

Eating Attitudes among Adolescents

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Abstract

Background: Israeli youth lead 27 western countries in dieting. The prevalence of eating disorders has been rising in the last 30 years, causing social problems and medical complications.

Objectives: To examine the prevalence of eating disorders among high school students in a region in northern Israel (Misgav) and to examine the relationship between the parents' employment status and the subject's eating disorder.

Methods: A structured questionnaire was administered to collect demographic data. The short version of the Eating Attitudes Test (EAT-26) was used to evaluate the subject's attitudes toward and preoccupation with food, dieting, eating, physical appearance, and personal control over eating.

Results: Of 360 students approached, 283 (78%) completed the self-report EAT-26. One of every 5 females and one in every 20 males had an abnormal eating attitude. The rate of pathologic EAT-26 results, 20.8%, falls within the high range of similar community-based samples of female adolescents. There were no differences in EAT-26 score between students with an employed or unemployed mother; however, there was a trend for higher EAT-26 scores among those whose father was unemployed (21.4% vs. 12.7%, $\chi^2 = 0.14$).

Conclusions: The findings support our hypothesis of a relatively high rate of abnormal eating attitudes (as reflected by high EAT-26 score) in this population. Another possible risk factor is having an unemployed father, which warrants further research and attention. Our next step is to introduce an intervention program in the school and to study its effect.

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criteria of anorexia nervosa or bulimia may be even double [6]. Currently an aggressive treatment regimen is recommended for those patients with traits of eating disorder that do not meet the full criteria of the DSM-4 [7].

In the Youth Risk Behavior Survey [8], 58% of students in the United States had exercised to lose weight and 40% had restricted their caloric intake in an attempt to lose weight. In one study 80% of 18 year old girls with normal height and weight stated that they would like to weigh less [9]. Although most of these behaviors are benign they could be associated with increased medical and psychological risks, the development of anorexia and bulimia, risky behaviors (smoking, alcohol and drug use), depression and suicide [10-12]. Clearly, therefore, a careful and alert approach to these eating disorders is important to prevent the development of full-blown anorexia or bulimia symptoms as well as the risky accompanying behaviors

It is important that the general practitioner evaluate disordered eating attitudes in the community. This task involves monitoring, tracking trends and changes, and planning preventive and treatment programs [13]. The present study prospectively assessed the prevalence of disordered eating attitudes in a large school-based population. This study is the first step in a school-based educational intervention program. This program is based on a recent educational approach for primary prevention of eating disorders, by improving self-esteem, body image, empowerment and eating attitudes [14,15].

Patients and Methods

The study was conducted between September 2001 and May 2002 in 238 high school students, in 7th to 12th grade, living in the Misgav region in northern Israel. This region, with an area of 35 km², comprises 30 middle and upper middle-class Jewish communities. The total population in the area is estimated at 10,000 Jews. Most of the young population study in the regional high school.

The students were asked to report their age, grade, gender and employment of their parents. The students' height and weight were measured by one of the authors and their body mass index was calculated. The short version of the Eating Attitudes Test [16,17] was used to evaluate the subjects' attitudes toward and their preoccupation with food, dieting, eating, physical appearance, and personal control over eating. The EAT is commonly used to measure pathologic attitudes towards weight and eating behaviors. The short version (26 items) is highly correlated with

Richard Morton, a specialist in wasting disease, was the first to report, in 1689, the phenomenon of anorexia. He described an 18 year old anorexic girl who refused to eat and exposed herself to cold weather; she had no apparent physical disease and died 3 months after her first visit to Dr. Morton [1]. In the past three decades, the frequency at which eating disorders are encountered has risen dramatically, mainly in the adolescent population. The prevalence of anorexia nervosa among female adolescents is currently estimated at 0.2-1% and of bulimia nervosa 1.9-5.1% [2,3]. One-fourth of the patients develop a chronic form of the illness. The mortality rate is 5-20% [4], and patients with anorexia nervosa commit suicide more often than their counterparts in the general population [5]. Far less is known about males developing eating disorders. It has been suggested that the incidence of eating disorders that do not meet strict

EAT-26 = Eating Attitudes Test

the original 40 item version [16]. EAT-26 index has two categories: 0–19 is low risk and 20 or more indicates high risk. A score of 20 or more is considered pathologic. We used the Hebrew translation of the EAT-26 [18].

The questionnaires were approved by the Israel Ministry of Education and the school principal. The questionnaires, which were voluntary and anonymous, were distributed by one of the authors in the classroom. An informed consent was filled by the parents.

Statistical analysis

The sample was described using distributions in frequencies and percents, means and standard deviations. Differences between study groups were tested using two-way analysis of variance (ANOVA) by gender and grade. The correlation between gender and grade and each category of EAT-26 was examined by likelihood ratio chi-square test. The correlation between BMI and EAT-26 was tested with Spearman's correlation coefficient.

Results

There are close to 1800 students in Misgav high school, from which two classes from every grade were elected randomly to participate in the study, totaling 12 classes. Of the 360 students who were originally approached, 283 (78%) gave their informed consent and answered the questionnaire. Table 1 presents their gender and grade. Thirty-eight students did not mention their gender. For data analysis the students were grouped into three grades: 7th and 8th, 9th and 10th, 11th and 12th.

The differences in EAT-26 by grouped grade and gender are presented in Table 2. The distribution of EAT-26 in all students by gender revealed that 5% of the boys and 20.8% of girls had a high risk EAT-26 ($\chi^2 = 14.43$, $P < 0.001$) [Figure 1]. The distribution of high EAT-26 by grouped grade and gender revealed no statistical significance (total $\chi^2 = 0.67$, $P = NS$; boys $\chi^2 = 3.83$, $P = NS$; girls $\chi^2 = 0.40$, $P = NS$). No correlation was found between EAT-26 and BMI among boys or girls. With regard to parents' occupation, of the 14 students whose father was unemployed 21.4% had a high EAT-26 score compared with 12.7% among students whose father did work at the time of the research ($\chi^2 = 0.14$, $P = NS$); there was no difference among students whose mother was unemployed ($\chi^2 = 0.78$, $P = NS$) [Figure 2].

Discussion

In our study of Jewish high school students in a region in northern Israel we found that 1 of every 5 girls and 1 of every 20 boys had abnormal eating attitudes. No correlation was found between BMI and the eating attitude questionnaire score.

The rate of pathologic EAT-26 results (20.8%) falls within the high range of similar community-based samples of female adolescents. These results change according to the population selection. In their study in the United States Fisher et al. [19] found that 17.5% of suburban females and 15% of urban females achieved pathologic EAT-26. In Israel, Stein and colleagues [20] found

Table 1. Distribution of sample by grade and gender (n=245)

Grade	Boys	Girls
7th	43.8%	56.3%
8th	60.0%	40.0%
9th	38.8%	61.2%
10th	52.6%	47.4%
11th	53.3%	46.7%
12th	47.8%	52.2%
Total	49.0%	51.0%

Table 2. Differences in EAT-26 by grouped grade and gender (number of students, means and standard deviations)

Grade	Total			Boys			Girls		
	n	M	SD	n	M	SD	n	M	SD
7th + 8th	67	10.18	9.92	35	8.23	9.04	32	12.31	10.52
9th + 10th	87	9.80	8.61	39	6.59	4.25	48	12.42	10.27
11th + 12th	91	9.49	9.93	46	6.57	7.89	45	12.49	10.96

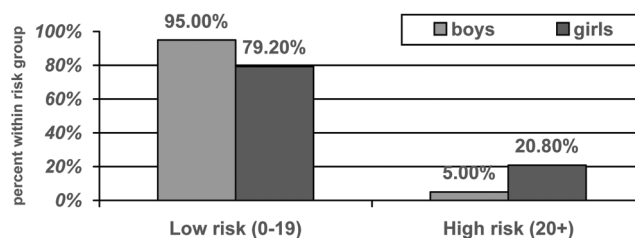


Figure 1. Distribution of EAT-26 in low and high risk groups by gender. $\chi^2 = 14.43$, $P < 0.001$

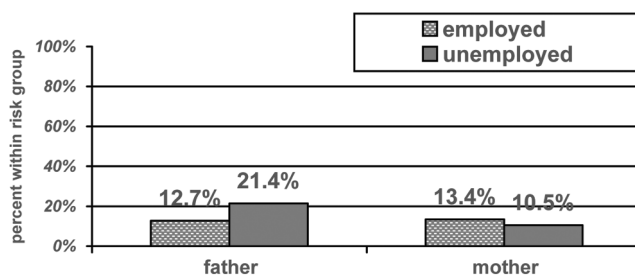


Figure 2. Distribution of EAT-26 in high risk groups by parents' occupation. $\chi^2 = 0.78$; $P =$ not significant $\chi^2 = 0.14$, $P =$ not significant

pathologic EAT-26 scores in 18% of female high school girls in their 11th and 12th grade. Another Israeli study [21] conducted in five distinct Jewish female groups and five Arab female groups (although the groups comprised between 26 and 107 students) showed high EAT-26 scores in 27.3% of kibbutz girls compared to 19.4% of city students and 16.8% of immigrant females. In

BMI = body mass index

the Misgav population, which is middle to upper middle class, there is a relatively high prevalence of kibbutz-born families. The school holds a dancing class and many sports activities, in themselves risk factors for eating disorders. The results of the present study support our hypothesis of a relatively high rate of abnormal eating attitudes (as reflected by high EAT-26 scores) in this population. Although the percentage of high EAT scores declines in the higher grades, it is not statistically significant.

Five percent of males in our study had a high EAT-26 score. A New York study [19] reported high scores in 6% of high school boys, while in an Israeli study 1.5% of urban males had a high score [22]. However, since there is a lack of data on eating attitudes among boys, especially in Israel, we are unable to reach any conclusions regarding Misgav males. Interestingly, there were three times more boys with pathologic EAT-26 in the 7th and 8th grades compared with students in the higher class levels; these differences are not statistically significant but warrant further investigation. No correlation was found between EAT-26 and BMI among boys and girls in our study, contrary to studies on suburban youth in the U.S. [23] and studies in Israel [20].

One of our aims was to seek a correlation between students with high EAT-26 and having an unemployed parent. Because of our small sample we did not find a result that was statistically significant. Of note, we found that 21.4% of students whose father was unemployed had a high EAT-26 score compared with 12.7% among students whose father did work ($\chi^2 = 0.14$, $P = NS$). There were no differences in EAT-26 score between students with an employed or unemployed mother. This was one of our observations while working in the clinic. To the best of our knowledge, our report is the first in the literature to make this observation and additional research is necessary to establish this connection. Our assumption is that an unemployed father (more than an unemployed mother, which is more conventional) adds more stress to the home ambience, adding more to the precipitating events in the multifactorial model for the eating disorders suggested by Garner and Garfinkel [24]. An earlier report [25] also showed that patients with disordered eating behavior have a greater degree of family dysfunction than do controls.

Limitations of the present study include its cross-sectional design, which cannot assess the progression over time, and the absence of personal interviews to diagnose eating disorders. The self-reporting of the EAT-26 is dependent on accurate subject reporting. Another limitation, which did not allow us to reach significant conclusions, was our relatively small sample.

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