% versus 5.5%, $\chi^2 = 9.2$, df = 2, $P < 0.05$). Among males, men of Asian background were more likely than men of southern European background to desire a bigger body (42% versus 16.1%, $\chi^2 = 5.1$, df = 2, $P < 0.05$). There were no significant cultural differences between those who desired no change in their current body size or a slimmer body.

Desired body size by BMI grouping

Underweight women of Asian background were more likely than underweight women of northern European background to desire weight gain (28.1% versus 12.6%, $\chi^2 = 5.2$, df = 2, $P < 0.05$). There were no other significant cultural differences. An average of 42% of underweight women desired a slimmer body, 42% were satisfied with their current size and 15% desired a bigger body. A more detailed analysis of the findings among underweight women is presented elsewhere (11). Among normal weight women, 71% desired a slimmer body, 26% were satisfied with their current size and 3% desired a bigger body. None of the overweight or obese women desired a bigger body, with 91% desiring a slimmer body and 9% satisfied with their current body size.

Similar proportions of underweight males from different cultural backgrounds indicated that they desired a slimmer (4%) or bigger body size (75%) or were satisfied with their current weight (21%). An average of 25% of normal weight males desired a slimmer body, 30% desired a bigger body and 45% were satisfied with their current body size.

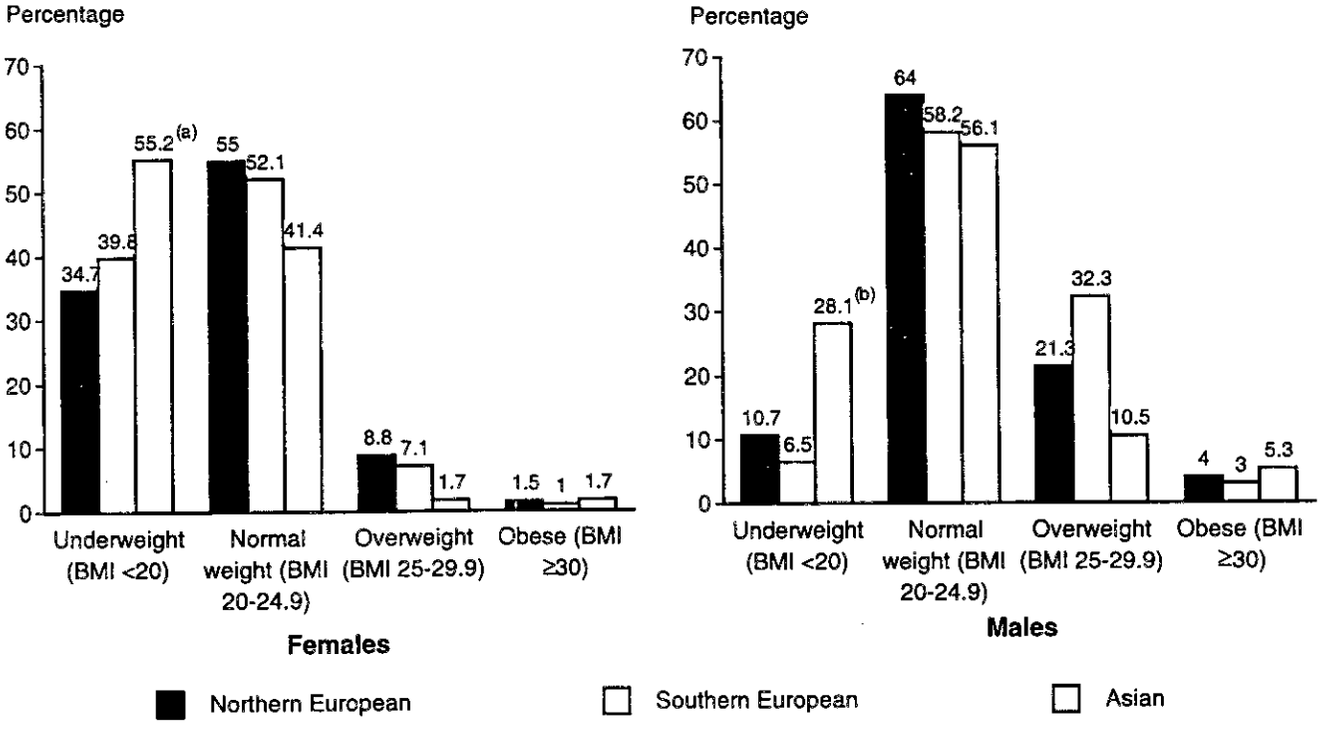
A similar percentage of overweight or obese males from northern European, southern European and Asian backgrounds indicated that they would like to be slimmer (48%) or were satisfied with their current weight (43%) but all the 9% of overweight or obese males who desired a bigger body were of northern European background.

Body size perception and body ideals—gender, cultural and BMI group differences

The mean (and standard deviation, SD) scores for perception of the current self, ideal self, ideal female and ideal male bodies by gender and cultural background are given in Table 2. The body size perception of males was greater than that of females for all categories (current self, ideal self, ideal female, ideal male) (all $P < 0.01$) and this trend was the same among all cultural groups ($P < 0.01$).

Male participants of normal body weight and of northern European background perceived themselves to be significantly smaller than other normal weight males. The mean (± SD) current self scores for normal weight males was 3.8 (± 0.9) for northern Europeans, 4.3 (± 1.4) for

Figure 1. The distribution of underweight, normal weight, overweight and obesity in female and male university students of northern European, southern European and Asian background



(a) $P < 0.001$, compares Asian and northern European females ($\chi^2 = 9.6$, df = 2, $P < 0.001$).

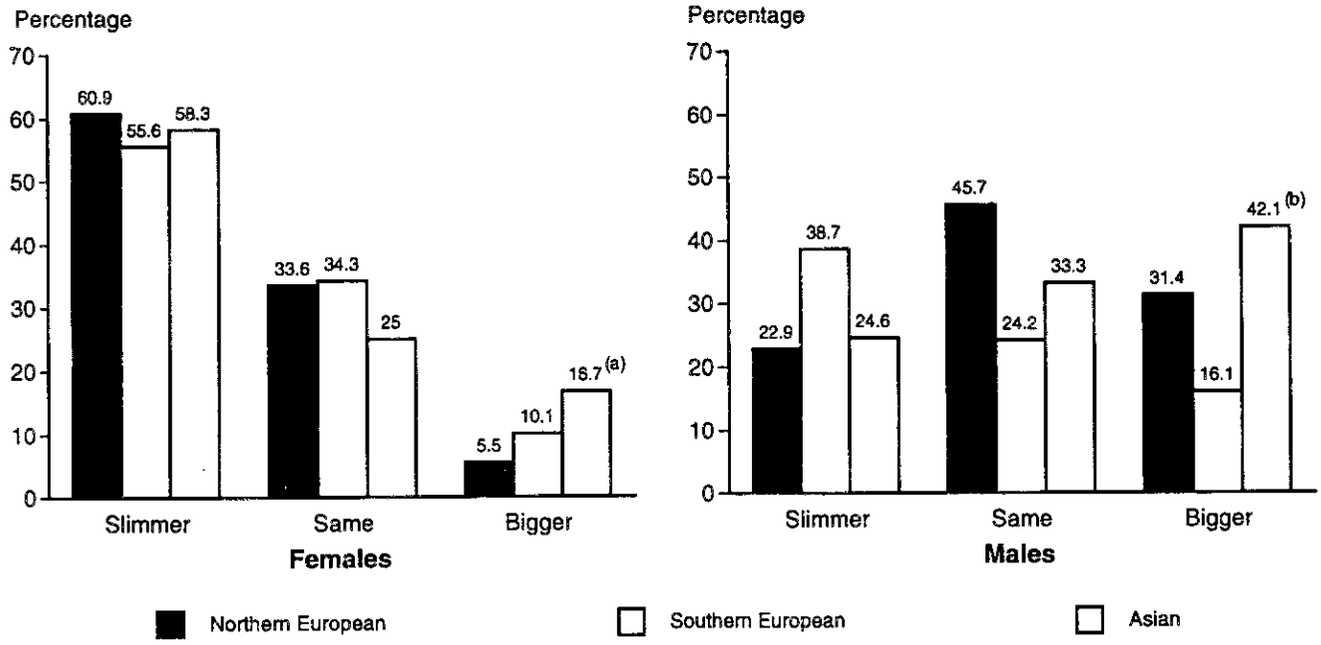
(b) $P < 0.001$, compares Asian and Southern European males ($\chi^2 = 14.1$, df = 2, $P < 0.001$).

southern Europeans and 4.1 (± 1.5) for Asians ($F_{2,380} = 3.3$, $P < 0.05$). The normal weight males of northern European background also perceived a significantly slimmer female body to be ideal. The mean (± SD) ideal female scores for normal weight males were 3.5 (± 0.8) for northern Europeans, 4.2 (± 1.7) for southern Europeans, and 3.7 (± 1.5) for Asians ($F_{2,380} = 3.4$, $P < 0.05$). There were no other significant differences between cultural groups.

A comparison of the body size perceptions of young underweight, normal weight and overweight or obese adults is given in Table 3.

The concept of current self was perceived differently by males and females in the different BMI categories. The body size perceptions (current self) of underweight males and females were significantly smaller than those of normal weight or those overweight or obese participants ($P < 0.001$). The difference between all groups was confirmed using protected t-tests to analyse between group differences ($P < 0.001$). Similar results were obtained on ideal body size perception categories among females, with the overweight or obese women reporting significantly greater ideal self, ideal female and ideal male scores than the underweight or normal weight women ($P < 0.001$). Similarly, the overweight or obese males reported greater ideal self and ideal male scores but there was no difference in the perception of the ideal female between the three BMI categories of males. There was no difference in the ideal self or ideal male perceptions of the underweight or normal weight males.

Figure 2. The percentage of male and female university students of northern European, southern European and Asian backgrounds who desired slimmer, the same or bigger body size



(a) $P < 0.05$, compares Asian and northern European females ($\chi^2 = 9.2$, df = 2, $P < 0.05$).
(b) $P < 0.05$, compares Asian and northern European males ($\chi^2 = 5.1$, df = 2, $P < 0.05$).

Table 2. A cross-cultural comparison of the mean body size perception ratings of male and female university students

	Current self		*Ideal self*		*Ideal female*		*Ideal male*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
	Mean ± SD[a]		*Mean ± SD*		*Mean ± SD*		*Mean ± SD*	
Northern European (n = 294 males, n = 551 females)	3.8 ± 1.1	4.0 ± 1.1	3.0 ± 0.7	4.1 ± 0.8	3.1 ± 0.7	3.6 ± 0.8	3.9 ± 0.7	4.3 ± 1.1
Southern European (n = 32 males, n = 103 females)	3.7 ± 1.0	4.4 ± 1.3	3.0 ± 0.7	3.9 ± 0.9	3.1 ± 0.7	3.8 ± 1.3	3.9 ± 0.7	4.2 ± 2.1
Asian (n = 57 males, n = 67 females)	3.5 ± 1.1	3.9 ± 1.8	3.0 ± 1.0	4.1 ± 1.4	2.9 ± 0.6	3.7 ± 1.5	3.9 ± 1.0	4.1 ± 1.3
F value [b]	2.8	1.7	0.1	0.5	2.1	0.7	0.1	0.5

(a) SD, standard deviation.
(b) One-way analysis of variance (ANOVA) (F value) compares the mean body size perception scores of the three cultural groups (northern European, southern European, Asian) females (df = 2, 718) and males (df = 2, 380) separately. *P*-value > 0.05 on all tests.

Table 3. A comparison of the mean body size perception ratings of university students by weight groupings of underweight, normal weight, and overweight or obese

	Current self		*Ideal self*		*Ideal female*		*Ideal male*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
BMI category	*Mean ± SD*[(a)]		*Mean ± SD*		*Mean ± SD*		*Mean ± SD*	
Underweight (n = 54 males, n = 267 females)	3.2 ± 0.9	3.0 ± 1.1	3.0 ± 0.7	4.0 ± 0.9	3.1 ± 0.8	3.5 ± 0.9	3.8 ± 0.7	4.1 ± 1.0
Normal weight (n = 238 males, n = 387 females)	4.1 ± 0.8	4.1 ± 1.1	3.2 ± 0.7	4.1 ± 0.9	3.1 ± 0.6	3.6 ± 0.9	3.9 ± 0.7	4.1 ± 1.0
Overweight or obese (n = 91 males, n = 67 females)	5.5 ± 1.3	5.4 ± 1.3	3.6 ± 0.7	4.5 ± 1.0	3.5 ± 0.6	3.7 ± 0.9	4.1 ± 0.8	4.5 ± 1.2
F value[(b)]	558.5***	201.2***	38.5***	13.2***	18.3***	2.5	11.9***	8.1***

*** $P < 0.001$

(a) SD, standard deviation.

(b) One-way analysis of variance (ANOVA) (F values) compares the mean body size perception scores of females and males in the three BMI categories. df = 2,380 (males) df = 2,718 (females).

Discussion

The current study examined gender, cultural and body weight differences in the body size perceptions and ideals of young Australian adults.

Males of all cultural and ethnic backgrounds were nearly three times more likely than women to be overweight or obese and the women were three times more likely to be underweight.

Even though men in the current study were more likely than women to be overweight or obese, the majority of men displayed a certain degree of body satisfaction and acceptance of their body weight with 43% of overweight or obese men indicating that they wished their current body size to stay the same. This finding was similar to those of earlier studies (9–10), suggesting that men's perceptions of, and attitudes toward, their bodies may not have markedly changed in the last decade.

Some of the overweight or obese men (9%) indicated that they wished to be bigger and 48% wished to lose weight. As the current study did not measure fatness, it is possible that some of the men classified as overweight or obese were carrying lean muscle mass rather than fat, and that their body satisfaction reflected satisfaction with a mesomorphic ideal (25) rather than an acceptance of excess body fat. Further research among young men should investigate their body weight perceptions and body weight ideals using precise measures to assess body fat. The finding that 43% of the overweight or obese men indicated that they were satisfied with their current body size is of concern because it may reflect either a sense of acceptance of an overweight ideal as desirable and/or normal among young men, or it may reflect deliberate and successful weight gain. The fact that 75% of underweight, 30% of normal weight and 9% of overweight or obese men indicated a desire for a bigger body size may reflect a desire for general weight gain, increased muscle mass, body building, and the social status allocated to those who achieve a bigger body (25). Additionally, there may be an interest in being taller as well as the desire for 'largeness' which was detected in the current study. The results among men of normal weight suggest that there may be cultural differences in body image among young men. The consistency of the results, that men of normal weight of northern European background were significantly more likely to perceive themselves as smaller than the other males, and that all of the overweight or obese males who wanted to be bigger were of northern European background, supports the suggestion that the desire for weight gain and possibly body building may be more common among young men of northern European descent.

The pursuit of a bigger body may carry increased physiological risks for young men, as some unsupervised weight gain practices may be harmful. A recent study from the USA (26) identified the regular use of protein formulas, amino acid preparations and other body building formulas among customers visiting health food stores. Additional risks of unsupervised weight gain practices include the risk of injury (weight-lifting injuries, hernias, etc) and illegal anabolic drug use (27). Further research should investigate the weight gain practices of young men, the long-term outcomes of such behaviours and the reasons for the apparent cultural differences identified in the current study.

The findings among women confirm the findings of previous studies which have shown that many young women, including those who are underweight or normal weight are preoccupied with the pursuit of slimness to the point of this body dissatisfaction becoming a 'normative discontent' (6,8,11–12).

The degree to which overweight or obese women desired weight loss and the amount of weight loss that they desired was in stark contrast to the results among men. The overweight and obese women were significantly more dissatisfied with their current body weight than the overweight and obese males, with 91% of women and 48% of men desiring a slimmer body. The overweight and obese females desired a body size which was, on average, two sizes slimmer than their current size, whereas the males desired a body figure approximately one size smaller than their current figure. This result is similar to that of a recent study from the USA which examined ideal weight perceptions in a group of racially diverse over-

weight men and women (28). Compared to the men, the women in the American study considered greater weight loss to be realistic and desirable. This scenario clearly represents social pressure for women to be slim and the common perception of the slim female ideal, and may explain the sense of failure experienced by women who are unsuccessful repeat dieters (12,29). It is likely that women who desire and pursue an unrealistic body weight ideal may further hamper their weight control attempts by setting unattainable goal weights and may worsen their existing overweight state by pre-empting failure and binge eating. The counselling of overweight or obese women should therefore initially assess their self-perceptions and their body weight ideals in order to establish sensible and achievable goals, and effective treatment and education programs. Counselling and education about a healthy weight range is appropriate for women of various body weights and different cultural and ethnic backgrounds.

The only cultural difference detected among women was not in keeping with the other results among women in that the young underweight women of Asian background were more likely than those of northern European background to desire a bigger body (17% versus 6%) but the ideal self and ideal female perceptions of the two groups of women were virtually identical. The results may reflect a genuine desire for weight gain among young slim Asian-Australian women and this is most likely to be similar to the desire to change specific body parts, such as wanting slim thighs, abdomen and hips but bigger breasts, which has been described previously (8). Further studies should investigate this apparent discrepancy.

The results may also be interpreted as a desire not to gain weight among the northern European women. This finding may be related to the results of northern European men of normal weight who recorded significantly slimmer ideal female scores than the southern European and Asian men of normal weight. Perhaps the perception of the slim ideal for women is transferred from men to women and this results in the females pursuing slimness in order to conform with the perceived external pressure from males of the same cultural backgrounds. This result provides some evidence that young men of northern European background may contribute to the pressure put on young women to be slim. Other findings in the current study seem to support the suggestion that it is pressure for the 'ideal body' within gender groups which is most influential in determining the body ideals of young men and women.

The ideal self and the ideal female were slimmer and the ideal male bigger than the current self in all cultural groups of women. Conversely, the ideal self and the ideal male were generally bigger than the current self among men, but the ideal female was smaller. These findings may explain the trend for women to desire slimness and men to desire a bigger body in order to please the opposite sex. Interestingly, the finding that the ideal female figure is slimmest among the females themselves and not the males, seems to suggest that it is the women who create and perpetuate the slim body ideals for women. The women from three different cultural groups were in agreement that the ideal female figure was set at around a score of 3.0, whereas the males chose an ideal female figure score of 3.7. Similarly, the males chose an ideal male figure score of around 4.2 and the females chose a smaller ideal male of 3.9. The discrepancy between the ideals of males and females may be relevant for nutrition and health education. Perhaps the perceptions of men and women should be incorporated into body weight education activities, so that young men and women can be encouraged not to pursue body ideals for what may be inaccurate reasons.

When compared to the age-matched groups reported by previous national studies (2,3) the findings of the current study are similar in the prevalences of underweight, overweight or obesity, height, weight, BMI and ethnic mix.

A limitation of the current study design was the use of self-reported anthropometric data which has been found in some studies to be inaccurate with general overestimations of height and underestimations of weight (30–31). A recent study validates the use of self-reported weight and height data as surrogates for measures of height and weight in adults (32), and other recent studies suggest that the inaccuracies in self-reported data are largely age-related and that older adults are more likely to incorrectly report their height and weight (33–34). Thus, for the purposes of the current study of young university students the use of self-reported anthropometric data is likely to be acceptable (32), but future body image studies, and particularly those of older people, ideally should measure height and weight to increase accuracy. Future studies should also measure body composition as well as using BMI, in order to allow for the ethnic variability in body composition suggested in some studies (35).

Other limitations of the current study include the use of only one measure of body image and the broad grouping of ethnicity. Future studies should use more than one measure of body image and should examine larger numbers of subjects from more specifically defined ethnic and cultural groups.

The problem of an unrealistic body image and dangerous dietary behaviours among young women has been investigated and has been given a great deal of attention in the general community over the past 20 years. Perhaps it is now time to investigate the weight-related beliefs, attitudes and behaviours of Australians of various cultural backgrounds and in particular, the apparent interest in weight gain among young men. Further body image research will help to plan better therapeutic, preventative and public health interventions aimed at reducing the prevalence of overweight and obesity.

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