

Regular Article

Eating attitudes and body dissatisfaction in adolescents:
Cross-cultural study

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Aims: Sociocultural factors are thought to be important in the pathogenesis of eating disorders. However, there have been few studies comparing eating behavior among various cultural populations. The aim of the present study is to compare attitudes towards bodyweight and shape, and desire for thinness in Japanese male and female subjects with those in people from other countries and of different ethnic origin.

Methods: The subjects were 411 Japanese, 130 Indian, 135 Omani, 113 Euro-American and 196 Filipino adolescents. The Eating Attitude Test-26 and the Drive for Thinness subscale of the Eating Disorder Inventory-2 were used to assess eating attitudes and fat phobia.

Results: Subjects from India, Oman and the Philippines demonstrated eating attitudes that were similar

to or worse than subjects from Western countries and Japan, although their desire for thinness was not as strong. The relationship between body mass index and eating attitudes or fat phobia in Indian, Omani and Filipino subjects differed from that in subjects from Western countries and Japan. In addition, both males and females showed disturbed eating attitudes in the Indian, Omani, and Filipino subjects.

Conclusion: There are differences in eating attitudes and the drive for thinness among different cultural groups.

Key words: adolescents, cross-cultural comparison, drive for thinness, eating attitude, eating disorders.

EATING DISTURBANCE IS related to biological, developmental, psychological and sociocultural factors.¹ In particular, cultural pressure is thought to be an important determinant of the increasing incidence of eating disorders among vulnerable adolescents.² Prior to the 1980s, eating disorders were generally considered to be confined to young white

women from middle-to-upper class families in Western societies.³ Mass media have encouraged calorie counting, dieting, and weight watching as part of the need to be thin, and this may have led to a preoccupation with dieting and slimness among Western women.⁴ In contrast, non-Western populations have been relatively protected from eating disorders, perhaps because in several non-Western cultures fatness and obesity traditionally symbolize affluence, beauty, prosperity and fertility.^{5,6} Prior to the early 1980s, patients with anorexia nervosa outside the Euro-American population were almost unknown.⁷ However, recent comparative epidemiological studies have demonstrated an increase in

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patients with eating disorders in populations previously deemed immune to factors leading to body dissatisfaction.⁸

Japan is one of the most industrialized non-Western countries. Young Japanese women have been strongly influenced by standards of beauty that equate thinness with success,⁹ and for this reason many have become dissatisfied with their bodies and have developed a strong drive for thinness and resultant abnormal eating behavior, which increases with age.¹⁰ Some Japanese women have been reported to prefer an extremely slim body despite being severely underweight.¹¹ In addition, higher levels of eating disorders have been found in Japanese women who perceive themselves as being overweight, have been encouraged to diet, and have engaged in frequent conversations with their mother about food and dieting.¹²

Although the aforementioned results provide some insights, eating attitudes and the drive for thinness in non-Euro-American populations have not been fully defined, for several reasons. First, there have been methodological inconsistencies regarding the types of instruments and sampling methods in previous studies. Second, few empiric comparative studies have been performed in different non-Western cultural groups; previous studies that have compared eating behavior and attitudes to living in two different settings have tended to focus on Euro-American participants and their counterparts in developing countries.^{13–15} Third, although there is a growing literature on the attitudes towards bodyweight and shape, the desire for thinness, and dieting behavior in Japanese adolescents, cross-cultural comparisons including Japanese participants have been limited. Finally, although the number of male subjects with eating disorders seems to be increasing,¹⁶ differences in eating attitudes and behavior of male subjects of different ethnic origins have not been investigated. Given this background, the aim of the present study was to compare attitudes towards bodyweight and shape and the desire for thinness in Japanese male and female subjects with these characteristics in people from other countries and of different ethnic origin.

METHODS

Participants

The study involved five groups consisting of Indian, Omani, Euro-American, Filipino and Japanese participants. Data for the Indian participants were col-

lected from students attending an Indian school in Muscat, Oman. The Omani students were recruited from three state schools in the Muscat metropolitan area. The third group consisted of 'Westerners' (i.e. US, British and Western European adolescents); these participants were students who resided with their parents and attended English-language schools in Oman. The population of Oman is a heterogenic mixture of various ethnicities because of the presence of contract workers from foreign countries. Recent globalization and Westernization has endowed this country with economic development similar to that seen in Western countries, and therefore this region provides fertile ground on which to examine the interplay between industrialization and social distress. The Filipino adolescents were chosen from those residing and attending school in the Manila metropolitan area in the Philippines, and the Japanese students were recruited from four vocational schools in Tokyo.

All study procedures were reviewed and approved by the Institutional Review Board of the University of Tokyo Hospital. For all participants in each country, a brief explanation of the study was given and participants were assured that the data would remain confidential, after which their oral consent was obtained. The students were interviewed during class time; instead of receiving a lecture during this time, they were asked to devote that time to the study. The teacher for the particular lecture period helped with distribution of the assessment measures to the students, and it was stated explicitly that their responses would have no influence on their academic performance. To avoid peer influence, discussion of the questionnaire among the students was discouraged.

Assessment measures

Eating attitude and behavior

The Eating Attitude Test-26 (EAT-26) is a 26-item questionnaire that is used for assessing a wide range of attitudes and behavioral characteristics in both clinical and general populations.¹⁷ The EAT-26 consists of three subscales: dieting; bulimia and food preoccupation; and oral control. Scores are determined on a 4-point scale ranging from 'always' to 'never', with 3 points allotted to 'always', 2 points to 'very often', 1 point to 'often', and 0 points to 'never'. The total EAT-26 score ranges from 0 to 78, and participants with a composite score of ≥ 20 are con-

sidered to have a tendency for weight disorder and dieting behavior. The reliability and validity of the EAT-26 have been confirmed in all the countries associated with the present study.^{12,17,18}

Presence of fat-phobia: Drive for thinness

The Drive for Thinness subscale of the Eating Disorder Inventory-2 (EDI-2) was used to measure the presence of fat phobia.¹⁹ The EDI-2 is a self-reporting questionnaire of symptoms related to anorexia nervosa or bulimia nervosa. Responses are made on a 6-point Likert scale ranging from 'never' to 'always'. The Drive for Thinness scale utilized here contains seven items and measures excessive concern with dieting, preoccupation with weight, and fear of weight gain. Scores on the Drive for Thinness scale range from 0 to 21, and higher scores indicate a greater level of fat phobia, with a cut-off score of 15. The reliability and validity of the EDI-2 been confirmed in all the countries associated with the present study.^{19–21}

Statistical analysis

All results are shown as means \pm SD. One-way analysis of variance (ANOVA) and Tukey multiple comparison tests were used to compare age, height, weight and body mass index (BMI). Analysis of covariance (ANCOVA) controlling for age, and a Bonferroni multiple comparison test were used to compare the EAT-26 and EDI-2 scores. The relationships between the scores on each scale and BMI were investigated using Pearson correlation coefficients. $P < 0.05$ was considered significant. All analyses were performed using SPSS version 10.0.5 J (SPSS, Tokyo, Japan).

RESULTS

Participant characteristics

The study included 985 students (357 male, 628 female), of whom 411 were Japanese, 130 were Indian, 135 were Omani, 113 were Euro-American and 196 were Filipino. Significant differences in age, height, weight and BMI were observed among the five nationalities. These data are shown in Table 1 for male participants of each nationality. The Japanese male participants were older than the other four groups ($F_{(4,348)} = 234.81$, $P < 0.001$). Omani and European male participants had significantly higher BMI than Japanese and Filipino male subjects, and Indian male subjects had a significantly higher BMI than Filipino male subjects ($F_{(4,338)} = 6.41$, $P < 0.001$). The age, height, weight and BMI of the female participants is shown by nationality in Table 2. The Japanese female participants were significantly older than the other four groups, the Indian female subjects were older than the Omani, European and Filipino female subjects, the Omani female subjects were older than the European and Filipino female subjects, and the European female subjects were older than the Filipino female subjects ($F_{(4,623)} = 922.50$, $P < 0.001$). The Filipino female participants had a lower BMI than the other four groups, and the Japanese female subjects had a lower BMI than the Indian, Omani and European female subjects ($F_{(4,605)} = 21.99$, $P < 0.001$).

Comparison of EAT-26 and EDI-2 scores among the five nationalities

ANCOVA indicated significant differences among the groups for the total EAT-26 score, for scores on the

Table 1. Background data for male participants (mean \pm SD)

	Japanese (<i>n</i> = 106)	Indian (<i>n</i> = 51)	Omani (<i>n</i> = 72)	European (<i>n</i> = 41)	Filipino (<i>n</i> = 87)	<i>P</i>
Age	18.73 \pm 0.45 ^{‡,§,¶,††}	15.15 \pm 1.05	15.24 \pm 0.90	15.10 \pm 0.92	15.29 \pm 1.43	<0.001
Height (cm)	171.97 \pm 5.19 ^{‡,§,¶,††}	166.45 \pm 11.88	166.33 \pm 11.23	169.39 \pm 10.70	165.24 \pm 8.71	<0.001
Weight (kg)	61.33 \pm 8.38 ^{††}	63.31 \pm 12.97 ^{††}	61.87 \pm 14.48 ^{††}	66.29 \pm 10.60 ^{††}	55.45 \pm 13.71	<0.001
BMI	20.71 \pm 2.46	22.80 \pm 5.81 ^{††}	22.64 \pm 6.29 ^{†,††}	23.15 \pm 3.17 ^{†,††}	20.14 \pm 3.99	<0.001

Data were analyzed using analysis of variance and Tukey multiple comparison tests. $P < 0.05$ was accepted as significant.

[†]Higher than Japanese; [‡]higher than Indian; [§]higher than Omani; [¶]higher than European; ^{††}higher than Filipino.

BMI, body mass index.

Table 2. Background data for female participants (mean \pm SD)

	Japanese (<i>n</i> = 305)	Indian (<i>n</i> = 79)	Omani (<i>n</i> = 63)	European (<i>n</i> = 72)	Filipino (<i>n</i> = 109)	<i>P</i>
Age	18.68 \pm 0.47 ^{†,§,¶,††}	15.90 \pm 0.90 ^{§,¶,††}	15.52 \pm 0.64 ^{¶,††}	15.04 \pm 0.68 ^{††}	14.61 \pm 1.16	<0.001
Height (cm)	158.47 \pm 5.58 ^{††}	161.72 \pm 5.28 ^{†,¶,††}	159.71 \pm 6.53 ^{††}	157.59 \pm 5.73	155.73 \pm 7.22	<0.001
Weight (kg)	49.35 \pm 6.14 ^{††}	54.38 \pm 9.99 ^{†,††}	55.59 \pm 8.33 ^{†,††}	53.76 \pm 11.49 ^{†,††}	45.01 \pm 9.01	<0.001
BMI	19.64 \pm 2.03 ^{††}	20.82 \pm 3.78 ^{†,††}	22.06 \pm 3.43 ^{†,††}	21.66 \pm 3.81 ^{†,††}	18.53 \pm 3.30	<0.001

Data were analyzed using analysis of variance and Tukey multiple comparison tests. *P* < 0.05 was accepted as significant.

[†]Higher than Japanese; [‡]higher than Indian; [§]higher than Omani; [¶]higher than European; ^{††}higher than Filipino.

BMI, body mass index.

three EAT-26 subscales, and for the EDI-2 Drive for Thinness (EDI-2 DT) score in both male and female participants. The results for male subjects are shown in Table 3. On the EAT-26 dieting subscale, Filipino male participants scored significantly higher than Indian, Omani and European male subjects ($F_{(4,325)} = 12.51$, $P < 0.001$). Filipino male subjects also had a significantly higher EAT-26 bulimia and food preoccupation score than the other four groups ($F_{(4,345)} = 29.88$, $P < 0.001$), and had a significantly higher EAT-26 oral control score than Japanese and European male subjects. Indian and Omani male participants had significantly higher EAT-26 oral control scores than European male subjects ($F_{(4,342)} = 10.95$, $P < 0.001$). Filipino male participants had a higher EAT-26 total score than the other four groups ($F_{(4,318)} = 17.47$, $P < 0.001$), and European male participants had a higher EDI-2 Drive for Thinness score than the other four groups ($F_{(4,346)} = 71.72$, $P < 0.001$; Table 3).

The scores for female subjects are shown in Table 4. Filipino female participants had a significantly higher EAT-26 bulimia and food preoccupation score than Indian, Omani and European female subjects, and Indian female subjects scored higher than European female subjects in this category ($F_{(4,603)} = 14.53$, $P < 0.001$). Indian female participants also had a significantly higher EAT-26 oral control score than Omani and European female subjects ($F_{(4,607)} = 6.25$, $P < 0.001$). Indian and Filipino female subjects had significantly higher EAT-26 total scores than European female subjects ($F_{(4,562)} = 5.17$, $P < 0.001$), but European female subjects had a higher EDI-2 Drive for Thinness score compared to the other four groups ($F_{(4,621)} = 37.17$, $P < 0.001$) (Table 4).

Correlation of BMI with EAT and EDI-2 scores

Correlations of BMI with EAT-26 and EDI-2 scores in male subjects are shown in Table 5 for each nation-

Table 3. EAT-26 scores and EDI-DT scores in male participants (mean \pm SD)

	Japanese (<i>n</i> = 106)	Indian (<i>n</i> = 51)	Omani (<i>n</i> = 72)	European (<i>n</i> = 41)	Filipino (<i>n</i> = 87)	<i>P</i>
EAT-26						
Dieting	3.99 \pm 0.94	2.09 \pm 0.91	2.51 \pm 0.77	1.52 \pm 1.07	7.57 \pm 0.70 ^{‡,§,¶}	<0.001
Bulimia	0.46 \pm 0.38	0.48 \pm 0.38	1.18 \pm 0.32	0.52 \pm 0.41	4.12 \pm 0.29 ^{†,‡,§,¶}	<0.001
Oral control	1.83 \pm 0.62	3.14 \pm 0.59 [¶]	3.36 \pm 0.49 [¶]	0.57 \pm 0.63	5.00 \pm 0.46 ^{†,¶}	<0.001
Total	6.50 \pm 1.76	5.76 \pm 1.70	7.18 \pm 1.43	2.25 \pm 2.00	17.11 \pm 1.35 ^{†,‡,§,¶}	<0.001
EDI-2						
Drive for thinness	1.21 \pm 0.40	2.72 \pm 0.37	2.43 \pm 0.31	9.31 \pm 0.40 ^{†,‡,§,††}	2.72 \pm 0.29	<0.001

Data were analyzed using analysis of covariance and Bonferroni multiple comparison tests. *P* < 0.05 was accepted as significant. Age was used as a covariate.

[†]Higher than Japanese; [‡]higher than Indian; [§]higher than Omani; [¶]higher than European; ^{††}higher than Filipino.

EAT-26, Eating Attitude Test-26; EDI-2, Eating Disorder Inventory-2.

Table 4. EAT-26 scores and EDI-DT scores in female participants (mean \pm SD)

	Japanese (<i>n</i> = 305)	Indian (<i>n</i> = 79)	Omani (<i>n</i> = 63)	European (<i>n</i> = 72)	Filipino (<i>n</i> = 109)	<i>P</i>
EAT-26						
Dieting	6.92 \pm 0.67	6.31 \pm 0.79	4.90 \pm 0.91	4.05 \pm 1.03	5.71 \pm 0.99	0.168
Bulimia	1.00 \pm 0.25	1.25 \pm 0.30 [‡]	0.45 \pm 0.34	0.17 \pm 0.35	2.53 \pm 0.36 ^{‡,§,¶}	<0.001
Oral control	2.22 \pm 0.40	4.13 \pm 0.45 ^{‡,¶}	2.36 \pm 0.54	1.30 \pm 0.58	2.73 \pm 0.59	<0.001
Total	9.47 \pm 1.13	13.61 \pm 1.48 [‡]	8.48 \pm 1.64	5.98 \pm 1.83	11.75 \pm 1.76 [‡]	<0.001
EDI-2						
Drive for thinness	5.24 \pm 0.46	3.20 \pm 0.51	4.12 \pm 0.60	10.14 \pm 0.64 ^{†,‡,§,¶}	3.38 \pm 0.64	<0.001

Data were analyzed using analysis of covariance and Bonferroni multiple comparison tests. $P < 0.05$ was accepted as significant. Age was used as a covariate.

[†]Higher than Japanese; [‡]higher than Indian; [§]higher than Omani; [¶]higher than European; ^{††}higher than Filipino.

EAT-26, Eating Attitude Test-26; EDI-2, Eating Disorder Inventory-2.

ality. In Indian male subjects the oral control and total EAT-26 scores and the EDI-2 DT score were negatively correlated with BMI (oral control subscale: $r = -0.31$, $P = 0.04$; total EAT-26 score: $r = -0.35$, $P = 0.03$; EDI-DT score: $r = -0.30$, $P = 0.04$). For Omani male participants the scores on all EAT-26 subscales and the total EAT-26 and EDI-2 DT scores were negatively correlated with BMI (dieting subscale: $r = -0.42$, $P < 0.001$; bulimia subscale: $r = -0.24$, $P = 0.04$; oral control subscale: $r = -0.39$, $P = 0.001$; total EAT-26 score: $r = -0.51$, $P < 0.001$; EDI-2 DT score: $r = -0.25$, $P = 0.04$). In European male subjects the oral control and total EAT-26 scores were positively correlated with BMI (oral control subscale: $r = 0.48$, $P = 0.003$; total EAT-26 score: $r = 0.36$, $P = 0.047$).

Correlations of BMI with EAT-26 and EDI-2 scores in female subjects are shown in Table 6. In Japanese

female participants the EAT-26 oral control score was negatively correlated with BMI ($r = -0.23$, $P < 0.001$). In Indian female subjects the scores for all EAT-26 subscales and the EAT-26 total score were negatively correlated with BMI (dieting subscale: $r = -0.34$, $P = 0.004$; bulimia subscale: $r = -0.49$, $P < 0.001$; oral control subscale: $r = -0.65$, $P < 0.001$; total EAT-26 score: $r = -0.64$, $P < 0.001$). In Japanese female subjects the EAT-26 dieting subscale score and the EDI-2 DT score were positively correlated with BMI (dieting subscale: $r = 0.13$, $P = 0.02$; EDI-2 DT score: $r = 0.26$, $P < 0.001$). In European female subjects the dieting subscale score and the total EAT-26 score were positively correlated with BMI (dieting subscale: $r = 0.62$, $P < 0.001$; total scores: $r = 0.43$, $P = 0.003$), and in Filipino female subjects the EAT-26 bulimia and food preoccupation subscale score were positively correlated with BMI ($r = 0.27$, $P = 0.006$).

Table 5. Correlations of BMI with EAT-26 and EDI-2 scores in male participants

	Japanese (<i>n</i> = 106)	Indian (<i>n</i> = 51)	Omani (<i>n</i> = 72)	European (<i>n</i> = 41)	Filipino (<i>n</i> = 87)
EAT-26					
Dieting	0.01	-0.27	-0.42**	0.26	-0.02
Bulimia	0.01	-0.09	-0.24*	-0.05	0.03
Oral control	-0.16	-0.31*	-0.39**	0.48**	-0.07
Total	-0.05	-0.35*	-0.51**	0.36*	-0.04
EDI-2					
Drive for thinness	0.09	-0.30*	-0.25*	0.31	0.11

* $P < 0.05$, ** $P < 0.01$.

EAT-26, Eating Attitude Test-26; EDI-2, Eating Disorder Inventory-2.

Table 6. Correlations of BMI with EAT-26 and EDI-2 scores in female participants

	Japanese (<i>n</i> = 305)	Indian (<i>n</i> = 79)	Omani (<i>n</i> = 63)	European (<i>n</i> = 72)	Filipino (<i>n</i> = 109)
EAT-26					
Dieting	0.13*	−0.34**	0.09	0.62**	0.18
Bulimia	−0.07	−0.49**	−0.10	−0.11	0.27**
Oral control	−0.23**	−0.65**	−0.06	−0.02	0.16
Total	−0.02	−0.64**	−0.02	0.43**	0.20
EDI-2					
Drive for thinness	0.26**	0.09	0.03	−0.06	−0.07

P* < 0.05, *P* < 0.01.

EAT-26, Eating Attitude Test-26; EDI-2, Eating Disorder Inventory-2.

DISCUSSION

In the present study, eating attitudes and body dissatisfaction were measured using the EAT-26 and the EDI-2 Drive for Thinness subscale, and the results were compared among teenagers from five different cultures. Indian and European subjects were recruited in Oman, while the other participants were residing in their own countries. These results extend previous comparisons of non-Western versus Western populations living in the West¹³ or residing in their respective countries.^{14,15}

Among the male subjects, Filipinos had the most abnormal eating attitudes, including dieting, bulimic behavior and a strong need for control over their eating. Indian and Omani male subjects had stronger control over eating than European male subjects, but the European male subjects had the strongest desire for thinness among all the male participants. As BMI increased, abnormal eating patterns and drive for thinness decreased in Indian and Omani male subjects, whereas abnormal eating patterns increased with increased BMI in European male subjects.

Among the female subjects, Indian and Filipino subjects had greater dysfunction in eating attitudes compared to Europeans. Indian female subjects had bulimic eating behavior and control over eating, and bulimic eating behavior was prominent in Filipino female subjects. Similarly to European male participants, European female subjects had the strongest desire for thinness among all the female subjects. As BMI increased, there was a decrease in abnormal eating patterns in Indian female subjects and in control over eating in Japanese female subjects. Abnormal dieting in Japanese and European female subjects, bulimic behavior in Filipino female sub-

jects, and a drive for thinness in Japanese female subjects were found to increase with increased BMI.

A drive for thinness was most prominent among the European male and female participants. Since the 1960s thinness and fragility have been considered to indicate beauty and success and this trend has been perpetuated by mass media and the multimillion-dollar diet industry.^{8,22} Therefore, teenagers living in Western societies have tended to be preoccupied with slimness, and this may be reflected in the high scores of European participants on the EDI-2 Drive for Thinness subscale. However, assessment with the EAT-26 showed that abnormal eating attitudes were more prominent in Indian and Filipino subjects than in Europeans. These findings are consistent with previous studies.^{8,23} However, the higher scores for eating pathology may be artifacts due to the style of the questionnaire causing a particular population to respond inadvertently with answers giving higher scores,^{15,24} and more studies are needed to address this issue.

Although abnormal eating attitudes were prominent among Indian, Omani and Filipino participants, their drive for thinness was not striking. Previous studies have shown that female subjects from non-Western countries are less likely to have a fear of fatness.^{25–29} Furnham and Baguma suggested that negative attitudes to body fat may be less common in female subjects in non-Western countries,²⁵ and Hodes *et al.* reported that mothers of adolescents in non-Western countries express more positive attitudes regarding the need for children to gain weight.²⁶ Tareen *et al.* argued that the relational view of self in Asian cultures is more attuned to self-denial, and less to instrumental and individualistic ideas; therefore, teenagers may hesitate to express indi-

vidual desires.²⁷ In addition, Lee *et al.* suggested that non-fat-phobic anorexia nervosa patients are predominantly characterized by somatic complaints such as epigastric pain, a feeling of abdominal distension, diminished appetite, or an inability to consume adequate amounts of food.^{28,29} That is, non-fat-phobic groups may use a different language of distress when they communicate their suffering to others.

The more disordered eating behavior of Filipino subjects compared to Europeans may be due to the Philippines following predicted trends associated with demographic changes, economic development and nutritional transitions. For example, it has been suggested that urban college women in the Philippines are likely to eat with non-hunger-based motivations.³⁰ Such motivations might include environmental cues (an abundant presence of appetizing food), social cues (eating out with family and friends), or emotional cues (loneliness, boredom, anxiety, frustration, depression etc.). Eating in the absence of hunger has been associated with dysfunctional eating patterns such as binge eating, bulimic eating attitudes, and higher caloric intake, and these may be reflected in the abnormal eating patterns in Filipino female subjects in the present study.

Regarding the disordered eating behavior of Indian subjects, we suggest that the tendency for control over eating may arise for religious reasons.^{31,32} Hindu people in India (82% of the population) follow a vegetarian diet based on religious belief, and some studies have reported that vegetarianism may be associated with abnormal eating attitudes and behavior.^{31,32} Because Hindus choose vegetarianism due to religious belief, rather than to avoid fat or energy intake, it is possible that the stronger the religious belief, the more likely it is that people will engage in imbalanced or abnormal eating habits, which may in turn lead to a low BMI. This may be reflected in the high scores on the EAT-26 oral control subscale and the negative correlation between BMI and drive for thinness or abnormal eating behavior. We note that BMI in female subjects is normally positively correlated with body dissatisfaction and abnormal eating behavior.³³

There were no significant differences in EAT-26 scores or EDI-2 Drive for Thinness scores between Japanese female participants and those in the other four groups. A positive correlation was found between BMI and the tendency to diet or the drive for thinness in Japanese participants. Therefore, abnor-

mal eating attitudes or a drive for thinness might not be prominent in Japanese female subjects because their average BMI was relatively low; that is, they were satisfied with their bodyweight or body shape and did not have a need for dieting or a drive for thinness.

Oman is a developing, rapidly acculturating country in which individuals have both traditional and Western values. The present results show no correlation between BMI and abnormal eating behavior or drive for thinness in Omani female participants. These subjects had scores that were intermediate among all five female groups, in contrast with a previous study in Iran, a region of Islamic culture similar to Oman, in which female adolescents had high EAT-26 scores.³⁴ The lower average age of the present participants might explain this discrepancy. Studies focused on eating behavior in Oman are rare and more work is needed to provide further insights. The present results also showed a correlation between BMI and abnormal eating behavior or drive for thinness in Omani male subjects. This result may indicate that male subjects have more adjustment difficulties in a climate of emerging acculturation and modernization, which may manifest in either culture-specific or culture-reactive idioms of distress, including disordered eating.³⁵

Abnormal eating attitudes were prominent in Filipino male subjects, which is consistent with a study by Yates *et al.*, who hypothesized that short stature, lower social status, or slower acculturation lead to a risk for low self-esteem and disappointment in romantic relationships; this, in turn, could generate a sense of disenfranchisement and a heightened desire to lose weight to make the body more pleasing to women.³³

There are several limitations to the study. First, data were based on self-report, rather than direct observation, and participants may not have provided accurate information about critical variables such as height and weight. Therefore the present findings should be viewed with caution.³⁶ Second, the Japanese participants were older than the other four groups, and although ANCOVA controlling for age was used, further studies of participants of the same age are needed. Third, although established translated questionnaires were used, there is a possibility that the utility of the translated items could be hampered by subtle linguistic and conceptual misunderstandings, because different cultures might attach different meanings to words or sentences that might not have been apparent during translation and piloting.

Finally, some participants were recruited in Oman while the rest were recruited in their own countries, and it is possible that the results might differ in a comparative study of participants living in their respective countries.

In conclusion, participants from India, Oman and the Philippines had similar or more disturbed eating attitudes compared to those from Western countries and Japan, although the desire for thinness among Indian, Omani, and Filipino subjects was not as strong. The relationship between BMI and eating attitudes or fat phobia in Indian, Omani and Filipino participants differed from that in Western or Japanese subjects.

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