

ORIGINAL ARTICLE

## Assessing the Relationship between Weight–Controlling Behaviors and Eating Attitude Disorders with Dietary Intake in Female Adolescents

Hengameh Khezri<sup>1</sup>, Afsane Ahmadi<sup>2\*</sup>, Mohammad Hassan Eftekhari<sup>3</sup>, Jafar Hassanzadeh<sup>4</sup>

1. Shiraz Health Center, Martyrs Valfajr, Shiraz University of Medical Sciences, Shiraz, Iran

2. Research Center for Health Sciences, Department of Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

3. Department of Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

4. Department of Epidemiology, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

### ARTICLE INFO

*Keywords:*

Eating disorder

Adolescents

Nutritional Attitude

### ABSTRACT

**Background:** Adolescents pay more attention to their appearance and body. Irregular nutritional patterns, eating certain types of food, and consuming more protein-containing food are more common in this age group. Considering the importance of this issue and lack of adequate studies in Iran, especially in Fars province, we aimed to assess the relationship between weight-controlling attitudes and eating disorders with dietary intake in female adolescents.

**Methods:** This cross-sectional study was done on 600 female students aged 14-17 years from the four educational districts of Shiraz, southern Iran, during 2011-2012 using the stratified random sampling method. Data were collected using three questionnaires as follows: demographic data questionnaire, Eating Attitudes Test (EAT-26) to assess eating attitude disorders in students, and the Food Frequency Questionnaire (FFQ). Data were analyzed using SPSS software, version 13 and the NUT 4 software.

**Results:** Six (1%) EAT-26 questionnaire were omitted from analysis for being incomplete. Also, 556, 446, and 491 questionnaires were evaluated in meat, bread, and fat groups, respectively; and the rest were omitted because of not being complete. The mean±SD age of the students was 15.8±0.9 years. According to the EAT-26, we found that 80.1% of the students were at risk of eating attitude disorders (CI=95%, 76.9-83.3). By comparing the results of the FFQ and the EAT-26 and weight controlling behaviors, we found that consumption of meat and fat was significantly higher in students with eating attitude disorder (P=0.027 and P=0.003 respectively). Bread intake was significantly higher in the groups with no disorder (P=0.08). (This P value is not significant.) Moreover, the mean consumption of sandwiches was higher in students with eating attitude disorders (P=0.002).

**Conclusion:** Considering the high prevalence of eating attitude disorders in our study, assessing the underlying reasons and implementing preventive programs is of utmost importance.

*\*Corresponding author:*

Afsane Ahmadi,

Department of Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran.

Tel: +98-71-37251004

Email: [ahmadi@sums.ac.ir](mailto:ahmadi@sums.ac.ir)

Received: 1 January 2016

Revised: 21 August 2016

Accepted: 29 September 2016

Please cite this article as: Khezri H, Ahmadi A, Eftekhari MH, Hassanzadeh J. Assessing the Relationship between Weight–Controlling Behaviors and Eating Attitude Disorders with Dietary Intake in Female Adolescents. Int J Nutr Sci 2016;1(1):2-5.

### Introduction

Adolescence is one of the most important and yet critical periods of life. In this period

rapid changes in attitude and behavior are seen alongside physical changes. Adolescents pay more attention to their appearance and body.

Irregular nutritional patterns, eating certain types of food, and consuming more protein-containing food is common in adolescents and is affected by culture, peers, environment, and nutritional beliefs and attitudes (1). On the other hand, nutritional habits in adolescence determine mortality and morbidity indices in adulthood. Many studies have shown that acquired eating disorders are responsible for malnutrition in the form of being obese, underweight or overweight. Therefore, it is necessary to raise the level awareness and correct the attitudes related to nutritional habits in order to correct nutritional behaviors and performance (2-4).

Considering the importance of this issue and lack of adequate studies in Iran, especially in Fars province, we aimed to assess the relationship between weight-controlling attitudes and eating disorders with dietary intake in female adolescents.

Eating disorder is also one of the psychological nutritional diseases in this period that its main characteristic is a disturbed nutritional behavior. Furthermore, clear cut disorders occur in one's thoughts and imaginations toward foods and him/herself specially human body weight which can result in severe and chronic physical and mental problems.

### Materials and Methods

This cross-sectional study was done on 600 female students aged 14-17 years from the four educational districts of Shiraz, southern Iran, during 2011-2012 using the stratified random sampling method. The sample size was calculated based on several previous studies (5-9). We excluded students who had chronic metabolic diseases such as diabetes mellitus, cardiovascular diseases, hypo or hyperthyroidism, and hyperlipidaemia. Written informed consent was obtained from the participants.

Data were collected using three questionnaires as follows: demographic data questionnaire,

Eating Attitudes Test (EAT-26) (10,11) to assess eating attitude disorders in students, and the Food Frequency Questionnaire (FFQ) (12). The EAT-26 was given to 50 students (in two groups of 25) as a pilot study and no question was omitted and ultimately a Cronbach's alpha of 81.6 was obtained. The questions are answered on a Likert scale of 0 (never) to 3 (always). So based on this questionnaire we divided students in two groups: group with eating attitude disorders and group without it. The Persian version of the FFQ has been previously validated (12).

Data were analyzed using SPSS software, version 13 and the NUT 4 software. Independent t and Chi-square tests were used as appropriated.  $P < 0.05$  was considered as statistically significant.

### Results

Six (1%) EAT-26 questionnaire were omitted from analysis for being incomplete. (total students were 594). Also, 556, 446, and 491 questionnaires were evaluated in meat, bread, and fat groups, respectively; were omitted because of not being complete.

The mean $\pm$ SD age of the students was 15.8 $\pm$ 0.9 years. According to the EAT-26, we found that 80.1% of the students were at risk of eating attitude disorders (CI=95%, 76.9-83.3). By comparing the results of the FFQ and the EAT-26 and weight controlling behaviors, we found that consumption of meat and fat was significantly higher in students with eating attitude disorder ( $P=0.027$  and  $P=0.003$  respectively, table 1). Bread intake was significantly higher in the groups with no disorder ( $P=0.008$ ). Moreover, the mean consumption of sandwiches was higher in students with eating attitude disorders ( $P=0.002$ , table 2).

### Discussion

Studies show that women and adolescent girls are more sensitive towards their mental body image. Various studies on the western societies show that adolescent girls are increasingly

**Table 1:** Comparison of dietary intake in the two studied groups as mean $\pm$ SD

Dietary groups	Without eating attitude disorder	With eating attitude disorder	p-value
Milk (Exchange)	2.2 $\pm$ 1.52	2.19 $\pm$ 1.45	0.99
Vegetables (Exchange)	4.24 $\pm$ 2.18	3.96 $\pm$ 2.41	0.29
Fruits (Exchange)	7.17 $\pm$ 2.38	7.84 $\pm$ 2.38	0.09
Fat (Grams)	89.6 $\pm$ 35.2	99.4 $\pm$ 39.7	0.027
Bread (Exchange)	13.98 $\pm$ 4.92	12.42 $\pm$ 4.92	0.008
Meat (Exchange)	3.00 $\pm$ 1.49	3.62 $\pm$ 2.02	0.003

**Table 2:** Mean±SD food intake frequency in the two studied groups

Specific food types	Without eating attitude disorder	With eating attitude disorder	p-value
Fried food (times per month)	9.41±6.12	9.82±5.54	0.60
Restaurant food (times per month)	1.90±2.85	2.42±3.29	0.13
Pizza (times per month)	2.24±3.41	2.41±2.94	0.59
Sandwich (times per month)	2.69±3.43	4.09±4.36	0.002

eager to lose weight while their unhealthy and pathological nutritional habits are on the rise. This could be attributed to the influence of mass media and social idols (9).

We found that about 80% of the studied students had attitude disorders regarding their eating and weight control. Studies have shown that eating disorders and incorrect attitude towards eating are the most common disorders after obesity and asthma in adolescent girls (5, 13). The prevalence of eating attitude disorders varies in developed and developing countries. A prevalence of 29.4%, 24.6%, 23.4%, 26%, 21%, and 12.3% have been reported in Oman (14), Saudi Arabia (13), United Arab Emirates (15), America (16), England (6), and Spain (17). In Iran, the prevalence of eating attitude disorders has been reported to be 24.16% in Tehran (7), 16.7% in Tabriz (7), and 12% in Yazd (8). The discrepancy is between the years of these studies and also the vast variety of nutritive patterns and habits in different cities which lead to the different percentages of studies proposed in Shiraz and other cities. These studies showed that eating attitude and weight-controlling disorders have consequences such as tendency to lose weight without being overweight, avoiding the consumption of food necessary for the body, worries about over-eating, and incorrect diets (9). Girls mostly thought that substituting food such as rice and spaghetti and the like with meat sandwiches would lead to weight loss. However, sandwiches have high amounts of calories and fat, energy, salt, and additive content that could lead to hyperlipidemia, hypertension, and metabolic syndrome (18). The students we studied ate many sandwiches than another foods and the consumption of bread, was much higher in the group without eating attitude disorder. The students with eating attitude disorder avoided eating bread and traditional dishes thinking that they would get fat and preferred consuming food from the protein group (19).

Also, the proposed study illustrates the fact that the prevalence of abnormal attitude phenomenon

toward eating and weight control is highly spread in our society. Abnormal attitude, if not corrected or decently cured, gradually converts to disorders following by serious consequences for human being, thereby considering the prevention of these diseases and eliminating the causes is of great significance (20).

Creating and encouraging correct nutritional and dietary behaviors, increasing nutritional awareness, and warning students about the negative consequences of an imbalanced diet, are important preventive measures that should be taken into account (21, 22). Since the schools' dietary programs can also affect the nutritional health of the students, studies show that educational programs on behalf of the teachers have not been effective for raising the students' awareness (23). Therefore, we recommend educational policy makers implement educational programs that aim to increase nutritional awareness among students. Moreover, healthy lunch and breakfast programs should be recognized and performed at schools.

### Conclusion

Considering the high prevalence of eating attitude disorders in our study, assessing the underlying reasons and implementing preventive programs is of utmost importance.

### Acknowledgement

The current study has been extracted from the MPH thesis of Hengameh Khezri (No. 90-01-42-2867) for Shiraz University of Medical Sciences. We would like thank the research center for health sciences for their financial support as well as the students and educational officials for their assistance.

### Conflict of Interest

None declared.

### References

- 1 Spear BA. Nutrition in adolescence. In:

- Mahan LK, Stumps E, editors. Krause's food nutrition and diet therapy. Philadelphia: W.B. Saunders Co; 2004. p. 285-95.
- 2 Baecke JH, Burema JER. A short questionnaire for the measurement of habitual physical activity in epidemiological studies. *Am J Clin Nutr.* 1982;36:936-42.
  - 3 Dowda M, Ainsworth BE, Addy CL, et al. Riner Wenviromental influences, physical activity and weight status in 8 to 16 years old. *Arch Pediatr Adolesc.* 2011;155:711-7.
  - 4 Stang J. Assessment of nutritional status and motivation to make behavior changes among adolescents. *J Am Dent Assoc.* 2012;102:13.
  - 5 Klein DA, Walsh BT. Eating disorders: clinical features and pathophysiology. *Physiol Behav.* 2004;81:359-74.
  - 6 Szweda S, Thorne P. The prevalence of eating disorders in female health care students. *Occup Med (Lond).* 2002;52:113-9.
  - 7 Nobakht M, Dezhkam M. An epidemiological study of eating disorders in Iran. *Int J Eat Disord.* 2000;28:265-71. (persian)
  - 8 Mozaffari Khosravi H. Eating disorders in high school girls. *Spring Health Rise.* 2011; (10):38-49. (persian)
  - 9 Amidi M, Ghofranipour F, Hosaini R. Association between body image dissatisfaction and body mass index in adolescent girls. *Journal of Behavioral Sciences.* 2010;4:59-65. (persian)
  - 10 Al-Subaie A, Al-Shammari S, Bamgboye E, et al. Validity of the Arabic version of the eating attitude test. *Int J Eat Disord.* 1996.
  - 11 Al-Subaie A. Eating attitude test in Arabic: psychometric features and normative data. *Saudi Med J.* 1998;19:769-75.
  - 12 Mirmiran P, Esfahani FH, Mehrabi Y, et al. Reliability and relative validity of an FFQ for nutrients in the Tehran lipid and glucose study. *Public Health Nutr.* 2010;13:654-62.
  - 13 Golden NH. Eating disorders in adolescence and their sequelae. *Best Pract Res Clin Obstet Gynaecol.* 2003;17:57-73.
  - 14 Al-Adawi S, Dorvlo AS, Burke DT, et al. Presence and severity of anorexia and bulimia among male and female Omani and non-Omani adolescents. *J Am Acad Child Adolesc Psychiatry.* 2012;41:1124-30.
  - 15 Eapen V, Mabrouk AA, Bin-Othman S. Disordered eating attitudes and symptomatology among adolescent girls in the United Arab Emirates. *Eat Behav.* 2006; 7:53-60.
  - 16 Graber JA, Tyrka AR, Brooks-Gunn J. How similar are correlates of different sub clinical eating problems and bulimia nervosa? *J Child Psychol Psychiatry.* 2003;44:262-73.
  - 17 Vega Alonso AT, Rasillo Rodriguez MA, Lozano Alonso JE, et al. Eating disorders. Prevalence and risk profile among secondary school students. *Soc Psychiatry Psychiatr Epidemiol.* 2005;40: 980-7.
  - 18 Thompson JK, Altabe M, Johnson S, et al. Factor analysis of multiple measuring of body image disturbance. *Int J Eat Disord.* 1994;16:311-5.
  - 19 Roncolato WG, Huon GF. Subjective well-being and dieting. *Br J Health Psychol.* 1998;3:375-86.
  - 20 Toselli S, Argnani L, Canducci E, et al. Food habits and nutritional status of adolescents in Emilia- Romagna, Italy. *Nutr Hosp.* 2010;25:613-21.
  - 21 Fairburn C, Cooper Z, Doll H, et al. Risk factors for anorexia nervosa: three integrated case-control comparisons. *Arch Gen Psychiat.* 1999;56:468-76.
  - 22 Fairburn C, Welch S, Doll H, et al. Risk factors for bulimia nervosa. A community-based, case-control study. *Arch Gen Psychiatry.* 1997;54:509-17.
  - 23 Sohailiazad A, Noorjah N, Alamdar E. Dietary survey of school children in Tehran. *Medical Research.* 2005;29:165-8. (persian)