












ORIGINAL

Risk of eating disorders related to body shape perception in adolescents

Riesgo de trastornos de la conducta alimentaria relacionado con percepción de figura corporal en adolescentes

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ABSTRACT

Introduction: currently, young people face mental problems that have an impact on their behavior, one of them being Eating Behavior Disorders (ED), which, according to the WHO, manifest abnormal eating behaviors, distortion of how they look physically, paying more attention to their weight and the food they eat.

Objective: to analyze the risk of eating disorders and their relationship with the perception of body shape in adolescents.

Method: quantitative, descriptive-correlational and cross-sectional research in high school students whose eating attitudes and body shape were evaluated. The study subjects were selected by non-probabilistic convenience sampling in 184 students with informed parental consent and student's assent. The data were analyzed in the statistical program SPSS version 15,0 demo with descriptive and inferential statistics, with adherence to international and national ethical aspects.

Results: participants at risk of ATT represented 7,6 % of the population, 33,2 % obtained body shape concern, 20,1 % were identified as underweight and 21,2 % as overweight and obese.

Conclusions: a relationship was observed between the variables body shape perception and risk of ED ($r_s=0,448$; $p<0,000$) determining that the greater the concern for body shape the greater the risk of eating disorders. Therefore, nursing professionals should intervene immediately to address the problem with strategies that have an impact on the health of adolescents.

Keywords: Adolescents; Eating Disorders; Body Shape Perception; Anorexia; Bulimia.

RESUMEN

Introducción: actualmente los jóvenes, se enfrentan a problemas mentales que impactan en su comportamiento uno de ellos son los Trastornos de la Conducta Alimentaria (TCA), que, según la OMS, estos manifiestan comportamientos alimenticios anormales, distorsión de cómo se ven físicamente prestando mayor interés en el peso y alimentos que ingiere.

Objetivo: analizar el riesgo de trastornos de la conducta alimentaria y su relación con la percepción de la figura corporal en adolescentes.

Método: investigación de enfoque cuantitativa, descriptiva-correlacional y transversal en estudiantes de bachillerato a quienes se evaluaron las actitudes alimentarias y figura corporal. Los sujetos de estudio

se seleccionaron por muestreo no probabilístico por conveniencia en 184 estudiantes con consentimiento informado paterno y asentimiento del estudiante. Los datos se analizaron en el programa estadístico SPSS versión 15.0 demo con estadística descriptiva e inferencial, con apego a los aspectos éticos internacionales y nacionales.

Resultados: los participantes con riesgo de TCA representaron el 7,6 % de la población, el 33,2 % obtuvo preocupación por la figura corporal, se identificó 20,1 % de bajo peso y 21,2 % de sobrepeso y obesidad.

Conclusiones: se observó relación entre las variables percepción de la figura corporal y riesgo de TCA ($r_s=0,448$; $p<0,000$) determinando que a mayor preocupación por la figura corporal mayor riesgo de trastornos de la conducta alimentaria. Es por ello, que los profesionales de enfermería deben intervenir de manera inmediata para abordar el problema con estrategias que impacten en la salud de los adolescentes.

Palabras clave: Adolescentes; Trastornos de la Conducta Alimentaria; Percepción de la Figura Corporal; Anorexia; Bulimia.

INTRODUCTION

Adolescence begins in childhood and ends with physical and physiological changes that transform a person into an adult. In Mexico, it is classified as the age range from 9 to 19. It represents a critical stage in human development, involving various physiological, anatomical, and psychological changes that shape a person's identity.⁽¹⁾

A negative body image can not only lead to risky health behaviors intended to change it, such as dieting, but in extreme situations, it is one of the leading causes of suicide among adolescents.⁽²⁾

Risk eating behaviors (REBs) are inappropriate behaviors in food consumption that are not considered eating disorders because they do not meet the diagnostic criteria, occur less frequently, and are less intense, as established in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V).⁽³⁾

Eating disorders (EDs) are among the most serious mental illnesses. According to the World Health Organization (WHO), they involve inappropriate eating behaviors accompanied by a distorted perception of body image and increased concern about weight and food.⁽⁴⁾

Currently, eating disorders are a serious health problem, and their incidence in the population has increased. According to data from the National Health and Nutrition Survey (ENSANUT), which provides a broad overview of the health conditions of the Mexican population, in 2022, 23,9 % of adolescents of both sexes were affected by overweight and 17,2 % by obesity.⁽⁵⁾

Through non-probabilistic samples taken from adolescents, it was found that in Mexico City, approximately 17 % of males and females in public schools exhibit risky eating behaviors; in Jalisco, 11,4 % of females; in Oaxaca, 8,6 %; and in Chihuahua, 5,7 % of adolescents between the ages of 11 and 15 exhibit these behaviors.⁽⁶⁾

According to surveys in Mexico⁽⁷⁾ analyzing the nutritional status of children, adolescents, and the general population, 23,8 % of people aged 12 to 19 were overweight, and 14,6 % were obese. Between 2018 and 2019, 49,5 % of urban adolescents were overweight and 29,9 % were obese, while 42 % of rural adolescents were overweight and 27,2 % were obese.

Several factors cause TAC, the most important of which for health professionals to analyze are genetics, the adolescent's environment, upbringing, family networks, and a history of mental health disorders. People at risk or already suffering from one of these disorders express concern about being thin, avoid consuming fats and sugars, fast, take laxatives, wear clothing that covers their bodies, or compare their physical appearance with that of others.⁽⁸⁾

Many people who change their eating habits and develop a disorder do not choose to do so and are sometimes unaware that they have it or how much it can affect their health. This is why it was decided to conduct this research specifically among adolescents, as they are a group identified as vulnerable due to the stage of life they are at, often do not respond to questions that arise about the changes they are experiencing, such as sexual maturation, growth and development of muscle tone, cognitive aspects, changes in ways of thinking that contribute to identity, values, beliefs, and personal and professional goals.

The WHO indicates that anorexia and bulimia nervosa occur more frequently in adolescents and young people. Anorexia nervosa causes premature death as a result of medical complications or suicide, and the mortality rate for this disorder exceeds that of other mental disorders. Based on the above, the objective was to analyze the risk of eating disorders and their relationship with body image perception in adolescents, as these are essential aspects for the early detection of eating disorders and, therefore, for improving the quality of life of adolescents.⁽⁴⁾ That is why the general objective of this study was to analyze the risk of eating disorders and their relationship with body image perception in adolescents.

METHOD

This research had a quantitative, descriptive-correlational, and cross-sectional approach and was conducted between February and July 2024.^(9,10,11,12)

The study population comprised 350 students aged 15 to 19 from the Telebachillerato de Jalapilla. The sample consisted of 184 students representing 52,57 % of the total student population, which was obtained using the QualtricsXM program, considering a statistical significance of 95 % ($Z=1,96$) and a margin of error of 0,05.⁽¹³⁾

The sample was selected using a non-probability convenience sampling method, which establishes that the sample is selected according to the criteria identified for the study, the variables to be studied, and compliance with the established selection criteria, as well as the characteristics chosen by the researcher to be observed in the study.^(9,10)

To comply with national and international ethical standards, the research instrument included informed consent, informed assent, and a specific section for evaluating sociodemographic data. The variable risk of eating disorders was assessed using the Eating Attitudes Test (EAT), which has a Cronbach's alpha of 0,94 and assesses concern about food, body image, vomiting and laxative abuse, food restriction, slow eating, secret eating, and perceived social pressure to gain weight. It consists of 40 items with six response options: never, rarely, sometimes, often, very often, and always.^(14,15,16)

The total score for the instrument ranges from 0 to 120, and each item has six possible responses, evaluated on a Likert scale ranging from 0 to 3. In items 1, 18, 19, 23, 27, and 39, never = 3, rarely = 2, sometimes = 1, often = 0, very usually = 0, and always = 0; in the rest of the items, always = 3, very usually = 2, usually = 1, sometimes = 0, rarely = 0, and never = 0. The cut-off point considered by the original authors is 30; therefore, in the classification, a score <30 is without risk of ED, and a score >31 indicates a risk of ED. The instrument allows for the detection of the risk of anorexia and bulimia nervosa; however, it cannot differentiate between the two.^(14,16)

The body image questionnaire was used for the body image perception variable, with a Cronbach's alpha of 0,95 to 0,97. The questionnaire consists of 34 items that assess body dissatisfaction, fear of gaining weight, feelings of low self-esteem due to appearance, and desire to lose weight on a 6-point Likert scale ranging from 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very usually, and 6 = always, so that the range of this test is from 34 to 204 points, classifying these scores into four categories as not concerned <81, mild concern 81 to 110, moderate concern 111 to 140, and extreme concern >140.^(17,18)

The selection criteria included students aged 15 to 19 enrolled in school (male and female), signed informed parental consent and informed consent from the student, acceptance of the project explanation, and willingness to participate. Students with a history of diagnosed eating disorders or currently presenting eating disorders, a history of treatment for any eating disorder, diagnosed anxiety, depression, or stress, and a history of suicide attempts were excluded. Participants who did not answer any questions on the assessment instruments marked two options on any of the questions or expressed their decision to withdraw from the study were eliminated.

The data obtained were processed using the Statistical Package for the Social Sciences (SPSS) version 15,0 demo for Windows with descriptive statistics, measures of central tendency, percentages, measures of dispersion, the Kolmogorov-Smirnov test to assess the normality of the variables, and Spearman's Rho to determine their correlation.^(19,20,21)

The research adhered to the ethical principles governing health research, such as the nursing code of ethics, NOM-012-SSA3-2012, which establishes the criteria for the execution of health research projects in humans, and the General Health Law, considering respect for human rights, values, customs, and spiritual beliefs. The confidentiality of participants' information was protected, establishing that participation is voluntary, and they may withdraw from the research at any time. Informed consent was requested, as well as registration with the health research coordination and the bioethics committee responsible for reviewing, approving, and monitoring the ethical principles conducted in the research.^(22,23,24)

RESULTS

Table 1. Sociodemographic data of participants

Age of participant	Gender of participant				Total	
	Male		Feminine		F	%
	F	%	F	%		
14 to 16 years old	44	23,9	61	33,2	105	57,1 %
17 to 19 years old	33	17,9	46	25,0	79	42,9 %
How is family life?						

Good	62	33,7	79	42,9	141	76,6 %
Average	14	7,6	28	15,2	42	22,8 %
Bad	1	0,5	0	0	1	0,5 %
BMI classification						
Underweight: <18,5	18	9,8	19	10,3	37	20,1 %
Normal weight: Greater than or equal to 18,5 and <25	42	22,8	66	35,9	108	58,7 %
Overweight: Greater than or equal to 25 and <30	16	8,7	16	8,7	32	17,4 %
Obesity grade I: Greater than or equal to 30 and <35	1	0,5	4	2,2	5	2,7 %
Obesity grade II: Greater than or equal to 35 and <40	0	0	2	1,1	2	1,1 %
Total	77	41,8 %	107	58,2 %	184	100,0 %
Note: based on data identification form, F: frequency, %: percentage, n= 184.						

Table 1 shows the sociodemographic data. Regarding gender, 58,2 % of participants were female, and 41,8 % were male. Regarding age, females predominated in the 14-16 age group, representing 33,2 % of the study population, while males accounted for 23,9 % of the same age group.

When asked about family life, 76,6 % of participants reported good relations with their families, while 23,4 % reported fair to poor relations.

About BMI, 20,1 % of the sample was classified as underweight, with 10,3 % of women compared to 9,8 % of men, 17,4 % overweight, 2,7 % obese, and two women representing 2,2 % obese. 58,7 % were of normal weight, with 35,9 % of men and 22,9 % of women.

Table 2. Classification of the variable risk of eating disorders

Classification	<30 No risk of eating disorders			>31 At risk of eating disorders		
	F	%		F	%	
Risk of eating disorder	170	92,4		14	7,6	
	Measures of central tendency			Dispersion measures		
	Average	Medium	Fashion	Standard deviation	Minimum	Maximum
	16,97	14,00	11	8,781	2	58
Note: EAT: Eating Attitudes Test, ⁽²⁵⁾ F: frequency, %: percentage, n=184						

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Table 3. Classification of the variable perception of body shape

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Classification			Not concerned: <81		Slight concern: 81-110		Moderate concern: 111-140		Extreme concern: >140	
			F	%	F	%	F	%	F	%
Perception of body shape			123	66,8	30	16,3	15	8,2	16	8,7
			Level of grouped concern						%	
					61				33,2	
			Measures of central tendency					Level of grouped concern		
			Average	Medium	Fashion			Standard deviation	Minimum	Maximum
			75,78	66,00		34		37,777	34	177
Note: BSQ: Body Shape Questionnaire ⁽²⁷⁾ , F: frequency, %: percentage, n= 184										

Note: BSQ: Body Shape Questionnaire⁽²⁷⁾, F: frequency, %: percentage, n= 184

When analyzing the variable risk of eating disorders, it was observed that the population without risk of EDs represents 92,4 %, and the population at risk represents 7,6 %. The measures of central tendency are described with a mean of 16,97, a median of 14, and a mode of 11. The standard deviation was 8,781, with a minimum of 2 and a maximum of 58 (table 2).

The classification of the variable perception of body image shown in table 3 revealed that 33,2 % of adolescents are concerned, with 16,3 % reporting mild concern, 8,2 % moderate concern, and 8,7 % extreme concern. The measures of central tendency are described with a mean of 75,78, a median of 66, and a mode of 34. The standard deviation was 37,777, with a minimum of 34 and a maximum of 177.

Perception of body shape	Risk of eating disorders				Total	
	<30 No risk of eating disorders		>31 Risk of eating disorders			
	F	%	F	%	F	%
Not concerned: <81	121	65,8	2	1,1	123	66,8 %
Level of concern grouped	49	28,8	12	85,7	61	33,2 %
Total	170	92,4 %	14	7,6 %	184	100,0 %
Note: EAT: Eating Attitudes Test ⁽²⁵⁾ , BSQ: Body Shape Questionnaire ⁽²⁷⁾ , F: frequency, %: percentage, n= 184						

When contrasting the variables risk of eating disorders and body image perception, the categories mild, moderate, and extreme concern were grouped to analyze the relationship between both variables, and it was found that 28,8 % of the study subjects who did not present a risk of ED expressed concern about their body image compared to students who presented a risk of eating disorders, with 85,7 % of concern about body image concerning the total number of students in the different categories of concern (table 4).

Table 5. Eating disorders and body image perception by BMI												
Risk of eating disorders	Body mass index (BMI)										Total	
	PN		BP		SP		OI		OII			
	F	%	F	%	F	%	F	%	F	%	F	%
<30 No risk of CAT	98	57,6	36	21,1	30	17,7	5	3	1	0,6	170	100
>31 Risk of CAT	10	71,4	1	7,1	2	14,3	0	0	1	7,2	14	100
Total	108	58,7	37	20,1	32	17,4	5	2,7	2	1	184	100
Total, with TAC, BP, SP, OI, OII							F		%			
							14		28,6			
Perception of body shape												
Not concerned: <81	74	60,2	27	22	19	15,4	3	2,4	0	0	123	100
Level of concern grouped	34	55,7	10	16,4	13	21,3	2	3,3	2	3,3	61	100
Total	108	58,7	37	20,1	32	17,4	5	2,7	2	1,1	184	100.
Note: Data identification code, EAT: Eating Attitudes Test, ⁽²⁵⁾ BSQ: Body Shape Questionnaire, ⁽²⁷⁾ F: frequency, %: percentage, BMI: Body Mass Index, ED: eating disorders, NW: Normal weight: Greater than or equal to 18,5 and <25, LP: Underweight: <18,5, SP: Overweight: Greater than or equal to 25 and <30, OI: Obesity grade I: Greater than or equal to 30 and <35, OII: Obesity grade II: Greater than or equal to 35 and <40, n= 184.												

In table 5, regarding adolescents who presented a risk of eating disorders, 71,4 % corresponded to the normal weight category and 28,6 % to BMI problems such as underweight, overweight, and obesity. On the other hand, of the total number of students who did not present a risk of eating disorders, 21,6 % were underweight, 17,7 % were overweight, 3 % were obese (grade I), and 0,6 % were obese (grade II).

The results obtained for the body image perception variable showed that 55,7 % of students who expressed some level of concern were in the normal weight category, 16,4 % were underweight, 21,3 % were overweight, 3,3 % were obese (grade I), and 3,3 % were obese (grade II). Among students who did not show any level of concern about their body image, 2 % were classified as underweight, 15,4 % as overweight, and 2,4 % as obese grade I.

Table 6. Variable correlation test: Spearman's Rho

Variable	1	2	3	4	5	6	7	8	9
VRTCA ¹	1,000								
VPFC ²	0,448** 0,000	1,000							
EP ³	-0,048 0,519	-0,024 0,742	1,000						
PP ⁴	-0,047 -0,523	0,139 0,061	-0,012 0,871	1,000					
ESTPA ⁵	0,022 0,770	-0,203** 0,006	0,132 0,074	0,447** 0,000	1,000				
IMCPA ⁶	-0,048 0,517	0,252** 0,001	-0,122 0,100	0,836** 0,000	-0,042 0,567	1,000			
COMDIA ⁷	-0,056 0,450	-0,290** 0,000	0,062 0,400	-0,051 0,492	0,204 0,006	-0,155** 0,035	1,000		
FVFREC ⁸	0,087 0,240	-0,145* 0,050	-0,048 0,514	-0,105 0,154	-0,050 0,154	-0,084 0,258	0,209** 0,004	1,000	
COMCHAT ⁹	0,006 0,931	0,105 0,156	-0,010 0,896	-0,125 0,090	-0,154 0,036	-0,069 0,351	-0,088 0,236	-0,092 0,215	1,000

Note: Eating attitudes test, ^(25,26) Body image questionnaire, ⁽²⁷⁾ VRTCA¹: Variable risk of eating disorders, VPFC²: Variable perception of body image, EP³: Age of participant, PP⁴: Weight of participant, ESTPA⁵: Participant height, BMI⁶: Participant body mass index, COMDIA⁷: How many meals do you eat per day?, FVFREC⁸: How often do you eat fruits and vegetables?, COMCHAT⁹: How often do you eat junk food?, *: Correlation is significant at the 0,05 level (bilateral), **: Correlation is significant at the 0,01 level (bilateral), n= 184.

Table 6 analyzes the correlation of the study variables using Spearman's rho test. According to the degree of relationship, it was determined that the variable perception of body shape (VPFC²) is related to the variable risk of eating disorders (VRTCA¹) with a moderately significant correlation; therefore, it is determined that the greater the concern about body shape, the greater the risk of eating disorders in adolescents ($rs=0,448$, $p=0,000$).

The variable weight (PP⁴) was compared with the participant's height (ESTPA⁵), observing a moderate positive correlation ($rs=0,447$, $p=0,000$). Similarly, a high positive correlation was found between the variable above and the participant's body mass index (BMI PA⁶) ($rs=0,836$, $p=0,000$), which corroborates that anthropometric measurements and BMI in their different classifications are associated with body image perception, favoring the risk of EDs.

DISCUSSION

The findings of this study, regarding the sociodemographic data of the participants in the research entitled Predictors of risky eating behaviors in high school students, showed a higher frequency of women in more than 50 % of the sample. This coincides with the present study, in which 58. Furthermore, the participants in the same study were 14 to 18 years, similar to this study, which was 15 to 19 years. It is essential to develop educational interventions that promote self-care among adolescents who experience physical, psychological, and emotional changes, as well as in their behavior, to experience new things. This situation can put them at risk. In addition, due to the risk of anorexia or bulimia nervosa, they may experience depression or anxiety, which in more severe cases can lead to suicide. ^(28,29)

Based on body mass index, the study Status of weight, risky eating behaviors, and body dissatisfaction in adolescent and young women identified weight disorders in 29,5 % of the population, with overweight predominating at 14,2 % of the sample, compared to the present study, which found 41,2 % of weight disorders (BMI), with low weight predominating in 20,1 % of the sample. It can be observed that nutritional disorders have increased among adolescents. Therefore, they must receive medical and psychological care, especially those who, according to their BMI results, have a weight disorder, giving priority to those who show risk for eating disorders such as bulimia and anorexia nervosa. ⁽³⁰⁾

About the variable perception of body image, in the study entitled "Self-perception of body image and anthropometric nutritional assessment of adolescents," 63,6 % of participants expressed concern about their body image on a scale from mild to extreme, compared to the present study, in which 33,2 % of participants expressed the same level of concern about their body image. It should be noted that extreme concern was present in both studies in a lower percentage, which does not diminish the importance of the impact on the

lives of adolescents. Therefore, students must receive psychotherapy, mainly to begin working on their body image concerns, which are one of the signs of anorexia nervosa, and to determine whether they need to attend family therapy, as this is commonly necessary at their age. In the case of bulimia nervosa, cognitive behavioral therapy is required to reduce signs such as body dissatisfaction and weight concerns and to improve eating habits.^(31,32,33)

In the study titled Self-perception of body image and risky eating behaviors in undergraduate medical students in Xalapa, Veracruz, Mexico, 23,5 % of the population was at risk for eating disorders, compared to the present study, where the percentage was lower at 7. The difference is probably due to the level of education since the author evaluated a university population, from which it can be deduced that if students begin high school with disorders, they will be more likely to develop eating disorders at the university level. In contrast, the social environment and academic demands favor the presence of risk compared to high school students.⁽³⁴⁾

Therefore, it is of great importance for the nursing profession that professionals conduct more research of this type, as many people have mental disorders and ignore them, putting their health at risk. This will make it possible to identify the at-risk population and provide nursing interventions to those who need them.

CONCLUSIONS

Based on the above, it can be concluded that the objective of the research was achieved, as it allowed for the analysis of the risk of eating disorders and their relationship with body image perception in adolescents, determining that the greater the concern about body image, the greater the risk of eating disorders in adolescents.

Nursing professionals must carry out activities focused on health education and prevention, prioritizing risk groups such as adolescents, as they experience many changes at this stage of life. It is also important to continue conducting research and interventions to improve nursing care.

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