



Eating disorders in secondary school students

Trastornos de conducta alimentaria en estudiantes de educación secundaria

Transtornos alimentares em alunos do ensino médio


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ORIGINAL ARTICLE

KEYWORDS

Eating behavior, Eating disorders, Students, Secondary Education.

ABSTRACT. It is undoubtedly of interest to education and health professionals to know the characteristics of eating disorders in secondary school students, who are in a stage of behavioral training. Eating behavior disorders were analyzed in secondary school students of the Little Rome of America in Juli, Puno, Peru. The study subjects were selected from the most representative educational institution of the city, to evaluate and lay the foundations for the diagnosis of eating disorders, using the Eating Attitudes Test - 40 as an instrument, in which 58 students from second to fifth grade between males and females participated, with an average age ($X=15.06$, $SD = 1.13$), a risk-disorder of 48.3% has been confirmed, likewise, a prevalence of 37% in females and 10% in males was evidenced, which confirms the presence of eating disorders and implies facing it from the basic training of students to establish a behavioral prevention.

PALABRAS CLAVE

Conducta alimentaria, educación secundaria, estudiantes, trastornos.

RESUMEN. Sin duda es de interés de los profesionales de la educación y salud conocer las características de los trastornos en la conducta alimentaria en estudiantes de educación secundaria, que se encuentran en una etapa de formación conductual. Con ese fin se analizó los trastornos de conducta alimentaria, en estudiantes de educación secundaria de “La Pequeña Roma de América”, Juli, Puno, Perú (2019). Los sujetos de estudio fueron seleccionados de los 450 estudiantes de la Institución Educativa Secundaria María Asunción Galindo, la más representativa de la ciudad, con el fin de evaluar y sentar las bases del diagnóstico de los trastornos de conducta alimentaria, utilizado como instrumento el Test de Actitudes Alimentarias (EAT – 40), en el que participaron 58

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estudiantes de segundo a quinto grado entre varones y mujeres, con una edad promedio ($X=15.06$, $DE = 1.13$). En el resultado se confirmó un riesgo-trastorno del 48.3% así mismo se pudo evidenciar una prevalencia de 37% en mujeres y 10% en varones lo que confirma la presencia¹ de trastornos de conducta alimentaria y supone hacerle frente desde la formación básica de los estudiantes para establecer una prevención conductual.

PALAVRAS-CHAVE

Comportamento alimentar, ensino médio, alunos, transtornos.

RESUMO. Sem dúvida, é do interesse dos profissionais da educação e da saúde conhecer as características dos transtornos alimentares em alunos do ensino médio, que se encontram em fase de formação comportamental. Para tanto, foram analisados os transtornos alimentares em alunos do ensino médio de “La Pequeña Roma de América”, Juli, Puno, Peru (2019). Os sujeitos do estudo foram selecionados entre os 450 alunos da Instituição de Ensino Médio María Asunción Galindo, a mais representativa da cidade, para avaliar e lançar as bases para o diagnóstico de transtornos alimentares, por meio do Teste de Atitudes Alimentares (EAT-40), em que participaram 58 alunos do segundo ao quinto ano entre homens e mulheres, com média de idade ($X = 15,06$, $DP = 1,13$). O resultado também confirmou um transtorno de risco de 48,3%. Também foi possível mostrar uma prevalência de 37% nas mulheres e 10% nos homens, o que confirma a presença¹ de transtornos alimentares e implica tratá-los desde a formação básica dos alunos para estabelecer a prevenção comportamental.

1. INTRODUCTION

Eating Behavior Disorders (ED) is a topic of current interest for clinical, pedagogical, and basic research (Rodríguez & Mina, 2008). Therefore, it is necessary for education and health professionals to have greater knowledge about adolescent health, due to the characteristics of this age group that has specific needs within their population, as they may suffer from EDs since they are relevant mental health problems that mainly affect adolescent and young women (Gaete, 2015; Gaete et al., 2012). This group of diseases encompasses several entities that could be chronic and vary from, anorexia nervosa, bulimia nervosa, and binge eating disorder, in which the patterns of food intake are distorted (Mendez et al., 2008; Saucedo-Molina & Santoncini, 2010). Stress and psychosocial adversity are the main factors involved in the onset and development of Eating Disorders (Behar & Valdes, 2009), therefore it is a topic of vital importance in the training of students. On the other hand, obesity has been increasing in epidemic proportions in the world and is often present from childhood to senescence (Gonzalez et al., 2009). Obesity in children and adolescents is a pathological condition characterized by an excess of adipose tissue and constitutes the most frequent nutritional pathology and an inherent problem of health and education in developed and underdeveloped countries (Llanos & Cabello, 2013).

It can be speculated that women are more dissatisfied with a larger body than men and that the pressure for thinness in beauty models on behaviors linked to the desire to lose weight, the role of modern culture, slender body models, and the maintenance of eating disorders is greater in women (Hernández et al., 2012; Merino et al., 2001; Vaquero-Cristóbal et al., 2013). There are currently beauty standards based on pro-slimness models, which are internalized by adolescents, and young people (Vaquero-Cristóbal et al., 2013). It has also been mentioned that the altered perception of body image is an early symptom of the presence of EDs such as anorexia, bulimia, and others because it is a modifiable, predisposing, perpetuating factor in the prognosis of eating disorders and others (Benel-Huerta et al., 2013; Sánchez-Villegas et al., 2001). At the same time perceived body image as a method of bodyweight, assessment has different validity according to sociodemographic or attitudinal categories (Sánchez-Villegas et al., 2001).

Hence, it is important to identify eating behaviors and cognitions at early ages taking into account that they are at higher risk of developing severe ED in adulthood (Franco-Paredes et al., 2017). Perceived body image as an estimate of nutritional status could perhaps be applied as an indirect measure of adiposity among lean men and lean and overweight women (Sánchez-Villegas et al., 2001).

Body Mass Index (BMI) is also widely used as a risk factor for the development or prevalence of different diseases (Suárez & Sánchez, 2018). Differences in diet quality according to BMI, and also its relationship with attitudes and the influence of sociocultural factors in the development of EDs (Hernández et al., 2012). On the subject of eating disorders, one of the variables worked on is the body profile that people see, this has been frequently associated with the harmful modification of eating habits, to the point of constituting a health problem (Sánchez-Villegas et al., 2001).

Acquired cognitions about body image have a direct relationship in the formative stages (Franco-Paredes et al., 2017) principally in secondary education, so in the present research work, we performed the characterization of eating disorders according to sex, according to BMI, and determined the prevalence of this disorder.

2. METHOD AND MATERIALS

The present study was of simple descriptive design, cross-sectional, therefore observational and individual-based this had a descriptive and analytical purpose (Reyes & Sánchez, 2017; Rodríguez & Mendivelso, 2018), information was obtained from students of the most representative Secondary Educational Institution of the Little Rome of America called "Maria Asuncion Galindo" in Puno Peru (2019), the study variable was the eating behavior disorder. For this research, the exploratory and data collection technique was used through the questionnaire; this allowed us to collect information through structured and closed questions. The instrument used was selected for its replicable and validity demonstrated in different studies that represent the Eating Attitudes Test (EAT 40) which consists of 40 questions that are categorized into 5 indicators, the same that collect information on a psychometric scale, having as response possibilities: always, almost always, often, sometimes, sometimes, rarely and never; for items 1, 18, 19, 23, 27 and 39 are scored A=0, B=0, C=0, D=1, E=2, F=3 and the rest of the items A=3, A=2, C=1, D=0, E=0, F=0, likewise the instrument has a reliability of 88% (Garner & Garfinkel, 1979).

The breakpoint proposed for the classification was 20 points for the normal population, 30 for the at-risk population, and 50 for clinical cases. The instrument also presents a reverse rating scale so that the student is not encouraged to mark the same answer (Garner & Garfinkel, 1979), thus demonstrating the ability of the EAT-40 to predict the risk of ED, differentiating between people with nutritional risk and those who do not have it (Salazar, 2012).

The population consisted of 450 students from the Maria Asunción Galindo Secondary School in the district of Juli, province of Puno, which is geographically located at 3889 meters above sea level, also known as the *Little Rome of America*. A non-probabilistic sampling by convenience was carried out, due to the access allowed by the directors and authorities of the institution, a total of 3 sections of the different grades offered by this institution were authorized, obtaining a total of 75 students as a sample for the present study, of which 17 students did not register their attendance, finally having a total of 58 students sampled, approximately 20% of the study population, which was representative of the population. For the present study to be described in greater detail variables were included that will allow us to characterize the research carried out such as weight, height, sex,

age, as well as the calculation of the body mass index to be used as a descriptor in the results of this study as can be seen in table 2.

Table 1. Operationalization of variables

Variable	Indicator	Sub Indicator
Attitude Food	Normal	20
	Risk	30
	Disorder	50
Sex	Female	
	Male	
Height	Centimeters	
Weight	Kilograms	
Age	>14	
	15	
	<16	
BMI	Low	
	Normal	
	Overweight	

Source: Own elaboration

For the data collection of this research, 3 students from the National University of the Altiplano in Puno belonging to the Faculty of Health Sciences, Professional School of Human Nutrition with knowledge on the subject of basic anthropometric measurements as well as data collection through questionnaires, who were previously trained in these procedures, based on the regulations and protocols of basic anthropometry of the International Society for the Advancement of Kinanthropometry (ISAK), participated in the study. For this study, all students and teachers were informed about the objectives of the work, and they were given the necessary assistance during the collection of information.

To process the information collected in this research, spreadsheets were used to tabulate the information, for which a statistics specialist created the template for the datasheets so that the researchers could complete the research. Then, the same performed the statistical analysis using frequency distribution tables, prevalence formulas, and graphs processed in the SPSS program version 23, finally perform the analysis and discussion of the same.

We can say that in the study the ratio between males and females is approximately 2 to 5, respectively, according to table 2, the characteristics of the students who participated in the study are showing in percentage frequencies.

Table 2. Students Descriptive.

Variable	Item	fi	fi%
Sex	Female	41	70,7%
	Male	17	29,3%
Grade	2do	18	31,0%
	4to	17	29,3%
	5to	23	39,7%
Age	<14	18	31,0%

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	15	14	24,1%
	16>	26	44,8%
BMI	Underweight	6	10,3%
	Normal	38	65,5%
	Overweight	14	24,1%

Source: Own elaboration

3. RESULTS

To explain the results we used a frequency distribution table that shows the classification of eating disorders calculated by the classification proposed in the EAT-40 instrument (Garner & Garfinkel, 1979), resulting in that 48.3% of the subjects of the Maria Asuncion Galindo Secondary School suffer from risk or eating disorders, this percentage is very worrying. This percentage is very worrying, so in detail, it indicates that 29.3% of the study subjects are prone to suffer from an eating disorder and even more alarming is that 19% already suffer from eating disorders. Breaking down the analysis according to sex, we observe that 17.2% of female students suffer from this disorder, as opposed to male students with a percentage of 1.7%. This entire group should receive psychological help from a specialist given that they are outside the normal values established in the instrument (Mara et al., 2016).

Table 3. Distribution of frequencies of Eating Behavior Disorder (ED) according to the sex of students at Maria Asunción Galindo de Juli Secondary School, 2019

		Sex					
		Female		Male		Total	
		fi	fi%	fi	fi%	fi	fi%
ED	Normal	19	32,8%	11	19,0%	30	51,7%
	Risk	12	20,7%	5	8,6%	17	29,3%
	Disorder	10	17,2%	1	1,7%	11	19,0%
	Total	41	70,7%	17	29,3%	58	100,0%

Source: Own elaboration

The variable TCA was grouped by sex and according to BMI as shown in table 4, thus characterizing the study subjects to evaluate the prevalence ratios of this disorder. Where a preponderant frequency is evidenced in female students corresponding to 24.1% of female students, who present a BMI that can be considered normal (Salem-Solis et al., 2018), but the same are already in the population at risk and with eating behavior disorder. On the other hand, excess overweight in males poses a high risk for eating disorders due to their physical condition.

Table 4. Eating Disorders (ED) according to their Body Mass Index (BMI) of the students of Institution Maria Asunción Galindo de Juli, 2019

SEXO	IMC	TCA			
		Normal		Risk	Disorder
		fi	fi%	fi	fi%
Female	Underweight	1	1,7%	2	3,4%
	Normal	13	22,4%	14	24,1%

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	Overweight	5	8,6%	6	10,3%
	Underweight	2	3,4%	1	1,7%
Male	Normal	7	12,1%	4	6,9%
	Overweight	2	3,4%	1	1,7%
Total	Underweight	3	5,2%	3	5,2%
	Normal	20	34,5%	18	31,0%
	Overweight	7	12,1%	7	12,1%

Source: Own elaboration

For the calculation of the prevalence of students at risk and with a mental disorder, the variable was grouped given its better presentation and structuring of relevant information in the present study, which is been shown in detail in table 5.

Table 5. Eating Behavior Disorders (ED), grouped according to sex of students at Institution Maria Asunción Galindo de Juli, 2019.

		DE		Total	
		Risk-Disorder	Normal		
Sex	Female	<i>fi</i>	22	19	41
		<i>fi%</i>	53,7%	46,3%	
	Male	<i>fi</i>	6	11	17
		<i>fi%</i>	35,3%	64,7%	
Total		<i>fi</i>	28	30	58
		<i>fi%</i>	48,3%	51,7%	

Source: Own elaboration

The prevalence was calculated using the frequency distribution in Table 5, which provides us with information on frequencies and percentages:

$$Prevalence = \frac{\text{Students with Risk or Disorder}}{\text{Total people}} \times 100$$

Prevalence of ED in women:

$$P_{(Risk-Disorder|Women)} = \frac{22}{58} \times 100$$

$$P_{(Risk-Disorder|Women)} = 37 \%$$

Prevalence of ED in males.

$$P_{(Risk-Disorder|Male)} = \frac{6}{58} \times 100$$

$$P_{(Risk-Disorder|Male)} = 10 \%$$



Source: Own elaboration

Risk and disordered eating attitudes were more prevalent in female adolescents with 37% of the total, as well as in male adolescents with 10% of the total results. An association was also found between BMI and risk and disordered eating attitudes. The EAT-40 as an instrument for data screening proved to be a useful instrument for the detection of eating attitudes in schoolchildren and related factors, although new studies are needed to contribute to this research topic.

4. DISCUSSION

This work has allowed us to determine the level of ED and to characterize it with the help of BMI and sex. The results of the research provide many data that confirm the conclusions and approaches of the exploration carried out.

In both sexes, variables related to body image significantly increase the risk of eating behaviors. Depressive symptoms, low self-esteem, and BMI increase the risk among women, and desire for muscularity, socioeconomic status, and area of study among men (Santoncini et al., 2016).

In the study conducted by Zapata et al. (2018) female sex is mentioned as a risk factor associated with EDs, which coincides with the findings of the present study. The sample regarding the male gender was of a very low percentage, for this reason, it is suggested to continue the study with this population which is little studied.

As for BMI, it has been proven in different studies as an important indicator in the prediction of body dissatisfaction, since increasing its value increases the distance between the real and ideal figure, and consequently the dissatisfaction with one's own body. This happens especially in subjects who are overweight or obese, thus having a greater probability for the development of alterations in their eating habits and risk of ED (Jones, 2004).

In various international research on eating disorders, the perception and attitudes regarding body weight have been observed, finding that women have greater dissatisfaction with their weight than men; they want to be thinner even if they have an adequate weight, confirming the results of this study. This factor added to the stage of adolescence represents a high risk for developing altered eating behaviors (Fajardo et al., 2017).

Thus, it is common that when the diagnosis of the pathology or health problem is made, it's in an advanced stage, this is because the acquisition of EDs tends to the current population, since it is very likely that this will lead to problems with the heart (cardiac), kidney (renal), stomach (digestive) and even death (Knightsmith et al., 2013). It is very important to promote preventive activities in educational institutions, as well as to plan health strategies to help in the proper management and diagnosis of ED based on a profile that considers cognitive, behavioral, emotional, and neurological symptoms that represent the adolescents (Maldonado-Ferrete et al., 2020). The school stage is vital to facilitate prevention, reintegration, and recovery since the condition is usually less severe or less frequent in the age group observed in this research work (A. V. Losada & Rodriguez Eraña, 2019).



Therefore, it can be concluded that this treatment should be considered from an interdisciplinary approach, including the work of health professionals, educators, and families (A. Losada & Bidau, 2017). For this, it is necessary to consider the implementation of promotion and prevention campaigns through information on healthy lifestyles, which can guide students who are at risk for these diseases (Lazo Montoya et al., 2015).

Finally, the present research incites to take the reason of the importance and risk presented by adolescents with ED but unfortunately, this pathology is not fully controlled, much less has a complete intervention, since, at present, many factors hinder the prevention, research, and treatment of this disease. One of them is the lack of training of education and health professionals in this emerging issue (Gaete & López, 2020). It has hoped that the results of this research in the present article will help inspire and favor actions in the use and planning of a more solid perspective about ED.

5. CONCLUSIONS

Eating disorders are present in Little Rome of America, Juli, Puno, Peru, and tacitly at alarming levels that should be addressed by the education authorities of the region to reduce the 49.3% risk-disorder rate found in this study.

BMI is a determining factor when classifying eating disorders in high school students, showing a normal status on average but alarming in female students.

The prevalence of eating disorders in high school students is 37% for females and 10% for males, considering the particularities of this study population.

Eating disorders should not be a topic isolated to the teaching and management work of Secondary Education Institutions, and actions should be taken to correct and avoid behavioral problems in the future, considering studies with a larger population and considering other variables of the psyche that help to describe the state of the students.

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Fred Torres: conceptualización, investigación, metodología, administración del proyecto, recursos, software, supervisión, validación, visualización, escritura - preparación del borrador original, escritura - revisar & edición.

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