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Review Article
Disordered Eating Attitude and Body Dissatisfaction among Adolescents of Arab Countries: A Review

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Abstract

Today's adolescent are more concern about their body weight and shape which sometimes give rise to body dissatisfaction, disturbed eating attitude and eating disorders such as anorexia nervosa bulimia nervosa, bling eating etc. Earlier, these disorders had been conceptualized as culture-bound syndromes of the western countries only but several studies had been verified that eating disorders are emerging in Arab world as well. Thus, this present review was planned to highlight the prevalence of disordered eating attitude among adolescent population in different Arab countries. PubMed and Google Scholar were searched for publications on eating disorder among Arab adolescents and only 22 studies which used eating attitude test 26 (EAT-26) for prevalence or incidence of disordered eating attitude were identified from 9 Arab countries and selected for this review. The overall estimated prevalence of disordered eating attitude was 26.94% (n = 10430) in adolescence, which indicates a higher prevalence of abnormal eating attitude among Arabs compared to adolescents population from the USA and sub-saharan African. Prevalence was varied from 11.5% (Egypt) to 49.1% (UAE) in female and 6% (Saudi Arabia) to 36.4% in Oman in male adolescents of Arab countries. Highest prevalence was reported in UAE and Saudi adolescents. Although factors such as family history, sedentary lifestyle, urbanization, increased income and westernization had been found linked with increased prevalence of disordered eating attitude in these Arab countries. Consequences of eating disorders can be severe, thus early detection and its prevention is very necessary which need collaborative efforts of governmental and community-led agencies to establish long-term programs for health education targeting young children and their families.

Key words: Disordered eating attitude, eating disorder, adolescents, EAT 26, Arab countries

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Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Adolescents are tomorrow's adults and their growth and development and future health is depend upon the quality and quantity of food consumed by them[1]. The eating attitudes and behaviors that are developed and cemented during adolescence will define adolescent health outcomes throughout life. Adolescent is considered as a nutritionally vulnerable stage of life, because of physical, hormonal, cognitive and emotional changes and these changes some time give rise to body dissatisfaction which may lead to disturbed eating attitude and eating disorder[2].

Eating Disorders (ED) characterized by chronicity and relapse along with disordered eating behavior where the individual's attitude towards weight and shape as well as their perception of body shape are disturbed[3]. The ED is one of the most common psychiatric problems among adolescents, have the highest mortality rates of all mental disorders[3,4]. Furthermore, the consequences of eating disorders can be severe and increases the risk for onset of obesity, substance abuse, deficiency diseases, anxiety disorder, cardiovascular symptoms, chronic fatigue and pain, depressive disorder, infectious diseases, insomnia and neurological symptoms[5].

Adolescents and young adults concern about their body weight and shape may lead to disturbed eating and unhealthy weight control behavior such as starvation, fasting, frequently skipping meals, overeating and binge-eating followed by purging, also using of diet pills, laxatives and diuretics and excessive exercising[6]. Although these disorders have been conceptualized as culture-bound syndromes of the west but several studies have verified that eating disorders are emerging in all part of world[7-10].

The discovery of oil in the middle of the 20th century give rise to rapid socio-economic development and epidemiologic transition in Arab countries, which leading to a wide spread adoption of western styles and stringent western standards of beauty specially in adolescent population[11-18]. Preoccupation of thinness and body dissatisfaction and peer pressure influence their eating behavior and give rise to different types of eating disorders such as anorexia nervosa bulimia nervosa and bling eating among young Arabic population[19].

Many epidemiological studies throughout the world uses numbers of psychometrically sound instruments such as the Eating Attitudes Test (EAT 26)[20], the Bulimia Test-Revised (BULIT-R), the Eating Disorder Examination Questionnaire (EDE-Q)[21] and Questionnaire for Eating Disorder Diagnoses (QEDD)[22] to identify groups of children who are at risk for eating disorder and to diagnose problem and determine how serious it is. Among all these instruments our review of literature found, EAT-26 was most commonly used tool in Arab countries for assessment of eating disorders and disordered eating and validity and reliability in Arabic language was tested by many researcher.

Recently, high prevalence of abnormal eating attitude and behaviors was confirmed by non-clinical studies (scored >20, Eating Attitude Test (EAT 26) cutoff score for clinical significance) in several Arab countries and confirmed EAT-26 as highly sensitive and reasonably specific in studying disordered attitude in Arab countries[9,11,12].

SIGNIFICANCE OF THE PRESENT REVIEW

Keeping in view the seriousness of problem on one hand and lack of knowledge of eating attitude among adolescents on the other, present review was design to determine the prevalence of abnormal eating attitude among adolescents in Arab countries and identify potential risk factors for abnormal eating attitudes. Identification of these factors affecting their attitude toward eating can help to design effective intervention programs and to improve treatment and also suggests possible solutions for its prevention.

The PubMed and Google scholar databases were searched for publications on discorded eating attitude among Arab people. It included only studies that were conducted in an Arab country within the past 20 years, included adolescence aged 12 years and above, provided data on the prevalence or incidence of disordered eating attitude by using EAT 26.

This test was developed by Garner *et al.*[23] to examine the level of abnormal eating attitudes and can be used as a predictive measure of development of eating disorders. The overall prevalence of ED was estimated by dividing the total number of participants with disordered eating attitude (EAT score $\geq$20) by the total number of participants in all studies.

Eating attitudes test-26 (EAT-26) in western and non-western countries: Disordered eating attitudes are epidemic worldwide and the adolescents are at high risk for disordered eating attitudes. The prevalence of disorder eating attitudes varies 0.4% in Spain to 22.3% in canada[24,25]. Male samples showed a lower incidence of abnormal eating behavior than among female subjects worldwide. It did not come across many surveys using EAT-26 scores in non-western countries.

In the Szabo and Hollands survey, 37.5% of the black female high school students had abnormal eating attitudes in south Africa. In Pakistan the highest rate (39.5%) were found among non-western countries and 14.76% in India were considered to had abnormal eating attitude($\geq$20 score on EAT 26)[6,25,26].

EAT-26 in different Arab countries: It is evident from the literature review that the prevalence of abnormal eating behavior among adolescents in the all Arab countries was alarming (Table 1).

EAT-26 in the Saudi Arabia: In recent study of Allihaibi[27] in Makkah Al-Mukarramah, a holy city of Saudi Arabia reported highest rate of Eating Disorder (ED) among underweight students (29.4%) whereas the lowest rate was reported among obese students (7.1%) and no significant association between baseline characteristics (age, nationality, family size, birth order, age of menarche and BMI) and disordered eating attitudes were found[27]. Some studies revealed that vegetarian were more at increased risk for involvement of unhealthy weight control behaviours may lead to disordered eating but a recent study of Saudi Arabia indicated vegetarianism was not associated with disordered eating attitudes[28]. In other studies representing Saudi students in different cities like hail, Jeddah and Riyadh found scored of 20 and above using Eating Attitude Test (EAT-26) was 36, 32.9 and 24.6%, respectively[9,11,29,30]. One recent cross-sectional survey design in which 314 adolescents females (age: 15-19 years) were selected from 4 schools of Arar city, KSA and disturbed eating behaviors (EAT-26>20) was found in 25.47% participants. The prevalence of disordered eating was more in overweight and obese than normal weight[31]. Another, study by same author, found that, 26.66% of female college students had negative eating attitudes and significant difference found in prevalence of disordered eating attitudes in different BMI ranges. However, the association between student's age at menarche and abnormal eating attitude was not statistically significant[32].

EAT-26 in the Oman: In Oman, 33% of Omani teenagers (29.4% females and 36.4% males) showed a predisposition for anorexic-like behavior. In contrast, barely 2% of Omani adults showed either the presence of or a severe behavior disorder regarding food[8].

EAT-26 in the Jordan: Jordan society was not an exception for this problem and it was determined in one study that among the adolescents girls, 33% had disorder eating attitude and concluded that participants have been more preoccupied with their body weight due to socio-cultural norms that were reinforced by media messages[33].

EAT-26 in the Kuwait: In Kuwait, Musaiger *et al.*[16] reported that 47% of adolescent males and 42.8% of Kuwaiti adolescent females had disordered eating attitudes, compared to 31.8% of male and 33.6% of female university students and found that obesity was associated with eating disorders[13].

EAT-26 in the Lebanon: In Lebanon, 10% of normal weight female college students have desired to be thin, preoccupied with weight, taken laxatives and diet pills, engaged in strenuous exercise, avoided high caloric foods, fasted, binged and skipped meals[7].

EAT-26 in Israel and Palestine: Similar result was found in Palestinian study in schoolgirls (13%) have desired to be thin whereas, 53.4% of Israeli adolescent girls and boys wanted to be thinner and approximately half of them engaged in dieting. In addition, 8.9 and 5.4% of adolescents have experienced anorectic and bulimic episodes in their lifetime, respectively[34]. Israeli girls were at greater risk to develop eating disorder than Palestinian girls and the author suggested that this might be because Israeli females were of higher socio-economic status and more influenced by westernization than Palestinian females[34]. Similarly, Egyptian study also confirmed that morbid eating patterns are emerging in their society with similar rates to those in Western cultures[35,36].

EAT-26 in the United Arab Emirates: The United Arab Emirates (UAE) had also experienced rapid urbanization and dramatic improvement in living condition in past few decades. This had led to the adoption of western lifestyles, behavioral patterns and food consumption habits. A recent study, among male student in the age group 15-18 years of UAE revealed the proportion of disordered eating attitudes ranged from 33.1-49.1% in five Emirates of the UAE[37]. However, the results of another UAE survey demonstrated that 23.4% adolescents girls scored above the recommended cut-off on EAT and these high EAT score was associated with age, BMI, internalization of thin ideal and drive for thinness, knowing someone on a weight loss strategy, having a family member with weight-related or mental health problem and watching western TV programs[14].

Table 1: Prevalence of disordered eating attitude among adolescents in different Arab countries

Research study	Location	Sample size	Age group	Gender	Criteria	Abnormal eating attitude	Other finding
Fallatah *et al.*[30]	Jeddah, KSA	425	15-18	Female	EAT-26	32.9%	Significant negative relationship between with eat 26 score and age and positive relationship with BMI
Allihaibi[27]	Makkah Al-Mukarramah, KSA	180	15-19	Female	EAT-26	26.1%	Highest eating disorder score was observed in underweight and BMI and age was not significant predictors of negative eating attitude
Al-Subaie *et al.*[11]	Riyad, KSA	129	11-21	Female	EAT-26 and structured clinical interview	19.37%	Only one case was identified as anorexia nervosa and no cases of bulimia were found after structured interview
Al-Subaie[9]	Riyad, KSA	1271	11-21	Female	EAT-26	24.6%	Weight measure has positive correlation with ED and but negative correlation with social factor
Bano *et al.*[29]	Hail, KSA	100	18-25	Both male and female	EAT-26	6% male and 36% female	Mean score are significantly higher in female than male but the difference in the BMI of male and females was found to be statistically insignificant
Fatima *et al.*[28]	Arar KSA	120	18-21	female	EAT-26	26.66%	Vegetarianism was not associated with disordered eating attitudes
Fatima *et al.*[31]	Arar KSA	160	18-23	Female	EAT-26	26.66%	Significant difference found in prevalence of disordered eating attitudes in different BMI ranges
Fatima *et al.*[32]	Arar KSA	314	15-19	Female	EAT-26	25.47%	No statistically significant association between student's age at menarche and abnormal eating attitude
Al-Adawi *et al.*[8]	Oman	293	15-19	Both male and female	EAT 26 and BITE (Bulimic Investigatory Test)	33% of omani teenagers (29.4% females and 36.4% males) and 9% of non-omani teenager	About 12.3% of Omani teenagers and 18.4% non-Omani showed a propensity for binge eating or bulimia, ,females showing a slightly greater tendency than males
Mousa *et al.*[33]	Jordan	432	10-16 year	Female	EAT 26	33.33%	Pubertal, familial and social variables were associated with eating disorders occurrence
Nasser[36]	Egypt	351	14-19	Females	EAT 26 and Russell's	11.5%	(3.4%) diagnosis as a partial syndrome of bulimia nervosa bulimia nervosa test
Latzer *et al.*[34]	Israel	1966	12-19	Both male and female	EAT 26	18.7% females and 16.4% males	No significant differences were found between girls and boys in age and religious affiliation subgroups
Eapen *et al.*[14]	UAE	495	13-19	Female	EAT 40 and DSM-IV criteria	23.4%	Thin body preoccupation as well as family and social factors are important in the development of abnormal eating attitudes
Thomas *et al.*[15]	UAE	228	19-23	Female	EAT 26	24%	About 74% were dissatisfied with current body image
Al Sabbah and Muhsineh[10]	UAE	242	17-25	Female	EAT 26 and IPAQ (International Physical Activity Questionnaire)	31.4%	The significant relationship between dieting behavior and level of exercise
Kazim *et al.*[38]	UAE	315	14-19	Female	EAT 26	36.7%	Media, peer pressure, family pressure and being obese were dominant determinant
Musaiger *et al.*[37]	UAE	731	15-18	Male	EAR 26	31.1 to 49.1	Emirates of Dubai and Al-Fujairah have double the risk of having disordered eating attitudes compared with students living in the other Emirates
Abdelrahim *et al.*[39]	Sudan	340	19-23	Both male and female	EAT 26 and the Body Shape Questionnaire (BSQ)	21%	About 44.6% of those with BSD scored positive on the EAT
Bas *et al.*[41]	Turkey	1205	17-21	Both male and female	EAT 26	45.5 %	Female vegetarians had significantly higher score than female non-vegetarians
Bas *et al.*[40]	Turkey	783	17-20	Both male and female	Eating Attitudes Test, Rosenberg Self-Esteem Scale, State-Trait Anxiety Inventory and Social Physique Anxiety Scale	9.2% males and 13.1% females	Disturbed eating attitudes had lower self-esteem, higher social physique anxiety and higher trait anxiety
Uzun *et al.*[42]	Turkey	414	12-19	Female	EAT 40 Structured Clinical Interview	17.1	Disordered eating attitudes and socio-demographic variables (except for age) were not statistically significant
Musaiger *et al.*[13]	Kuwait	530	19-26	Both male and female	Eat 26	31.8% male and 33.6% female	Risk of disordered eating attitudes among obese men and women was twice than nonobese counterparts

Similar results was found in another UAE study by Thomas *et al.*[15] and concluded that 74% of female college students were dissatisfied with current body image and 24% scored above EAT 26 cut off. In another recent cross-sectional study of UAE, found 31.4% of the participants showed disordered eating attitudes and surprisingly revealed that membership in a health club was significantly related to disordered eating attitudes and body image dissatisfaction ($p<0.01$)[10]. In one more cross national survey of Ajman, UAE in 4 public female high schools showed substantially higher prevalence of eating disorder (30%) and also found significant discrepancy between their actual and perceived body image[38].

Musaiger *et al.*[16] also discovered the association of obesity with eating attitude among adolescents population of 7 Arab countries and found that the risk of disordered eating attitude was twice as high among females as in males in Jordan, Libya, Palestine, Syria and Kuwaiti adolescents.

EAT-26 in the Sudan: Similar result was found also in Sudan, 21.2% scored positive on the EAT, whereas 44% of the sample were dissatisfied with their body shape and 67% of them were dissatisfied with their body weight and shockingly 93% of those who scored positive on the EAT expressed body shape dissatisfaction (BSD)[39].

EAT-26 in the Turkey: Whereas in turkey, Bas *et al.*[40] reported, only 9.2% of the males and 13.1% of the females had abnormal eating attitude scores and were related to several psychological characteristics such as lower self-esteem, higher social physique anxiety and higher trait anxiety among adolescents[40]. However, another study of turkey concluded that vegetarian adolescents (45.2%) display more disordered eating attitudes and behaviors than non-vegetarians[41]. Similar result were found in another Turkish study in which, 17.1% had a score of 30 or higher on EAT 40 and all of them have been examined using the Structured Clinical Interview and reveled that only 0.5% had anorexia nervosa and bulimia nervosa[42].

CONCLUSION AND RECOMMENDATIONS

This study discovered the prevalence of abnormal eating attitudes among children and adolescents of Arab countries and showed that female subjects suffered more from eating disorders than male counterparts and the main underlying cause was western body image and body dissatisfaction that contribute in development faulty eating habits in adolescents. Although factors such as family history, sedentary lifestyle, urbanization, increased income and family diet patterns also linked to the increased prevalence of disordered eating attitude in many studies.

Identification of these factors affecting their attitude toward eating can be beneficial for policy makers to design effective intervention programs and suggests possible solutions for its prevention. This study will also help the researchers to uncover the critical areas of different factors interaction with one another their confluence with eating disorders that many researchers were not able to explore. Thus further, longitudinal studies are needed in all Arab countries to track eating attitude in this high-risk age groups and understand factors affecting eating disorder. Governmental as well as community agencies need to work together to establish long-term programs to improve attitude toward healthy eating among adolescents.

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