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Preference for Thinness in Singapore – A Newly Industrialised Society

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ABSTRACT

Background/Aims: A cultural preference for thinness has been implicated in the development of eating disorders in Western, post-industrialised societies. In transitional societies like Singapore, a shift in expectations of ideal body size (toward thinness) may lead to an increase in eating disorders. This study investigated perceptions about body size and shape in over 200 youths living in Singapore, and the influences of adiposity, gender, Westernisation and parents' education.

Methods: A self-administered questionnaire was used to gather social and cultural information from 137 males and 143 females, aged 17 – 22 years. It included questions relating to eating behaviour and body satisfaction from which a "preference for thinness score" was derived. Westernisation was indicated by language spoken at home. Adiposity was measured by triceps skinfold and body mass index. Multiple linear regression analysis was used to assess the associations of adiposity, mother's education, father's education, and language spoken at home with the preference for thinness score.

Results: Dissatisfaction with body size and shape increased with tertile of adiposity among females, and thoughts about dieting and becoming thinner were present even among underweight girls. Unlike the females, the highest proportion of males satisfied with their body size and shape, was associated with the middle tertile of BMI. Speaking English at home, but not parents' education, was positively associated with body dissatisfaction after controlling for BMI.

Conclusion: Chinese Singaporean female youths have a preference for thinness as an ideal body size. The epidemiology of eating disorders in Singapore and other newly industrialised societies warrants further investigation.

Keywords: body image, preference for thinness, Singapore, Chinese, Westernisation

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INTRODUCTION

Eating disorders have been well documented and described in populations in the Western industrialised world[1,2]. In these populations, eating disorders have been associated with physiological and psychological factors such as the female gender, low self-esteem, and defined personality traits[2]. In addition, sociocultural factors may play an important role in the development of eating disorders[3]. Changing female roles and standards of ideal body size tend to lead to negative attitudes toward obesity and a strong preference for thinness in females[3,4]. This, in turn, may lead to unrealistic expectations of body size and contribute to the development of eating disorders in females living in Western societies[5]. The extreme rarity of eating disorders in preindustrialised societies[1] where food shortages are frequent, provides further evidence that sociocultural forces may be important in its etiology. In these societies, thinness rather than fatness is perceived as a problem. Indeed, obesity may even be seen as a symbol of affluence in both men and women, and plumpness may be considered attractive in women[6].

There is little documentation on the epidemiology of eating disorders in rapidly changing transitional economies[1,7]. In many of these countries (often referred to as "newly industrialised"), there is increasing exposure to Western values through the media and popular culture. This exposure combined with an enhanced popularity of Western food, and increased awareness of obesity as a problem[8,9] may serve to promote and/or intensify a cultural preference for thinness[10]. Is there a shift in cultural expectations of ideal body size in newly industrialised societies, and if so, would such a shift lead to a rise in eating disorders? Clearly, eating disorders are emerging in countries such as Hong Kong[7] and Singapore[11-14].

Singapore has witnessed dramatic increases in the prevalence of childhood obesity, from 7% for boys and 6% for girls (12-year-olds) in 1983[8] to 19% and 12% respectively, in 1990[15]. Thus, it is an example of the transitional economy where increasing societal concern with obesity may lead to changes in cultural expectations of ideal body size and consequently eating disorders, especially among females.

The objectives of this paper are twofold: (1) to provide a description of body size satisfaction in Chinese Singaporean youths, and (2) to explore the inter-relationships of adiposity and of sociocultural factors, specifically gender, parents' education, income, and "Westernisation" with preference for

thinness. Specifically, the following hypotheses will be tested:

- Preference for thinness is greater in females than males.
- Preference for thinness increases with adiposity.
- Parents' education is inversely associated with preference for thinness, after controlling for adiposity.
- Subjects who come from homes that are more Westernised (as measured by language spoken at home) are more likely to prefer thinness after controlling for adiposity.

METHODS

Recruitment

A convenience sample of 137 male and 143 female young adults, aged 17 – 22 years, was initially recruited for the primary purpose of studying environmental effects on growth and adiposity[16]. The female subjects were recruited from among first year students at the National University of Singapore during registration week in 1992. Because similar aged males are normally in compulsory military service, they were thus recruited from the military (usually referred to as "National Service"). A total of 117 males were recruited during the first week of their military training. Since we were unable to obtain the expected number of obese individuals from the university and the military (based on the known prevalence of obesity in adolescence[15]), a further attempt was made to recruit individuals from an educational institution that had an obesity screening program. Therefore, the initial sample included 20 males and 40 females attending a polytechnic (a post-secondary institution that prepares students for a trade or profession) where special efforts were made to recruit obese individuals.

To be eligible, participants had to be healthy and free of medical conditions that would predispose them to obesity (such as diabetes or Prader-Willi Syndrome). Subjects were not screened for eating disorders. In addition, since the data were to be collected by a self-administered questionnaire, written in English, subjects had to be literate in English. At the university and polytechnic, English was the medium of instruction. Subjects recruited from the military were required to have had attained a certain level of literacy equivalent to the General Certificate of Education (in English).

Data collection

A self-administered questionnaire was used to gather extensive social, cultural and behavioural information that may be associated with growth and adiposity. It was pretested for wording, skip patterns, adequacy of response categories and cultural sensitivity[17]. Questions relating to eating behaviour and body (size and shape) satisfaction were largely obtained from the Eating Disorder Inventory[18], and the wording slightly modified to reflect more locally acceptable ways of asking questions (see Appendix).

Adiposity was measured by triceps skinfold, and body mass index [weight (kg)/height (cm)^2]. Standard protocol for measuring height, weight and skinfolds was followed. Subjects who were dressed in tight-fitting shirts that did not permit measurement of the triceps were not measured. Complete anthropometric and questionnaire data were collected from a total of 212 subjects.

Data management and statistical analysis

Responses to questions pertaining to body size satisfaction were based on a six-point Likert scale, but were dichotomised for analytical purposes. "Always", "Usually" or "Most of the time" were collapsed into one category and treated as a "Yes" response. "Once in a while", "Almost never" or "Never" were collapsed into another category and considered a "No" response. Responses to each statement were then compared by gender and tertile of adiposity using χ^2 analysis. Such an analysis involves multiple comparisons which decrease statistical power. However, it provides a simple descriptive analysis and a means for comparison with the results of studies of young adults in Western countries.

To determine associations between preference for thinness and various sociocultural factors, a different analytical approach was used. The subjects' responses were scored as follows: zero for the three responses that were least likely to indicate preference for thinness, and 1, 2 and 3 for the remaining responses (For example, for statements 2,4,10,11, "Once in a while", "Almost never" and "Never" were scored zero. In contrast, for statements 8,12,14,15, "Always", "Usually" and "Many times" were scored zero). This method of scoring has been used in the analysis of eating disorder scales[18]. The internal consistency among these questions for assessing the same construct was assessed using Cronbach's alpha reliability coefficient[17]. The alpha coefficient was 0.75 for males and 0.85 for females. A "preference for thinness score" (PTS) was derived by summing the scores for the eight relevant statements and taking the simple average. High scores indicate a preference for thinness. However, low or medium scores may indicate a preference for being heavier or satisfaction with body size.

"Westernisation" was measured by the language spoken at home (English versus Chinese only). Mother's and father's education were assessed separately. Father's education was categorised as primary school or less, secondary school (including pre-university/high school equivalent), and college diploma or degree. Because few mothers had more than secondary school education, only two categories were used to describe mother's education (primary school or less, and secondary school and above).

Multiple linear regression analysis was used to assess the associations of adiposity, mother's education or father's education, and language spoken at home with the preference for thinness score (PTS). Adiposity was a continuous variable, measured by body mass index (BMI) or triceps skinfold (TSF). Mother's and

father's education, and language spoken at home were treated as dummy variables. Interactions between the sociocultural variables and adiposity were explored. Preliminary analysis showed that BMI and TSF were associated with language spoken at home, mother's education and/or father's education. Therefore, these variables were forced into one regression model:

PTS = β_1(BMI or TSF) + β_2 (English spoken at home) +
β_3 (BMI or TSF) × (English spoken at home) +
β_4 (father's or mother's education) +
β_5 (BMI or TSF) × (father's or mother's education) + constant.

The protocol for the conduct of this study was approved by the Committee for the Protection of Human Subjects at the University of California. In accordance with its policies, informed consent to participate was obtained from every subject.

RESULTS

Sociodemographic characteristics

The mean age of the cohort was 19.1 ± 1.0 years. More of the females than males had parents with higher levels of education (mother's: $p < .05$; father's: $p < .10$). Among females, 69% spoke only Chinese at home, whereas among males, 78% spoke only Chinese at home. However, this difference in proportion was not statistically significant.

Distribution of BMI and TSF

For the middle BMI tertile, the lower cut-off point (females: 18.7 kg/m^2; males: 19.4 kg/m^2) corresponds to the lower end of the normal range suggested by the Committee on Diet and Health, National Research Council, United States[19] – BMI: 19 – 24 kg/m^2. Thus, the lowest tertile of BMI may be considered "underweight" by US standards. In contrast, the lower cut-off point for the middle TSF tertile (females: 17.9 mm; males: 9.5 mm) is higher than the reported 25th percentile for US youths, aged 18 – 24 years[20] (females: 15 mm; males: 6.5 mm), reflecting a different TSF distribution for Singaporean youths[21].

Gender differences

Table I shows the responses of the subjects by gender and tertile of adiposity. Proportionately more females than males displayed a preference for thinness. For example, 52% of females, as compared to only 28% of males, think about being thinner "Many times", "Usually" or "Always".

Dissatisfaction with body size and shape

Females

The responses suggest that a considerable proportion of Chinese Singaporean females are dissatisfied with their body size/shape and have a preference for thinness even among those considered "underweight". For example, in the lowest tertile of BMI, 20% think about dieting and 11% think about "being thinner a lot". These figures rise steeply with body size, so that in the middle tertile of BMI, about 45% think about dieting, and 60% think about being thinner. By the highest tertile of BMI, 75% think about dieting and 83% think about thinness. In the lowest tertile of BMI, 46% like their body shape and 63% are satisfied with their present weight. In comparison, only 30% and 40% of females in the middle tertile of BMI like their body shape and are satisfied with their present weight respectively. Overall, only 36% of the females were satisfied with their present weight. This figure is, however, higher than that reported for a group of 656 GCE "O" level Chinese Singaporean schoolgirls; in that study, 56% felt they were too fat, 20% thought they were too thin, and only 24% perceived themselves to be of the right weight[12].

The proportions of females in the lowest tertile of BMI who are dissatisfied with their body weight (37%) are comparable to those observed by Moore in a group of 854 predominantly white adolescent girls in the US[22]. However, the proportion of females who do not like their body shape is higher (54%). In Moore's study, 40% of those underweight (defined as less than the 25th percentile of weight for height) were dissatisfied with their body weight, and 26% with their body shape. In a study of High School girls in South Africa, 49% of underweight (BMI < 19 kg/m^2) White girls were found to be dissatisfied with their body weight[23].

Males

The pattern of responses of the males tended to differ from those of the females. In general, males were less likely to show a preference for thinness than females; and the proportion of males who like their body size and shape is highest in the middle tertile of BMI rather than in the lowest tertile of BMI.

Associations with adiposity and sociocultural factors

Using multiple linear regression analyses, we found, as hypothesised, that preference for thinness increases with adiposity (as measured by BMI or TSF) in both females and males (Table II). When BMI was the indicator of adiposity, speaking English at home was positively, and its interaction term with adiposity negatively, related to higher preference for thinness (PTS). In comparison, when TSF was used as the measure of adiposity, language spoken at home was not associated with PTS. Neither mother's nor father's education was associated with PTS.

DISCUSSION

The observations made in this study show that Chinese Singaporean female youths display a preference for thinness. The proportions of girls who were quite satisfied with their weight, and who liked their body shape and size were highest in the lowest tertile of BMI/TSF and lowest in the highest tertile of BMI/TSF. Regression analyses further confirmed that preference for thinness was positively associated with BMI and TSF in females.

While linear regression analysis showed that such preference for thinness was positively associated with both BMI and TSF also in males, the frequency of satisfaction with body weight in males was greatest

Table I – Gender differences in feelings and perceptions about body size and shape in Chinese Singaporean youths aged 16 – 22 years

Statement[+]	Percentage who answered Always, Usually, Many times						
	Total	By Tertile of BMI			By tertile of TSF		
		First	Second	Third	First	Second	Third
Think stomach is too big							
Females[++]	57.8*	31.4[a]	71.1[a]	69.4	45.7[a]	59.0[a]	68.6
Males[++]	25.6*	2.4[a]	15.0[a]	58.1	2.4[a]	17.1[a]	55.8
Think about dieting							
Females	46.8*	20.0	44.7[a]	75.0[b]	26.7	35.9[a]	80.0[a]
Males	21.8*	4.9	12.5[a]	46.5[b]	10.0	9.8[a]	44.2[a]
Should be a little heavier							
Females	17.4*	42.9	2.6[b]	8.3	31.4	15.4	5.7
Males	36.0*	69.0	20.0[b]	18.6	53.7	36.6	18.6
Am too heavy							
Females	44.0*	2.9	47.4[a]	80.6	22.9	35.9	74.3
Males	26.6*	0.0	17.5[a]	60.5	4.9	24.4	48.8
Think about being thinner							
Females	52.3*	11.4	60.5[a]	83.3[a]	34.3[a]	41.0	82.9[a]
Males	28.0*	4.8	22.5[a]	55.8[a]	7.3[a]	22.0	53.3[a]
Like body shape and size							
Females	26.9	45.7	29.7	5.6	42.9	31.6	5.7
Males	33.3	32.5	47.5	20.9	40.0	37.5	23.3
Do not worry about my weight							
Females	35.8	54.3	34.2	19.4	48.6	30.8	28.6
Males	42.7	43.9	55.0	30.2	53.7	40.0	34.9
Satisfied with present weight							
Females	35.8	62.9[a]	39.5[a]	5.6	48.6	43.6	14.3
Males	40.8	26.2[a]	72.5[a]	25.6	43.9	46.3	32.6

[+] See Appendix for actual phraseology of statements

[++] Each row of figures represents the percentage of females or males who answered *Always, Usually* or *Many times*

* Difference between females and males is statistically significant based on the Chi-square statistic with Yates correction ($p < 0.01$)

[a] Difference between females and males is statistically significant based on the Chi-square statistic with Yates correction ($p < 0.05/3 = 0.016$)

[b] Difference between females and males is marginally significant based on the Chi-square statistic with Yates correction ($p < 0.10/3 = 0.03$)

among those in the middle tertile of BMI, and in the lowest and the middle tertile of TSF. It appears that for males, while fatness is not desirable, thinness is not desired as much as in women. Perhaps, the ideal body size among males is leanness rather than thinness. This is supported by the observation that a high proportion of males in the lowest TSF tertile actually have BMIs that are in the normal range (data not shown). Thus, males can be expected to be less likely than females to engage in eating and dieting behaviors often associated with a fear of fatness. In this study, 19% of females but only 4% of males in the lowest tertile of BMI "think about dieting". These gender differences in body size preferences are similar to those observed in US adolescents[22,24].

Our hypothesis that parent's education would be inversely related to preference for thinness was not supported by our observations. Neither mother's nor father's education was associated with preference for thinness. A recent study of over 900 sixth and seventh grade White, Asian and Hispanic girls in California also reported that parent's education was not associated with body dissatisfaction[25]. Kok and Tian, in their study of Chinese Singaporean school girls, found that parental/family factors such as rigidity and overprotectiveness, were not related to drive for thinness[13]. However, family history of mental illness appears to be common among patients with eating disorders[14].

Unlike parent's education, speaking English at home was positively associated with preference for thinness in Chinese Singaporean females, after controlling for BMI ($p < 0.05$). The negative regression coefficient for its interaction term with BMI suggests that the relationship of BMI with preference for thinness is attenuated among those who speak English at home. Language spoken at home probably represents some element of "Westernisation", a term that is seldom defined but is frequently used to refer to the adoption of the values and/or behaviours of Western industrialised societies. For Chinese Singaporeans, speaking English at home is likely to be associated with increased involvement with popular culture in advertising, magazines, Western television programs and music. The impact of popular culture on body size in women living in Western societies has been well described[1]. Interestingly, when TSF was used as the measure of adiposity rather than BMI, language spoken at home was not associated with preference for thinness. This may indicate that the value placed on thinness is carried over primarily to dieting and a preoccupation with weight, and only secondarily to actual fatness.

The effects of "Westernisation" on body size satisfaction have been discussed in sporadic reports[3,7,26,27]. One study of Arab female university students in London, found Westernisation to be at least partially responsible for clinical cases of eating disorders[26]. Another study noted that modern Polynesian women living in the Cook Islands prefer to be smaller, and concluded that the traditional Polynesian concept of considering large body sizes to be healthy and attractive are no longer evident[27]. Based on the writings of others[2,3,5,7], a model for the development of preference for thinness is proposed to account for the findings of this study. In this model (Fig 1), economic development and industrialisation are accompanied by a higher prevalence of obesity as well as increased media exposure to the norms of highly industrialised Western societies. As a result, there is a heightened level of societal concern with obesity, and values and norms relating to ideal body size change in preference for thinness, especially among adolescent females. Our model further suggests that this preference for thinness may distort self-perceptions of body image, leading to adolescent dieting. Whether increased adolescent dieting will result in an increase in eating disorders in Singaporean youths remains to be investigated. In another recent study, teasing about weight was reported to be present prior to onset of the eating disorder in 56% of 50

Table II – Associations of adiposity[a], language spoken at home[b], and mother's education[c] with Preference for Being Thinner Score[d] using multiple linear regression analysis

FEMALES

Measure of adiposity	BMI (kg/m²)			Triceps skinfold (TSF) (mm)		
	Regression coefficient	SE	p-value	Regression coefficient	SE	p-value
Independent variables		$R^2 = .47$			$R^2 = .37$	
Intercept	-3.15			-.77		
Adiposity[a]	.21	.03	<.0001	.08	.02	<.0001
English spoken at home[b]	3.41	1.12	<.01	.38	.51	NS
Adiposity X English spoken at home	-.18	.06	<.01	-.02	.02	NS
Mother's education[c]	-.47	1.16	NS	.92	.50	NS
Adiposity X mother's education	.04	.06	NS	-.02	.02	NS

MALES

Measure of adiposity	BMI (kg/m²)			Triceps skinfold (TSF) (mm)		
	Regression coefficient	SE	p-value	Regression coefficient	SE	p-value
Independent variables		$R^2 = .38$			$R^2 = .24$	
Intercept	-1.89			.26		
Adiposity[a]	.13	.02	<.0001	.05	.01	<.001
English spoken at home[b]	2.48	.77	<.01	.52	.34	NS
Adiposity X English spoken at home	-.11	.03	<.01	-.04	.02	NS
Mother's education[c]	-.62	.70	NS	-.33	.29	NS
Adiposity X mother's education	.03	.03	NS	.03	.02	NS

[a] Measured by BMI (kg/m²) or triceps skinfold (mm)

[b] English spoken at home versus English not spoken at home

[c] Mother's education:
At least secondary school education (= 1) versus primary school education or less (= 0)
When father's education was entered into the regression equation in place of mother's education, findings were not considerably different, and are not shown here.

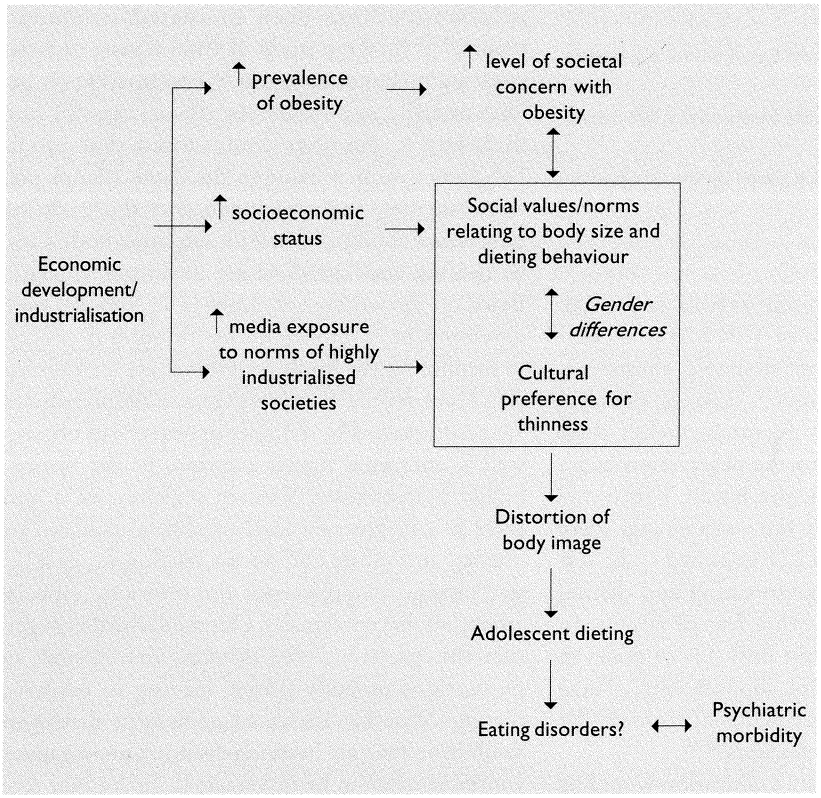

Fig 1 – Inter-relationships between stage of economic development and factors influencing the development of eating disorders in youths

Singaporean patients with anorexia nervosa or bulimia[14].

It should be noted that this study bears several limitations. Firstly, the subjects were not randomly selected and therefore may not have been representative of the general population of young Singaporeans. Secondly, there were gender differences in educational level within the sample studied; in particular, the females were mostly recruited from the university whereas most of the males were National Service recruits. Therefore, the quality of the responses to the self-administered questionnaires may not have been consistent between females and males. Further, among the less educated, plumpness may still be seen as a status symbol. Thirdly, although our preference for thinness scale had a relatively high alpha reliability coefficient (indicating it was measuring a similar construct, and had high internal consistency), it did not assess the degree of thinness that was desired, nor was it validated against an external measure of preference for thinness.

Recent efforts to reduce the prevalence of obesity in Singapore have resulted in massive media exposure to messages pertaining to the ill effects of obesity. It will be helpful to determine if this increased awareness of obesity as a problem has contributed to a rise in eating disorders.

Our findings indicate a need for investigating the epidemiology of eating in Singapore and other newly industrialised societies.

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REFERENCES

1. Davis C, Yager J. Transcultural aspects of eating disorders: A critical literature review. Culture Med Psych 1992; 16:377-94.
2. Bruch H. Eating disorders: Obesity, anorexia nervosa and the person within. New York: Basic Books, 1973.
3. Nasser M. Culture and weight consciousness. J Psychomatic Res 1988; 32:573-77.
4. Allon N. The stigma of overweight in everyday life. In: Obesity in Perspective; US Government Printmg Office, 1973:83-102.
5. Garner DM, Garfinkel PE. Sociocultural pressures in the development of anorexia nervosa. Psychol Medicine 1980; 10:647-56.
6. Brown P, Konner M. An anthropological perspective on obesity. Annals of the New York Academy of Sciences 1987; 499:30-46.
7. Sing L. Anorexia nervosa in Hong Kong: a Chinese perspective. Psych Med 1991; 21:703-11.
8. Ho TF. Childhood obesity in Singapore primary school children: Epidemiological review and anthropometric evaluation. J Singapore Pediatr Soc 1985; 27(Suppl 1): 6-40.
9. Ho SYC. Assessment of overweight and physical activity among adolescents and youths in HongKong. Public Health 1987; 101:457-64.
10. Lee S, Ho TP, Hsu LKG. Fat phobic and non-fat phobic anorexia nervosa: a comparative study of 70 Chinese patients in Hong Kong. Psych Med 1993:997-1016.
11. Ong YL, Tsoi WF. A clinical and psychological study of seven cases of anorexia nervosa in Singapore. Singapore Med J 1982; 23:255-61.
12. Kok LP, Tian CS. Susceptibility of Singapore Chinese schoolgirls to anorexia nervosa - Part I (Psychological Factors). Singapore Med J 1994; 35:481-5.
13. Kok LP, Tian CS. Susceptibility of Singapore Chinese schoolgirls to anorexia nervosa - Part II (Family Factors). Singapore Med J 1994; 35:609-12.
14. Ung EK, Lee S, Kua EH. Anorexia nervosa and bulimia - A Singapore Perspective. Singapore Med J 1997; 38:332-5.
15. Rajan U. Status of child and adolescent fitness in Singapore. Proceedings of the seminar on healthy weight management in children and adolescents Singapore 1992.
16. Wang MC. Environmental influences on growth and health status in ethnic Chinese populations [dissertation]. Berkeley (CA): University of California, 1993.
17. Aday LA. Designing and conducting health surveys. San Francisco: Jossey-Bass Inc., 1989.
18. Garner DM, Olmstead, MP. The Eating Disorder Inventory Manual. Odessa, FL: Psychological Assessment resources, Inc., 1984.
19. National Research Council. Diet and Health. Implications for reducing chronic disease risk. Washington, DC: National Academy Press, 1989:564.
20. Najjar MF, Rowland M. Anthropometric reference data and prevalence of overweight, United States, 1976-80. Vital and Health Statistics, Series 11, no. 238 (DHHS Publication No. (PHS) 87-1688). Washington, DC: US Govt Printing Office, 1987.
21. Wang MC, Ho TF, Sabry ZI. Body mass index and triceps skinfolds in Singaporean Chinese youths. Ecol Food Nutrition 1993; 30:63-72.
22. Moore DC. Body image and eating behavior in adolescent girls. Am J Dis Child. 1988; 142:1114-8.
23. Walker ARP, Walker BF, Locke MM, Cassim FA, Molefe O. Body image and eating behavior in interethnic adolescent girls. J Roy Soc Health 1991; 111:12-6.
24. Moore DC. Body image and eating behavior in adolescent boys. Am J. Dis Child 1990; 144:475-9.
25. Robinson TN, Killen JD, Litt IF, Hammer LD, Wilson DM, Haydel KF, et al. Ethnicity and body dissatisfaction: Are Hispanic and Asian girls at increased risk for eating disorders? J Adol Health 1996; 19:384-93.
26. Nasser M. Comparative study of the prevalence of abnormal eating attitudes among Arab female students at both London and Cairo universities. Psychol Med 1986; 16:621-5.
27. Craig PL, Swinburn BA, Matenga-Smith T, Matangi H, Vaughn G. Do Polynesians still believe that big is beautiful? Comparison of body size perceptions and preferences of Cook Islands, Maori and Australians. N Z Med J 1996; 109:200-3.