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Research report

Risk of disordered eating attitudes among adolescents in seven Arab countries by gender and obesity: A cross-cultural study ☆

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ABSTRACT

The objectives were to discover the prevalence of disordered eating attitudes (EAs) among adolescent males and females, and the association of obesity with EA in seven Arab countries. A multistage stratified sampling technique was used to select secondary students aged 15–18 years from cities in Algeria, Jordan, Kuwait, Libya, Palestine, Syria and Sharijah Emirate (United Arab Emirates). The total sample was 4698 (2240 males and 2458 females). The Eating Attitudes Test (EAT-26) was used to measure those at risk of disordered EA. Obesity was calculated according to the International Obesity Taskforce criteria. Participants were grouped into two categories, non-obese and obese (overweight and obese). The risk of disordered EA was twice as high among females as in males in Jordan, Libya, Palestine and Syria. Kuwaiti adolescents (males and females) showed higher prevalence of disordered EA than their counterparts in other countries. The risk of disordered EA among obese adolescents was two to three times higher than that of non-obese adolescents, in both genders. Excepting Kuwaiti females and Palestinian males. The association of obesity with disordered EA was statistically significant. This study highlighted the magnitude of the risk of disordered eating attitudes among both male and female adolescents in Arab countries and identified the need for programmes to prevent and control these disorders in the Arab region.
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Introduction

Disordered eating attitudes (EAs) and behavior, especially among adolescents and young women, have become an issue of worldwide concern (Chang, Lin, & Wong, 2011). The growing prevalence of obesity among adolescents in most countries in the world could be a contributory factor in the spread of this disorder among this age group. Childhood obesity is linked with an increased risk of disordered eating, including eating attitudes, weight concern, dieting, binge eating, anorexia, and bulimia (Goldschmidt, Aspen, Sinton, Tanofsky-Krajj, & Wilfley, 2008). Several studies suggested a positive association between obesity and disordered eating among adolescents and young women (Field et al., 2003; Killen et al., 1996; Patton, Selzer, Cofley, Carlin, & Wolfe, 1999). Nevertheless, there are many social, cultural, and psychological factors associated with eating attitudes and behaviors. Nutrition and cultural transition, social changes, Westernization, family environment, exposure to mass media, and globalization all have a significant impact on eating attitudes and behaviors, especially among young people (Eapen, Mobrouk, & Bin-Othman, 2006).

The rapid socio-economic changes in most Arab countries, particularly since the 1990s, have shifted the attitudes and behaviors of adolescents to more Western values such as thinness as an ideal body shape (Rasheed, 1998). Therefore, the concept that Arab cultures are protected from eating disorders is far from reality (Nasser, 1986; Rasheed, 1998). Disordered eating attitudes in adolescents were reported in many Arab countries, such as Jordan (Mousa, Al-Domi, Mashal, & Jibri, 2010), Lebanon (Afifi-Soweid,

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Ktelig, & Schediac-Rizkallah, 2002), Saudi Arabia (Al-Subaie, 2000), and the United Arab Emirates (Eapen et al., 2006). In Oman, for example, Al-Adawi et al. (2002) found that 33% of Omani adolescent girls showed a tendency towards anorexic behavior. There is some debate, however, as to whether the tendency in the various cultures is a general one or if each culture has its own unique factors which lead to the occurrence of these disorders. Studies have shown that young people exposed to Westernization in developing countries are more at risk of disordered eating than those who are not exposed, despite their cultural background (Nasser, 1986; Viernes et al., 2007).

Most studies in the Arab world have focused on disordered eating attitudes in adolescent girls (Al-Subaie, 2000; Eapen et al., 2006; Killen et al., 1996) or girls at university (Nasser, 1986; Thomas, Khan, & Abdulrahman, 2010), but not on adolescent males. Only one study in Oman included both genders (Al-Adawi et al., 2002). This trend is found worldwide, because females are more prone to eating disorders than males (Hsu, 2002). We assumed that owing to rapid socio-cultural changes in Arab countries, the prevalence of disordered eating attitudes among adolescents is relatively high among both males and females. Therefore, the aims of this study were to find out (1) the prevalence of disordered eating attitudes among adolescent males and females, and (2) the association of obesity with these eating attitudes in seven Arab countries.

Methods

Participants and sampling

This cross-sectional study is part of the ARAB-EAT Project, which aims to study obesity, eating attitudes, and barriers to healthy eating and physical activity among adolescents in seven cities in Arab countries, namely Algeria, Jordan, Kuwait, Libya, Palestine, Syria, and Sharijah (one of the seven United Arab Emirates). The capital of each country was selected, except for Palestine and the UAE where Al-Khalil and Sharjah were selected respectively. These capitals are Algiers, Amman, Damascus, Kuwait, and Tripoli, for Algeria, Jordan, Syria, Kuwait, and Libya, respectively. Public school students aged 15–18 years were the target group in this study. Sample size was calculated with a 5% margin of error and 95% confidence intervals.

A multistage stratified sampling technique was used to select the students. To ensure the representation of various geographical areas and social classes, each city was first divided into administrative regions, which varied from two to five regions, depending on the country. The schools were grouped into boys' and girls' secondary schools. Only government schools were included in this study. The schools were then selected proportionally by a simple random method from each administrative region. In the second stage, the classes were then selected for each secondary level (levels 10–12) in each school by a simple random method. The total number of students selected in each country depended on the number of students in each class and the number of schools included.

A standardized protocol was prepared and distributed to all participating centers in the seven Arab countries, to ensure the accuracy and consistency of the methodology (sampling procedure, measurements and collection of data). Each center was responsible for training its research team and obtaining ethical approval from the Ministry of Education or other authorities. The total sample size in the seven Arab countries was 4698 (2240 males and 2458 females), ranging from 459 adolescents in Algeria to 1062 adolescents in Syria. Owing to difficulty in obtaining permission from one administrative region in Algeria, the sample size represented two administrative regions rather than three regions. Data were collected between March 2010 and January 2011.

Anthropometric measurements

Weight and height were measured by a standard procedure (Gibson, 2005). All measurements were performed by trained nutritionists or physical education teachers. Body weight was measured to the nearest 100 grams with calibrated portable scales. Height was measured to the nearest centimetre with a calibrated measuring rod while the subject was in full standing position. All measurements were taken with minimal clothing and without shoes.

Questionnaire

The Eating Attitudes Test (EAT-26) was used to measure those at risk of disordered eating attitudes (Garner, Olmsted, Bohr, & Garfinkel, 1982). The EAT-26 test has been validated and used in several countries and among various age groups. In this study, we used the Arabic version of EAT-26, which was validated by Al-Subaie et al. (1996), and used among adolescents aged between 12 and 18 years and women in some Arab countries such as Egypt, Jordan, Lebanon, Saudi Arabia, Oman, and the United Arab Emirates (Al-Subaie, 2000; Eapen et al., 2006; Killen et al., 1996; Nasser, 1986; Thomas et al., 2010). The EAT-26 consists of 26 statements referring to various eating attitudes. Each statement uses a six-point Likert-type scale ranging from 'always' to 'never'. A score of three points was given for 'always', two for 'usually', one for 'often', and none for 'sometimes', 'rarely' and 'never'. The participant was considered at risk of disordered eating attitudes and behaviors, and needed to be evaluated further by a mental health professional, when the total score was 20 points or above. The EAT-26 test assesses a broad range of symptoms such as dieting, eating attitudes, weight concern, binge eating, anorexia, and bulimia.

Obesity reference

Obesity was calculated according to the International Obesity Taskforce (IOTF) reference standard (Cole, Bellizzi, Flegal, & Dietz, 2000), for each age and gender. The IOTF cut-off values represent cut-offs of a Body Mass Index of 25 and 30 at the age of 18 year for overweight and obesity respectively. The participants were grouped into two categories: non-obese and obese (which included overweight and obese students).

Data analysis

Data were first entered in an Excel file and then sent to the central processing station (Bahrain), along with the questionnaires, for cleaning the data and analysis. SPSS statistical package version 15 was used in the analysis. Odds ratios with 95% confidence intervals were used to determine the risk of positive eating attitudes by gender and by obesity status.

Results

The prevalence and risk of disordered eating attitudes (EAs) among adolescents by gender in seven Arab countries are presented in Table 1. In general, the prevalence of disordered eating attitudes ranged from 13.8% to 47.3% among males, and from 16.2% to 42.7% among females. The risk of disordered EA among females was twice as high as that among males in Jordan, Libya, Palestine, and Syria, and the difference was statistically significant ($P < 0.000$). For example, the odds of disordered EA were 2.96 (2.19–4.01, 95% confidence interval, CI) among female adolescents in Jordan, compared with males as a reference. Although the prevalence of disordered EA was higher among females than males in

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