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Risk behaviors for eating disorders in adolescents at a public school

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Abstract

Eating disorders are associated with eating behavior disorders, especially in adolescents who are more susceptible to media's influence and related to mental disorders. Risk behaviors are a stage prior to the development of disorders and identifying them makes it possible to plan early and timely interventions. Therefore, the objective of the study was to identify risk behaviors associated with the development of eating disorders in adolescents. This was a descriptive cross-sectional study with 220 students of both sexes. Self-administered questionnaires were used, based on two scales: Food Attitudes Test and the Bulimic Investigation Test, by Edinburgh, in addition to the silhouettes assessing self-perception of size, shape and body satisfaction. Statistical analysis was performed by calculating absolute and relative frequencies, mean, standard deviation and Pearson's Chi-squared test according to the categories of satisfaction with body image. The level of significance was set at 5% ($p < 0.05$). It was understood that the risk of developing eating disorders was demonstrated by behaviors such as: intense fear of weight gain (45.5%); idealization of thinness (40.9%); excessive concern with food (56.1%); episodes of binge eating (46.9%) and use of purgative methods (8.7%). A strong association of dissatisfaction with body image and risk behaviors was identified. Most participants (67.3%) never sought professional help. Among the adolescents, risk behaviors for eating disorders were identified, which were associated with body image, highlighting the need for interventions aimed at minimizing these harmful consequences in the adolescents' lives.

Keywords: Anorexia Nervosa; Bulimia Nervosa; Body Image; Adolescent; Feeding and Eating Disorders; Feeding Behavior.

INTRODUCTION

Eating Disorders (ED) are considered psychiatric conditions associated with behavioral, emotional, or even physiological changes. They are marked by eating behavior disorders, associated with body image distortion[1]. Eating disorders arise, commonly, in adolescence, since this phase of life is directly associated with profound changes, not only in biological, but also psychological and emotional conditions. In this phase there is also the formation and consolidation of eating habits. The media in general, and specifically social networks, have a significant influence on eating behavior and are associated with the body dissatisfaction of adolescents[2], due to the high appeal of the thinness trend, which corroborates an unbridled search for an unattainable 'beauty standard'[3,4].

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ED are categorized according to the symptoms they trigger, the most known and prevalent being Anorexia and Bulimia Nervosa, whose diagnoses are based on two classification systems: the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)[5] and the International Classification of Diseases (ICD-10)[6]. They are of a multifactorial origin and, among the risk factors, are genetics, biology, the environment in which the individual is inserted, the individual's family and personality[7]. The symptoms are varied, causing a profound impact on the individual's health, both in the physical (such as fatigue, constipation, decreased growth, amenorrhea), as well as in the mental (anxiety, depression, slow thinking, binge eating) realms[8]. Self-applicable screening based on validated scales are used to assist in clinical diagnosis and, thus, enable the early treatment of Anorexia and Bulimia Nervosa[9].

A systematic review that included 94 studies from around the world found that there is a considerable increase in the diagnosis of these disorders, concomitant with the increasing prevalence of obesity[10]. In Brazil, studies on risk behaviors for the development of ED are still restricted, and there is no national prevalence.

In the state of Rio de Janeiro, a study evaluated the population of adolescents between 12 and 19 years old, indicating that 37.3% had symptoms of binge eating and 24.7% were on a restrictive diet[11]. Another study, with 320 adolescents aged 14 to 18 years enrolled in private schools in the city of Aracaju, SE, showed that 40.3% of the girls investigated demonstrated dissatisfaction with their body image or disgust for their own body, revealing the possibility of developing Anorexia and Bulimia Nervosa[12].

ED can be due to lifestyle, in which individuals seek to escape the suffering of self-rejection, through the control of their bodies and desires[13]. However, regardless of the etiology, the literature confirms that patients diagnosed with eating disorders, in severe conditions, will need at least one hospitalization for treatment during the course of the disease in an attempt to recovered clinically and, especially, the recover their nutritional state[14]. A longitudinal study, carried out to identify the consequences on the life of patients with ED in the long term, identified that there are losses in the mental health of these individuals[15].

The concern with the high prevalence of mental disorders worldwide justify the need for studies that make it possible to know, in depth, the predisposing risk behaviors[10], as is the case of this study. The development of ED seems to be related to the appearance of risky behaviors, especially in adolescents who have a distorted body image, self-controlled diet and perform practices related to the disorders[10].

In this context, the objective of this study was to identify risk behaviors associated with the development of eating disorders in adolescents from a federal school in the municipality of São Cristóvão, in the state of Sergipe, aiming to contribute to a better understanding of the theme and allowing for it to be addressed, through the planning of preventive actions and early interventions.

METHODS

This was a descriptive cross-sectional study, of a quantitative character, with a convenience sampling, conducted through the application of a structured questionnaire, which assessed risk factors associated with the development of Eating Disorders in middle and high school teenagers, in December 2015.

Adolescents from a federal public school, located in São Cristóvão, Sergipe,

participated in the study, which provides a primary education from the 6th to the 9th grade (241 students), a high school education (240 students), in addition to extension projects, such as the Youth and Adult Education (EJA) (160 students) and research projects in scientific initiation internships.

The research sample consisted of 220 students regularly enrolled in the school, two (from the 6th to the 9th grade), of both sexes (50.9% were males) aged between 10 and 17 years and had an average of 13.25 years (±1.25). Of the surveyed population, 78.6% were in the early adolescence stage (10 to 14 years old) and 21.4% in the final stage (14 to 17 years old), according to the classification of the World Health Organization (WHO)[16].

The sample excluded those who were not available and/or interested in participating in the study, and who did not present the informed consent form signed by their parents or guardians, sent with the support of the school's pedagogical coordination. The teachers were aware of the study and agreed with its completion, as well as being previously informed about the data collection agenda. This study was approved by the Research Ethics Committee of Federal University of Sergipe (UFS), under Opinion Nº. 1.110.485. All the recommended procedures regarding ethical aspects were followed.

Self-administered questionnaires were used, based on scales previously validated on Eating Disorders, in their respective versions in Portuguese:

1- Summarized Eating Attitudes Test (EAT-26), translated by Nunes *et al.*[17], which assesses the risks of developing behaviors and attitudes typical of patients with Anorexia Nervosa.

2- Bulimic Investigatory Test, Edinburgh (BITE). Translation by Cordás & Hochgraf[18], which makes it possible to identify compulsive eating and obtain data on cognitive and behavioral aspects of Bulimia Nervosa.

These instruments were formatted and adapted in a single questionnaire (Diet and Health), with questions that addressed aspects such as: abnormal eating behaviors that indicate susceptibility to Anorexia or Bulimia (dread associated with the idea of weight gain, dietary concerns, energy restrictions, fasting, binge eating and use of compensatory measures for weight loss), and level of severity of symptoms using the Likert frequency scale, divided into two categories: positive (always, often, sometimes); negative (rarely, almost never and never).

In addition, the illustration of male and female silhouettes, proposed by Kakeshita *et al.*[19], was used in order to assess self-perception of size, shape and body satisfaction. This instrument was previously tested with a similar population, equivalent to 5% of the final population of the study and did not require adaptations.

The instrument was self-completed individually by the participants, after explaining the research objectives. Descriptive statistical analysis was performed, using measurements of central tendency and dispersion, mean and standard deviation, in addition to absolute and relative frequencies. Pearson's Chi-squared test was used in order to trace the associations between the parameters of interest. The level of statistical significance was set at 5% ($p < 0.05$).

RESULTS

Considerable frequencies were demonstrated in relation to risk behaviors for eating disorders, such as intense fear of weight gain; idealization of thinness; excessive concern with food and physical fitness (Table 1).

Regarding the variables of the scale referring to behaviors and episodes of compulsive food intake, 46.9% of those evaluated reported spending a lot of time thinking about food and 53.1% liked to try foods rich in calories. It was also identified that 24.9% said they ate uncontrollably (Table 2). It is worth mentioning that 8.7% of the studied population reported having used diuretics at some point as a strategy for weight loss.

The results presented in Table 3 showed a considerable percentage of altered behaviors among the studied population, since 32.9% stated their concern of others in regard to their low food consumption and 59.9% reported self-control over food.

When analyzing the self-perception of size, shape and body satisfaction based on the scale of silhouettes, with images ranging from 1 (marked thinness) to 11 (obesity), the average silhouette desired by the evaluated population was 4.64 (±1.57). This corresponds to figure 4 of the scale, associated with the average Body Mass Index (BMI) of 17.1 kg/m^2 [19]. According to the criteria of the World Health Organization (WHO), this value is in the low weight range[16].

A significant association was identified between risk behaviors for Eating Disorders and body image distortion (Table 4). Risk behaviors such as the fear of gaining weight, food preoccupation, desire to be thinner and the practice of dieting and fasting were more frequent among those with dissatisfaction with excess weight when compared to those satisfied with their body image or even those dissatisfied with their thinness ($p < 0.05$).

When asked how they self-rated their current weight, 66.7% declared themselves to be “average”, 11% felt underweight, 16.0% reported “fat”, 2.3% “Very underweight” and 4.1% “very fat”.

It is also noteworthy that 67.3% of the adolescents evaluated, reported never having sought professional guidance to go on diets or to be informed about any nutritional behavior. Thus, when the score obtained by the EAT-26 was evaluated, 7.7% of the students presented a highly severe risk of developing Eating Disorders.

Table 1– Risk behaviors for the development of Anorexia Nervosa, among adolescents from a federal public school, São Cristóvão, SE.

Scale variables	n	Always/ Often (%)	Almost Never/ Never (%)
I am terrified of the idea of getting fat.	220	45.5	54.5
I feel worried about food.	219	56.1	43.9
I pay attention to the amount of calories I eat.	220	31.4	68.6
I particularly avoid foods rich in carbohydrates.	218	15.5	84.5
I worry about the desire to be thinner.	220	40.9	59.1
I feel extremely guilty after eating.	218	16.6	83.4
I think about burning more calories when I exercise.	218	57.6	42.4
People think I am very thin.	219	38.4	61.6
I usually eat dietary foods.	220	28.0	72.0
I diet to lose weight.	220	23.1	76.9
I like to feel my stomach empty.	217	12.4	87.4

Dezembro de 2015, São Cristóvão/SE, Brasil.

Table 2– Episodes of binge eating reported by adolescents from a federal public school, São Cristóvão, SE.

Scale variables	n	Always/ Often (%)	Almost Never/ Never (%)
I eat excessively and lose control.	217	24.9	75.1
I vomit after eating.	219	5.5	94.5
I spend a lot of time thinking about eating.	220	46.9	53.1
I like to try foods rich in calories.	218	53.1	46.9
I feel like throwing up after meals.	220	6.0	94.0

Dezembro de 2015, São Cristóvão/SE, Brasil.

Table 3– Practices for self-control of adolescents at a federal public school, São Cristóvão, SE.

Scale variables	n	Always/ Often (%)	Almost Never/ Never (%)
I avoid eating when I'm hungry.	219	15.5	84.5
I feel that others would like me to eat more.	219	32.9	84.5
I avoid eating foods that contain sugar.	218	25.7	84.5
I demonstrate self-control over food.	219	59.9	84.5

Dezembro de 2015, São Cristóvão/SE, Brasil.

Table 4– Association between risk behaviors for ED and distortion of body image of adolescents from a federal public school, São Cristóvão, SE. (n=218).

Variables	Silhouette			
	Dissatisfied with being overweight (%)	Dissatisfied by thinness (%)	Satisfied (%)	p
Dread of weight gain	47.9	34.7	17.4	≤0.01
Food concern	48.5	31.3	20.2	0.01
Desire to be thinner	57.0	25.3	17.7	≤0.01
Induces vomiting	50.2	32.4	17.4	0.36
Practice of diets	50.9	32.1	17.0	≤0.01
Fasting	50.7	32.3	17.0	0.01

Pearson's chi-square; significance level of 5%.

DISCUSSION

The adolescents reported a significant percentage of dietary practices and compensatory behaviors harmful to health, in order to obtain control or loss of body weight.

The excessive concern with food, dread of weight gain, idealization of thinness and the practice of dieting without professional guidance, declared by the adolescents, was similar to the data found in the study carried out with 300 adolescents of both sexes, aged between 10 and 17 years old, from a state school in the city of Recife, PE, where 36.6% of the students had unusual eating patterns[20].

Energy restriction and dietary concerns are characteristic behaviors of Anorexia Nervosa (AN), which is determined by the distorted view that individuals create of food[21]. The data found in this study corroborate the international literature. In a similar study with 1,028 students from Taiwan, of both sexes, aged between 14 and 18 years old, the average of the EAT-26 score was 8.6%, ratifying a high risk of developing eating disorders[22].

However, the prevalence of risk for the development of ED found in this investigation was lower than other studies in Brazil, such as a study conducted with 365 elementary school students in the city of Salvador, BA[23], in which 23.0% of adolescents showed positive results for eating disorders.

There was also, according to the results of the present study, a high percentage of students

who reported practicing physical exercises, as a method to compensate for energy intake. They also claimed to eat uncontrollably and like to try foods rich in calories, which are behaviors present in individuals susceptible to Bulimia Nervosa. In a systematic review, episodes of binge eating among patients with bulimia nervosa were demonstrated, which are followed by purgative or compensatory behaviors, resulting in losses in mental health and quality of life[24].

The results found are similar to the study by Almeida *et al.*[25], with 199 adolescents of both sexes, residing in the city of Ribeirão Preto, SP, in which the authors found that students who practiced physical exercises for aesthetic purposes, were extremely dissatisfied and they should be considered as a population at risk for the development of behaviors harmful to health and eating disorders.

Regarding body dissatisfaction, in the present study, the high frequency of adolescents who reported being unhappy with their current silhouette was notorious, especially due to being overweight, a fact that may be associated with distorted body self-perception and the influence of too many aesthetic standards imposed by today's society. It was possible to verify in the target audience, a positive association between the desire for a smaller silhouette and risky eating behaviors by Pearson's Chi-squared test ($p < 0.01$).

Regarding dissatisfaction with body image, a cohort study conducted in Pelotas with 4,100 individuals, found a high prevalence of body image distortion. Approximately 42% of the participants demonstrated feeling larger than the desired body size, even though they were eutrophic, showing the need for intervention in the search for healthier lifestyles[26].

Similar prevalences were found in surveys of 641 adolescents of both sexes, aged 11 to 17 years, which reported that 60.4% of adolescents were dissatisfied with their body image due to being overweight[27]. A finding in another study, carried out with 212 female adolescents, in Brazil, was that body dissatisfaction was greater in overweight and obese girls; however, eutrophic adolescents also were dissatisfied with their bodies[2].

Likewise, when evaluating American adolescents, they showed that girls above the 50th percentile of BMI reported greater body dissatisfaction than girls below this measure. In contrast, the boys who highlighted the highest dissatisfaction are those who are in the overweight range (75th percentile) or approaching low weight (below the 10th percentile)[28].

According to an evaluation carried out with 335 female students, from the public school network of Alfenas, MG, 48.4% of those evaluated were dissatisfied with their excess weight. In the same study, it was found that the studied adolescents exhibited a positive correlation between body image and behaviors susceptible to eating disorders[29].

In the present study, it is emphasized that the gender distribution was homogeneous among the participants. The results of this study reveal that the disturbance in the perception of body self-image was greater among females; although male adolescents also presented this distortion, but in a reduced proportion. There is a difference between this and other national surveys, which did not find differences between genders[2,25,30].

It is confirmed that the adolescents in the present study did not demonstrate a significant correlation between risk behaviors and the distortion of body image, regardless of sex ($p > 0.07$), indicating that in this population, both boys and girls are susceptible to eating disorders.

A prospective study of 757 Australian youths of both sexes, with an average age of 13 years,

found that there were no significant differences between the sexes, and that even the boys were twice as likely to be diagnosed with ED[31]. It is also noteworthy that a difference was found between the ages at the onset of symptoms, which is lower for male adolescents. In the same survey, it was found that exercises conducted to control weight and shape were common and comparable between men and women.

It is noteworthy in the present investigation that there was no association between the phases of adolescence and risk behaviors for ED in the students, indicating that such behaviors can appear both in the initial phase and in the intermediate period of adolescence ($p < 0.284$). Vannuci *et al.*[32], evaluating 468 Asian children aged 8 to 17 years, also observed that there were no significant differences in the prevalence rates or frequency of disordered eating attitudes between pubertal stages[32].

Nationally, a study with 313 adolescents found a prevalence of 47.0% of adolescents with body image distortions, whether over or underestimating their real weight[25]. In China, another similar study resulted in 57.0% of the sample with reported weights different from actual body weight[33]. In the present study, it was found that body dissatisfaction and concern with weight gain are conditioning factors for disordered weight control behaviors, evidencing the risk of triggering eating disorders in the evaluated population. It was also identified that both sexes, at different stages of adolescence, are subject to these risky attitudes, probably due to the overvaluation of body image.

The main limitation of the study was the use of self-reported anthropometric data, which made it impossible to compare the actual (measured) body weight with the data that were declared by the participant, since they were related to their body perception.

CONCLUSION

The investigation of behaviors related to the development of Eating Disorders showed an significant percentage of disordered behaviors such as dread when gaining weight, food concern, desire to be thinner, dieting and fasting in students of both sexes and at different stages of adolescence. These risk behaviors for the development of disorders were associated with distortion of the students' own body image. This fact highlights the need to develop interventions with these students, which corroborate students' awareness of the theme. After all, the consequences are harmful, causing damage to health and influencing the quality of life of these adolescents. One of the consequences of this study, aiming to make it possible to address the scenario identified, was to elaborate a report with the results for the school's pedagogical council, as well as to hold a meeting to discuss an interventional plan with the educators involved.

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