

# Presence and Severity of Anorexia and Bulimia Among Male and Female Omani and Non-Omani Adolescents

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## ABSTRACT

**Objective:** The population of Oman is a heterogeneous mix of nationalities providing a natural setting for studying the cross-cultural differences in the presence and severity of eating disorders as well as an opportunity for evaluating the performance of measurement instruments for these disorders. **Method:** Disordered eating screening instruments (the Eating Attitude Test and the Bulimic Investigatory Test) were administered to Omani teenagers, non-Omani teenagers, and Omani adults. **Results:** On the Eating Attitude Test, 33% of Omani teenagers (29.4% females and 36.4% males) and 9% of non-Omani teenagers (7.5% of males and 10.6% females) showed a propensity for anorexic-like behavior. On the Bulimic Investigatory Test, 12.3% of Omani teenagers showed a propensity for binge eating or bulimia (13.7% females and 10.9% males). Among the non-Omani teenagers, 18.4% showed a tendency toward bulimia, with females showing a slightly greater tendency than males. In contrast, barely 2% of Omani adults showed either a presence of or a severity of disorderly behavior with food. **Conclusion:** Omani teenagers scored significantly higher than other ethnic groups and Omani adults. This finding is discussed in the light of emerging evidence from many parts of the world suggesting that cultural transition, compounded by demographic constraints, plays a significant role in abnormal eating attitudes. *J. Am. Acad. Child Adolesc. Psychiatry*, 2002, 41(9):1124–1130. **Key Words:** cross-cultural, anorexia, bulimia, Oman, Arab-Islamic.

Disordered eating has traditionally been viewed as a disease of the more prosperous industrial countries. It is now becoming recognized in many other parts of the world (Lee and Lee, 2000; Oyewumi and Kazarian, 1992), though different in nature, severity, and frequency from that seen in the West and Japan. Emerging data suggest that younger women in developing countries may be moving toward a Western body-image dissatisfaction,

which is already evident in their peers in the industrialized world (Ford et al., 1990; Nasser, 1988; Soomoro et al., 1995). Similarly, comparative studies of non-European migrants and their children living in the West suggest that cultural exposure may cause immigrants from cultures where thinness is not highly valued to adopt Western positive valuations of thinness (Ford et al., 1990; Gunewardene et al., 2001; Nasser, 1988). However, there is a lack of studies examining ethnic differences within developing countries in disordered eating despite the fact that certain values and practices intrinsic to non-Western cultures might be important for the development of disordered eating (Littlewood, 1995; Mukai et al., 1994). The high variability of incidence found across very different populations and climates suggests that sociocultural or ecological factors play a substantial role in the etiology of eating disorders (DiNicola, 1990; Littlewood, 1995). Mumford and Whitehouse (1994) have found that among Asian girls a propensity toward disordered eating was related more to a traditional rather than a Westernized cultural orientation. This is possibly due to stress caused by cultural adjustment rather than to the influence of Western cultural values of feminine beauty. With the shift from infectious and nutritional disorders

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to chronic lifestyle disorders in countries whose economies and culture are in transition, it has yet to be established whether dieting in such countries is caused by a changing lifestyle. In other words, it is yet unclear whether dieting in the traditional societies is due to newly acquired attitudes toward food consumption or simply is an inherent part of globalization (Fedoroff and McFarlane, 1998). These uncertainties cast doubt on the notion that disordered eating is primarily a "disease" of the developed world (Halmi, 1996). The question therefore remains as to whether dieting is a culture-bound or a culture-reactive phenomenon (DiNicola, 1990).

Numerous screening instruments have been developed or validated to facilitate easy identification and to measure the severity of eating pathology in various linguistic and cultural groups (Al-Subaie et al., 1996; Lee et al., 1998; Srivasan et al., 1998; Stephens et al., 1999). As eating disorders are protean and without central features (Littlewood, 1995), such comparisons are likely to be inadequate (Weiss, 1995). The gold standard for eating pathology often derived from the *DSM-IV* (American Psychiatric Association, 1994) tends to emphasize dieting. This approach appeared to be problematic in cross-cultural studies, where it was observed that there was less emphasis on dieting (Weiss, 1995). Some authors (e.g., Littlewood, 1995) have called for the development of a culturally sensitive measure of eating pathology, and indeed such efforts have been made (Srivasan et al., 1998). Although such attempts may be culturally and ethnographically appropriate, screening instruments such as these are likely to hamper much needed international comparison in the light of emerging evidence that eating pathology is becoming a universal problem (le Grange et al., 1998; Lee and Lee, 2000; Oyewumi and Kazarian, 1992).

Studies of Arab cultures suggest that in the past, thinness was socially undesirable whereas plumpness was regarded as a symbol of fertility and womanhood (Abou-Saleh et al., 1998). Our understanding of eating disorders among Omani populations is limited, although it has been observed that some patients who have sought treatment at Sultan Qaboos University Hospital in Oman had eating disorders (Al-Adawi et al., 1999). Studies designed to investigate eating habits and behavior in developing countries like Oman could add significantly to our knowledge of eating disorders and substantiate the emerging view that eating disorders are becoming a global challenge.

An interrelated aim of this study was to survey eating attitudes in Oman. Oman is an Arab-Islamic country

that lies on the eastern side of the Arabian peninsula. It is bordered on the east by the Indian Ocean and on the west by Saudi Arabia and the United Arab Emirates. Oman is mainly desert with the population centers along the coast. Due to its isolation and because of the mainly desert terrain, Oman developed its own history and sub-culture (Al-Adawi et al., 1997). There are about 1.4 million Omanis with 0.6 million expatriate workers from all continents of the world (Statistical Yearbook, 2000).

Many studies have examined dieting behavior in adolescent girls. However, given the fact that eating disorders also affect boys (Ricciardelli et al., 2000; Strober et al., 2001) and adults (Nakamura et al., 1999), this study examined disordered eating among adolescents and adults of both sexes. The population of Oman is a heterogeneous mix of nationalities, which provides a natural setting for studying the cross-cultural differences in eating behavior as well as an opportunity for evaluating the performance of measuring instruments for eating disorders.

## METHOD

A sample of Omani students was recruited from three state schools in the Muscat metropolitan area. These schools were selected because they drew students from a cross-section of Omani society. A second sample, non-Omani students, was drawn mostly from American, British, and Western European adolescents residing with their parents who worked in various multinational and government agencies in Muscat. A third sample, Omani adults, was recruited from Sultan Qaboos University and the towns around the university. This group represented a cross-section of the diverse sociocultural mix in Oman.

A brief explanation of the study was given to all participants, and they were assured that the data would be confidential. Their oral consent was obtained. Invitations were extended to the students, who were interviewed during class time and instead of a lecture were asked to give their time toward this study. It was explicitly stated that their responses would have no influence on their grades or examination performance. The students were asked not to discuss the questionnaire among themselves to avoid peer influence. The questionnaire for Omani adults was administered in the identified areas that have been subjected to various health education programs as part of community health development projects.

Individuals with known sensory or cognitive impairments that could affect proper completion of the questionnaire were excluded from the sample. The study was approved by both the Ethics Committee for Human and Clinical Research and Medical Research Committee (Project No. 96) of the College of Medicine, Sultan Qaboos University.

## Assessment Measures

The two assessment measures, the Eating Attitude Test (EAT) (Garner and Garfinkel, 1979) and Bulimic Investigatory Test (BITE) (Henderson and Freeman, 1987), were translated by experienced staff members into Arabic by using a method of back-translation suggested by Ko and Cohen (1998) to make them dialectically adaptive to an Omani sample. A conscious effort was made to ensure conceptual, semantic, and technical equivalence between the source measures and the target measures. The translated versions of the assessment tools

were given to Omani subjects, whereas non-Omani students consisting mostly of Caucasian expatriates attending English-medium/speaking schools in Muscat, the capital of Oman, were given the original English version of the EAT and BITE.

**Eating Attitude Test.** The EAT is a 40-item self-report that measures symptoms associated with anorexia nervosa (Crisp, 1970). The EAT has been validated in various cross-cultural studies (Lee et al., 1998; Stephens et al., 1999). In a majority of studies, its performance has been found to be acceptable, including its shorter version (EAT-26), in the Arab world (Al-Subaie et al., 1996; Nasser, 1994).

The EAT was scored using the Garner and Garfinkel (1979) system in which the three categories at the nonanorexic end of the 6-point Likert scale scored 0; the other categories scored 1, 2, and 3 for each question. The scores on the individual questions were summed up to obtain a composite score. As in Al-Subaie et al. (1996), subjects who scored 30 or greater on the composite score were considered to have the propensity toward anorexic-like attitudes and behavior.

**Bulimic Investigatory Test.** The BITE is a 33-item self-report that measures both the symptom and severity of bulimia nervosa (Keel et al., 1998). The BITE has been validated in various cross-cultural studies (Bhugra et al., 2000). Its application in cross-cultural samples has been shown to be acceptable (Nobakht and Dezhkam, 2000).

The BITE was scored using the Henderson and Freeman (1987) system in which the three categories at the nonbulimic end of the 6-point Likert scale scored 0; the other categories scored 1, 2, and 3 for each question. The scores on the individual questions were summed up to obtain a composite score. A score of 25 or higher on the composite score suggests a bulimic disorder in accordance with previous established specificity and sensitivity in the Arab world (Ghazal et al., 2001).

## RESULTS

Table 1 describes the cultural grouping of the participants consisting of 106 Omani teenagers (age = 15.12 ± 0.58 years), 87 non-Omani teenagers from diverse industrialized countries of the West (age = 15.10 ± 0.48 years), and 100 Omani adults (age = 38.71 ± 5.43 years).

The averages of body mass index (BMI) for the Omani teenagers and the non-Omani teenagers were 21.91 ± 4.12 and 20.68 ± 3.32, respectively. The mean BMI for the adults was 27.42 with a standard deviation of 2.73. BMI was significantly different between the two teenage groups ( $p = .028$ ).

Table 2 shows the distribution of both anorexia nervosa and bulimia in our three samples. The prevalence of anorexia nervosa among the adult group was only 2%

**TABLE 1**  
Ethnicity and Gender of Omani and Non-Omani Teenagers and Omani Adults

	Female Subjects ( <i>n</i> = 148)		Male Subjects ( <i>n</i> = 145)		Total ( <i>N</i> = 293)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
	Omani teens	51	34.5	55	37.9	106
Non-Omani teens	47	31.8	40	27.6	87	29.7
Omani adults	50	33.9	50	34.5	100	34.1

and of bulimia was also only 1%. The adult group scored on average 18.5 ± 5.3 on the composite EAT score and 16.5 ± 4.4 on the composite BITE score. These values are low and indicate that anorexia nervosa and bulimia are rare among adult Omanis. The rest of the discussion is based on only the teenage groups.

Among Omani teenagers, 33.0% (35/106) showed a propensity for anorexic-like behavior in the EAT (Table 3). The mean score for this group was (25.08 ± 5.84). In terms of gender, 29.4% (15/51) of females and 36.4% (20/55) of males showed disordered eating patterns. In the group of foreign teenagers, 9.2% (8/87) showed anorexic-like behavior. Their mean EAT score was 22.99 ± 6.02. About 7.5% of males and 10.6% of females showed disordered eating patterns. The proportions indicate that Omani teenagers are significantly more susceptible ( $p < .001$ ). The average of the EAT composite score for the Omani teenagers was significantly higher ( $p = .016$ ) than that for the foreign teenagers. The results suggest that the Omani teenagers are 4.9 times more likely to develop anorexic-like behavior than the non-Omani teenagers. The level of the EAT among Omani males is the same as among females ( $p = .392$ ). When controlled for the effect of BMI, there was no significant difference between the Omani and non-Omani teenagers when their BMI was greater than 25 or less than 18.5. However, there was a significant difference between the two groups when the BMI was between 18.5 and 25 ( $p < .001$ ) with respect to the EAT (Table 3).

**TABLE 2**  
Bulimic Investigatory and Eating Attitude Test Scores by Origin and Gender

	Bulimic Investigatory Test		Eating Attitude Test	
	Female Subjects ( <i>n</i> = 148)	Male Subjects ( <i>n</i> = 145)	Female Subjects ( <i>n</i> = 148)	Male Subjects ( <i>n</i> = 145)
Omani teens	20.76 ± 3.50	20.87 ± 3.26	24.57 ± 5.78	25.55 ± 5.91
Non-Omani teens	19.09 ± 4.03	20.85 ± 4.35	22.60 ± 5.71	23.54 ± 6.41
Omani adults	17.22 ± 4.21	15.82 ± 4.61	18.46 ± 5.52	18.54 ± 5.14

Note: Values represent mean ± SD.

**TABLE 3**  
Distribution of EAT Score by Nationality and BMI

BMI	EAT	Nationality		Total	<i>p</i> Value
		Omani	Non-Omani		
>25	<30	12	9	21	.248
	≥30	9	2	11	
	Total	21	11	32	
18.5–25	<30	43	47	90	.001
	≥30	23	4	27	
	Total	66	51	117	
<18.5	<30	16	23	39	.638
	≥30	3	2	5	
	Total	19	25	44	

Note: EAT = Eating Attitude Test; BMI = body mass index.

Among the Omani teenagers, 12.3% (13/106) showed a propensity toward binge eating or bulimia based on the BITE (Table 4). The mean score for this group was  $20.82 \pm 3.36$ . In terms of gender, 13.7% (7/51) of females and 10.9% (6/55) of males showed bulimic-like disordered eating patterns. Among the non-Omani teenagers, 18.4% (16/87) showed a tendency toward bulimia. The average composite score of all these teenagers was  $19.90 \pm 4.25$ . The proportion of females, 13.5% (7/51), was slightly greater than that of males, which was 10.9% (6/55). An Omani was only 0.62 times as likely as to show signs of bulimia than a non-Omani. This odds ratio is not significant. However, non-Omani males were significantly

**TABLE 4**  
Distribution of Eating Attitude Test and Bulimic Investigatory Test Over Sex and Nationality

	No. With Eating Pathology	% With Eating Pathology
Eating Attitude Test		
Omani		
Male	20	36.4
Female	15	29.4
Total	35	33.0
Non-Omani		
Male	3	7.5
Female	5	10.6
Total	8	9.2
Bulimic Investigatory Test		
Omani		
Male	6	10.9
Female	7	13.7
Total	13	12.3
Non-Omani		
Male	13	32.5
Female	3	6.4
Total	16	18.4

more likely to show signs of bulimia than females (odds ratio 7.06 with a 95% confidence band of 1.84–27.07).

## DISCUSSION

The present study suggests the overall prevalence of abnormal eating attitudes and behavior among Omani school children to be 33.0% for anorexia as elicited by the EAT and 12.6% for bulimic tendencies as elicited by the BITE. This is in line with other studies (le Grange et al., 1998; Nasser, 1988), but whereas previous studies in the Arab world focused solely on young females (Al-Subaie et al., 1996; Nasser, 1994), the present study also examined eating behavior among males and adults. Our data revealed that 53.5% (23/43) of the cases identified as having a propensity toward eating disorder were males. This represented almost 24.2% (23/95) of all males in the total sample. This finding supports the broadly emerging consensus that eating disorders are not restricted to females (Field et al., 1999; Strober et al., 2001).

This result also unexpectedly revealed a sex difference in possible subclinical cases of eating disorders. The prevalence of both anorexia nervosa and bulimia was similar for both males and females. However, in the group of non-Omanis, males were more prone to bulimia than females. On the other hand, for reasons that will be discussed below, eating disorders appear to be rare in Omani adults as only 2% of adult participants showed propensities toward eating disorders.

The second part of the present study was to examine the hypothesis that disordered eating varies between ethnic groups. Previous studies have examined cross-ethnic differences (le Grange et al., 1998; Stephens et al., 1999), but our study differs significantly in its approach: students from Western countries, studying in Oman, were compared with their Omani counterparts within Oman. The population composition in Oman allows sampling across several national and cultural backgrounds within the country. In this sense, the study has an element of ecological validity (Brunswick, 1943). Even though the nationality composition of the foreign teenagers is different from that of other studies, our conclusions are similar (le Grange et al., 1998): Omani students have a higher percentage of positive scores on the EAT compared with non-Omani students. The reverse was observed for positive scores on the BITE. This study, along with emerging epidemiological studies, suggests that the rates of eating disorders in developing countries are fluctuating in a complex way and

are rapidly outpacing those in industrialized countries (Bhugra et al., 2000; Wassenaar et al., 2000).

It is interesting to speculate on the factors that could account for the rising tide of disordered eating in a developing country like Oman. First, is it possible that the rapid population growth in particular age groups that are vulnerable to adjustment difficulties is contributing to the present predicament? In the case of Oman, its population structure is like a pyramid with a large young base. The population has been growing since the late 1970s at an annual rate of 4.86% (Statistical Yearbook, 2000), one of the fastest in the world, making competition for social and occupational roles more intense and leaving many failed individuals behind (Easterlin, 1980). With such a demographic trend, it is likely that many individuals are carrying a greater risk of developing various adjustment difficulties (Kleinman and Cohen, 1997), including developing disordered eating.

Second, although Omanis, like other cultural groups in developing countries, are thought to have beliefs that protect them against developing eating pathology (Murthy, 1998), such culturally sanctioned beliefs appear to be eroding with the rising tide of acculturation and globalization (Wassenaar et al., 2000). Oman, once thought to be the "Tibet of Arabia" (Chatty, 2000), has seen oil revenues reshaping its landscape and, in the words of Smith (1988, p. 297), "money from oil has brought the Omanis progress through development that took a thousand years in Europe in less than 20 years." Melikian (1988) has suggested that such changes have brought in their wake a disruption of interpersonal relationships; tribal identification has given way to a class system based on wealth, individualism has emerged, and the value of education has replaced the value of the family. Without a reference group or community to identify with, it is thought that some individuals may use eating as a coping mechanism (Katzman and Lee, 1997). Oman might be a typical developing, rapidly acculturating country where individuals are thought to juggle between two opposing cultural influences precipitated by economic and sociocultural transition (El-Islam, 1983). If a transitional state of values and norms do cause psychosocial stress within the Omani community, then certain psychosocial processes would appear to induce individuals to embrace disordered eating attitudes and behavior as coping mechanisms. In a paternalistic society such as Oman, it is likely that males are worse off in the climate of emerging acculturation and modernization. Corollaries to this are cases where women have experienced emancipation due to education

(Chatty, 2000). Men in this climate are therefore relegated to juggling between two opposing cultural influences precipitated by economic and sociocultural transition (Al-Adawi et al., 2001; El-Islam, 1983). One implication of this is that males are likely to have more adjustment difficulties, which may manifest in either a culture-specific or a culture-reactive idiom of distress such as disordered eating (DiNicola, 1990). However, one conspicuous finding inconsistent with this view is that eating disorders have also been found in those societies where rapid modernization has not been so pervasive (Littlewood, 1995; Mumford and Whitehouse, 1994). Further studies are needed to examine psychosocial correlates of eating disorders in Oman.

Finally, Littlewood (1995) has suggested that eating disorders are camouflaging earlier patterns of communicating distress in various communities. He postulates that the emergence of "new" idioms of distress is supplanting previous cultural forms of communication, such as spirit-possession and conversion disorder (Al-Adawi et al., 2001). In other words, the present emerging eating disorders are like the "old wine" of psychosocial stresses manifesting in the new bottle of idiom of distress. This study is congruent with this view; patients seeking care in primary health centers were found to frame their idioms of distress in "psychological" rather than traditional somatic metaphors. Although there are no adequate statistical studies to indicate the incidence of psychological distress in Oman, it is clear that psychological disorders are not a minor problem. Many types of mental disorders encountered in other countries have been observed in Oman (Al-Adawi et al., 2001; Al-Sharbati et al., 2001).

Although eating disorders have been described as a possible "culture-bound syndrome" with roots in Western cultural values and conflicts, current clinical reports and epidemiological observations suggest that eating disorders occur in many parts of the world. With historical records suggesting that eating disorders may have existed for centuries, it appears that eating disorders fluctuate in a complex way and might not be a "pet mental disturbance of modern affluent cultures" as previously suggested (Swartz, 1985). Emerging evidence from many parts of the world suggests that cultural transition compounded by demographic constraints plays a significant role in abnormal eating attitudes.

#### Limitations

Some of the limitations of the current study need to be highlighted. Data collection by questionnaire is not

without problems (Al-Adawi et al., 2000). Although some structured questionnaires are easy to apply, studies have found that different cultures attach different meanings to life and thus perceive reality differently (Al-Adawi, 1993). Although all the items of the screening instrument were translated to achieve conceptual equivalence in the Omani Arabic dialect, its utility could still be hampered by certain subtle linguistic and conceptual misunderstandings that might not have been apparent during translation and piloting (King and Bhugra, 1989). On the other hand, if Omanis scored differently because of cultural differences, then variability between the Omani adult and adolescent groups would be blurred. This has not been the case, however, at face value; performance of the present subjects can be attributed to genuine differences between the groups. Second, although attitude determines for each individual what he will see and hear, think, or do, the question remains whether these attitudes and behavior toward eating would generalize into a subclinical eating pathology in a "real" situation.

As part of a two-phase epidemiological survey, EAT and BITE are often validated by comparing their results with those of a semistructured interview (Dunn et al., 1999). Their properties have been shown to be acceptable in some studies (Al-Subaie et al., 1996) and not in others (King and Bhugra, 1989; Rathner and Messner, 1993). The gold standard for eating disorder is often derived from the American *Diagnostic and Statistical Manual* (American Psychiatric Association, 1994). Some authors have argued that because psychopathology is unique to each culture, the application of these instruments across cultures can be questionable (Littlewood, 1995; Weiss, 1995). Even in Western populations where these instruments were originally designed to be utilized, there appear to be inconsistencies in their application. On one hand, both BITE and EAT have been used to diagnose and measure the severity of eating disorder; on the other, both of them have been employed for case identification in nonclinical populations. Therefore, it may require a two-phase epidemiological survey to study the dual role of these instruments.

In the present study, significant differences were observed in the EAT between the groups of Omani and non-Omani adolescents whose BMI were in the "normal" range (18.5 and 25). This, in turn, could limit the generalizability of the finding. Despite this, the finding could still be deemed reliable because of two interrelated reasons. First, studies from different parts of the non-Western world have

suggested that "fear of fatness" as the sine qua non of contemporary Western anorexia nervosa, but this is largely absent in developing countries such as Oman (Al-Adawi et al., 1999; Littlewood, 1995). It is plausible therefore that Omani adolescents have differed from their Western counterparts because of the absence of such preoccupation. Second, it is also possible that distress is perceived and communicated differently in Oman than in Western culture (Srivasan et al., 1998). However, it is not clear why the differences should occur in subjects with normal BMI rather than those with a propensity toward eating disorder, specifically those who were under/over weight. Perhaps in subjects with abnormal BMI, such cultural constraints have already been eroded with the "reality" of the distress. Considering that distress and stress are often expressed in sociocultural contexts (Kleinman and Cohen, 1997; Srivasan et al., 1998), future studies ought to establish psychometric properties of the instruments on Omani samples as well as developing culture-specific assessment instruments using a "local" gold standard.

#### Clinical and Psychosocial Implications

The results of this study have direct implications for cross-cultural research, diagnosis, and clinical practice as well as the formulation of preventive strategies. Although further prospective work needs to be done to examine the sociocultural correlates of eating disorders, the idea that eating disorders are uniquely Western may be considered questionable because the present study indicates an existence of such disorders in Arab-Islamic adolescents of Oman. A more comprehensive inquiry into eating disorders among adolescents in Oman may be worthwhile. Health planners in the country ought to allocate more time and resources for adolescent health care, bearing in mind the population structure of Oman with a preponderance of youths at the base. Presently, the services for people with eating disorders are handled in the psychiatric hospitals. These services are often limited to custodial care for severely dysfunctional patients. The stigma of mental illness and the issues of secrecy, denial, and lack of motivation on the part of the sufferers (Wlodarczyk-Bisaga and Dolan, 1996) make it unlikely that eating disorder as a "disease" entity will be openly recognized among patients and the public at large. This means the conditions in Oman might remain unacknowledged like other instances of the "epidemic of silence" in developing countries (Ainsworth and Teokul, 2000). Therefore, health education should be instituted to recognize and to fur-

ther assess the magnitude of the problem in the country as well as devising culturally sensitive interventions.

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