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Research Article

Uncontrolled Eating in Peruvian University Students: An Approach from an Addictive Behavioral Framework

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Abstract

Background: Uncontrolled eating is characterized by the difficulty in regulating intake in the face of hunger and the loss of control over intake has taken interest in its study as an addictive behavioral pattern, specifically in young people exposed to academic demands and sociocultural pressures.

Objective: To analyze uncontrolled, emotional, and cognitively restricted eating according to sociodemographic variables in Peruvian university students.

Methods: The study used a quantitative, non-experimental cross-sectional design, involving 2086 intentionally selected students, including students from the areas of social sciences, health sciences, and sciences and engineering. For the measurement of eating behavior, the Three Factor Eating -21 scale was applied, in addition, non-parametric tests were considered since the data did not present normal distribution.

Results: The overall risk score of eating behavior reached a mean of 51.3 points (SD=7.13). Likewise, uncontrolled eating obtained the highest average of the study dimensions. Statistically significant differences were found according to sex, marital status, academic area, and daily water consumption. However, no differences were found by occupation, daily frequency of food consumption, or age.

Conclusions: Uncontrolled eating is a relevant dimension to understand the difficulties of regulating intake in university students. The loss of control allows us to analyze this behavior from an addictive behavioral framework, because they share indicators such as desire, response to food signals and repetition of intake.

Keywords: Uncontrolled eating; Addictive eating; Loss of control; Eating behavior; University students

Introduction

Eating disorders are considered psychosocial and biological problems that mainly affect young people and adolescents, being of utmost importance for the public health sector and especially for the mental health area. These situations include alterations in intake, concerns about weight, dissatisfaction with body image, as well as emotional processes related to food and the body itself. Although eating disorders are clinically diagnosed differently from addictive disorders, it can be specified that some behaviors, such as uncontrolled eating and loss of control when eating, can be associated with compulsive and additive processes [1-2].

In addition, there is a perspective of addictive eating that does not imply that all negative eating behavior is an addiction; rather, in order to examine the specific traits, the following aspects should be considered: Experience of intense desire, under control, repeated consumption despite its negative consequences, emotional affectation, and difficulty in regulating intake in the presence of stressful situations or the environment itself [3-6].

Differentiating these aspects is important for research, in this sense, the use of the Three Factor Eating Questionnaire (TFEQ-21) does not diagnose food addiction, however, the instrument allows the evaluation of cognitive restriction, uncontrolled eating and emotional eating, dimensions that can be understood as indicators of self-regulation behaviors and loss of control, understanding that when this situation occurs, the intake of food of any kind increases in an excessive, frequent and disorderly manner [7-8].

In this regard, uncontrolled eating is the predisposition to lose control over the amount of food consumed, due to high feelings of hunger or external stimuli related to food; it is not simply eating too much but involves difficulty regulating intake [7-8].

In addition, loss of control is an indicator that is conceptually related to processes observed in addictive behaviors, considering intense desire, reduced control, and

repetition of behavior [3-4]. However, this relationship is a partial coincidence of behavioral mechanisms, without establishing any diagnosis.

Therefore, uncontrolled eating probably acquires some addictive characteristics when the behavior does not respond to physiological needs and begins to be regulated by the value of food and emotional states; it should be considered that highly processed foods can generate acute responses that increase the desire for consumption, when they are available with high frequency [5].

Likewise, repeated exposure to these situations increases attention to food, making it difficult to abstain from the food response. There is also the possibility that eating reduces discomfort, stress or negative emotions, therefore, the relationship between reward, desire, regulation and abstention can be theoretically explained, when certain episodes of uncontrolled eating adopt a similar functioning to that of other additive behaviors [6].

In this sense, the population of young university students in the academic context allows them to explore these behaviors related to food, during this stage changes are observed in autonomy, decisions about the choice of food, high academic demands, social differences and lifestyles. Therefore, in the university context, situations such as irregular schedules, high levels of academic stress, significant concern for body image, little time to plan and organize the intake of meals and above all access to environments that facilitate impulsive and poorly regulated intake are frequently observed, therefore, the manifestation of these behaviors can vary due to gender norms, academic culture and mainly socioeconomic conditions [9-12].

Previous studies indicate that college students relate food addiction symptoms to emotional eating, external eating, food restriction, compulsive eating, and bulimia symptoms; the most significant relationship was observed with compulsive eating, indicating that loss of control and dysfunctional eating styles form a set of addictive-type eating behaviors [13].

Likewise, Rossi identified that the relationship between food addiction symptoms and uncontrolled eating is explained through persistent thoughts related to food and emotional eating [14]. Similarly, Avraham, et al. reported that symptoms of food addiction are related to impulsive eating and uncontrolled eating, therefore, studies show that uncontrolled eating and addictive eating are incorporated into the loss of control [15].

In Peru, eating disorders and behavioral problems, specifically uncontrolled eating, are related to food intake, taking greater interest in public debate, as well as in health services, however, empirical evidence is still scarce in samples such as university students, specifically in the diagnosis of behavioral patterns that require vulnerability and the need to detect these problems early. Therefore, examining uncontrolled eating and its study dimensions according to sociodemographic variables can provide evidence to implement prevention, screening, and improve student well-being.

The present study aims to provide whether food risk profiles produce changes among groups of students, focusing on uncontrolled eating as an indicator of low behavioral regulation; beyond diagnosing food addiction or identifying and equating eating disorders with factors associated with substance use, therefore, the study specifies that the social, behavioral and preventive dimensions have an explanation in the behavior presented by university students, significantly influencing their quality of university life as well as their well-being.

Therefore, according to what has been described, it was proposed to analyze uncontrolled, emotional and cognitively restricted eating according to sociodemographic variables in university students. In addition, it was specified that the risk of eating behavior varies by sex, academic area, marital status and some daily habits, and that uncontrolled eating has a greater presence than emotional eating and cognitive restriction.

Methods

Study design

A descriptive, quantitative, non-experimental, and cross-sectional design was used. The information collection was carried out during the second semester of 2025 at a Peruvian university.

Participants

A total of 2086 university students belonging to the areas of social sciences, sciences and engineering, and health sciences participated in a locality of Peru, the participants were selected through intentional non-probabilistic

sampling. To determine the sample size, the G*Power program was used, considering a significance level of .05 and a statistical power of 0.95 and a small effect size of (f=0.10), to guarantee adequate sensitivity for the statistical tests proposed.

Instrument

Eating behavior was assessed using the 21-item Three-Factor Eating Questionnaire-Revised (TFEQ-R21), a self-report instrument designed to measure three dimensions related to eating: cognitive restriction, uncontrolled eating, and Emotional Eating (EE) [7]. In its original structure, the instrument distributes the items as follows: Emotional eating (items 3, 6, 8, 9, 12, 13, 15, 19, and 20); cognitive restriction (items 1, 5, 11, 17, 18, and 21); and uncontrolled eating (items 2, 4, 7, 10, 14, and 16). This questionnaire is based on the Three-Factor Eating Questionnaire initially developed by Stunkard and Messick [8]. Regarding its psychometric properties, Cappelleri, et al. evaluated the validity of the internal structure using Confirmatory Factor Analysis (CFA), establishing Comparative Fix Index (CFI) greater than 0.90 as adjustment criterion [7]. Regarding reliability, measured by Cronbach's alpha coefficient, values of 0.84 for uncontrolled intake and 0.92 for emotional intake were obtained in the clinical sample; in the case of cognitive restriction, the coefficient was 0.70. Likewise, the study reported model invariance according to obesity status and gender, with minimal differences in the CFI indices between the models compared.

Procedure

For the execution of the study, authorization was previously obtained from the educational authorities, the data collection was carried out through the individual application of the instrument to university students, in face-to-face (entrance doors of university campuses) and virtual mode. In the virtual mode, the questionnaire was adapted to the Google Forms format and sent by email.

Prior to the start of the evaluation, information was provided on the objectives of the study, the response instructions, the voluntary nature of participation, and the conditions of confidentiality and data protection. Participation was carried out only after the acceptance of informed consent. The anonymity of the participants and the confidentiality of the information collected were always safeguarded.

Data analysis

The database was processed using Jamovi statistical software. In the descriptive analysis, frequency and percentages were calculated for categorical variables, as well as the mean, standard deviation, median, minimum and maximum values for the risk scores for eating disorder and their dimensions.

For the inferential analysis, non-parametric tests were used (absence of normal distribution in the data). The Mann Whitney U was used to compare the total score according to dichotomous variables, such as sex and occupation. The Kruskal Wallis H was used to contrast differences in variables with three or more categories, in addition, post hoc tests (internal comparisons) were used. Spearman's rho correlation coefficient was calculated to evaluate the relationship between age and total score. In all cases, statistical significance level of 0.05 was adopted and effect sizes were reported to complement the interpretation of the results (biserial correlation and epsilon-squared).

Ethical considerations

The study was carried out in strict compliance with ethical standards for research with human subjects. We follow the guidelines established by the Ministry of Health (MINSA) in ministerial resolution No. 233-2020-MINSA, published in April 2020, whose purpose is to ensure that this type of research complies with national and international regulations. Likewise, we respect the principles established in the Declaration of Helsinki of the World Medical Association, in its official version in force.

Results

Descriptive analyses of the sociodemographic variables of the students were carried out, of a total of 2086 participants, the female sex (58.2%), single marital status (94.5%) and the exclusive dedication to the study (63.2%) predominated. Regarding the academic area, 36.5% belonged to health sciences, 32.9% to science and engineering and 30.6% to social sciences. Regarding eating habits, 55.5% reported consuming food three and four times a day and 46.5% reported drinking approximately two liters of water a day (Table 1).

Table 1: Sociodemographic variables of students

Variables	Indicators	Frequency	%
Sex	Female	1215	58.20%
	Male	871	41.80%
Marital status	Single	1971	94.50%
	Married	60	2.90%
	Cohabitant	55	2.60%
Area of studies	Social sciences	638	30.60%
	Science and engineering	686	32.90%
	Health sciences	762	36.50%
Year of studies	1 year	363	17.40%
	2 years	639	30.60%
	3 years	506	24.30%
	4 years	332	15.90%
	5 years	230	11.00%
	6 years	16	0.80%
Occupation	Study and work	767	36.80%
	Study	1319	63.20%
Where you eat food	Food kiosk	653	31.30%
	University dining room	718	34.40%
	Restaurant	715	34.30%
Daily food consumption	1 or 2 times a day	928	44.50%
	3 or 4 times a day	1158	55.50%
Water consumption per day	1 liter	693	33.20%
	2 liters	972	46.60%
	3 liters more	421	20.20%

In the total risk score for eating disorder, the sample presented a mean of 51.3 points (SD= 7.13), with a median of 51 points and values between 28 and 78. When analyzing the dimensions of the instrument, the highest mean score corresponded to uncontrolled eating, followed by cognitive restriction and emotional eating. Therefore, the most frequent manifestations of problematic eating behavior are more associated with difficulties in controlling intake, such as the tendency to overeat or the feeling of loss of control over food, than with voluntary restriction behaviors or with eating motivated by emotional states (Table 2).

Table 2: Analysis of the risk of eating disorders and its dimensions

Variables	N	M	SD	Medium	My	Max
Risks of Eating Disorders	2086	51.3	7.13	51.0	28.00	78.0
Cognitive restriction	2086	14.8	2.78	15.0	6.00	24.0
Emotional Eating	2086	14.4	3.44	14.0	6.00	24.0
Uncontrolled eating	2086	22.2	3.56	22.0	10.00	35.0
Note: N=Sample; M=Mean; SD=Standard Deviation; Me=Median; Min=Minimum range; Max=Maximum range						

In the comparison of results according to sex, statistically significant differences were found in the total ACT score (p=0.019), with slightly higher scores in women than men, the size of the effect was small, indicating a difference of low practical magnitude. In comparison with occupation, no differences were observed between those who only study and those who work and study; likewise, according to the frequency of meals per day (Table 3).

Table 3: Comparison of the risk of eating disorder according to sex, occupation and daily food consumption

Variables	Group	N	Media	SD	p	ES
Sex	Male	871	50.9	7.18	0.019	0.059
	Female	1215	51.6	7.09		
Occupation	Study	1319	51.2	7.20	0.704	-0.009
	Study and work	767	51.5	7.02		
Daily food consumption	1 or 2 times a day	928	38.1	51.4	0.809	-0.006
	3 or 4 times a day	1158	40.9	51.3		
Note: N=Sample; M=Mean; SD=Standard Deviation; p=Level of significance (0.05); ES=Effect size; Mann Whitney U statistical test						

The comparison of results according to marital status showed significant differences, cohabiting and single students presented higher scores compared to married students (Post hoc tests); likewise, students in the area of social and health sciences presented the highest scores compared to students of science and engineering; and students who reported consuming less water per day obtained higher scores with respect to those who consumed more water per day, in all cases small effect sizes were reported (Table 4).

Table 4: Comparison of the risk of eating disorders according to marital status, area of study, and daily water consumption

Variable	Indicator	N	Media	SD	p	ES
Marital status	Single	1971	51.4	7.15	0.007	0.005
	Married	60	48.5	6.54		
	Cohabitant	55	51.8	6.53		
Area of studies	Social Sciences	638	51.9	8.27	<0.001	0.010
	Engineering Sciences	686	50.3	6.1		
	Health Sciences	762	51.8	6.87		
Water consumption per day	1 liter	693	52	7.58	0.001	0.006
	2 liters	972	51.2	6.68		
	3 liters or more	421	50.7	7.31		
Note: N=Sample; M=Mean; SD=Standard deviation; P=Level of significance (0.05); ES=Effect Size; Kruskal Wallis statistical test						

No statistically significant correlation was found between age and the total risk score for eating disorders (r=-0.028; p=0.208), therefore, in the sample, age is not significantly related to the phenomenon studied (Table 5).

Table 5: Correlation of eating disorder risk and student age

Variables	Testing	TCA	AGE
TCA	Rho de Spearman	-	
	df	-	
	p-value	-	
AGE	Rho de Spearman	-0.028	-
	df	2084	-
	p-value	0.208	-
Note: *p<0.05, **p<0.01, ***p<0.001			

Discussion

Risk profiles in eating behavior in Peruvian university students were investigated considering a behavioral framework related to addictive eating. The main result found was the average of uncontrolled eating between the dimensions of the construct evaluated; demonstrating that difficulties in regulating intake are more present than cognitive restriction and emotional eating, due to the fact that there is a tendency to continue eating, experiencing difficulties in stopping intake in the face of hunger and eating stimuli. This result is significant because the loss of behavioral control constitutes a factor within approaches to

addiction, representing a central point between uncontrolled eating and formulations on addictive eating [3-6].

The instrument used measures eating behavior, without evaluating clinical dependence, abuse or addiction; however, the results describe a behavioral phenotype related to self-regulation and a possible vulnerability, without evidence of food addiction, therefore, the delimitation avoids including the diagnosis and at the same time allows maintaining the relationship with behavioral research on addictions [3-4].

The result is consistent with what was reported by Escrivá-Martínez, et al. in Spanish university students, they observe that the symptoms of food addiction are related to different styles of dysfunctional eating, increasing compulsive eating; this result allows us to understand that the loss of control over intake functions as indicator of vulnerability to compulsive eating, however, the aforementioned study established a measurement to identify symptoms of food addiction, and the present research identified patterns of behavior regarding eating; therefore, the comparison should support the conceptual proximity between the constructs, but it cannot be affirmed that they have the same nature [13].

Likewise, the results are related to the cognitive and emotional processes involved in the regulation of intake; Rossi showed that repeated thoughts about food and eating motivated by emotions associates food addiction and uncontrolled eating [14]. In university students, factors such as academic stress, the diversity of schedules and the availability of food could increase attention to food and reduce the ability to regulate consumption; therefore, when the act of eating produces emotional relief or gratification, the behavior is reinforced and repeated in similar situations.

Likewise, by affirming that the symptoms of food addiction are related to uncontrolled eating and compulsive eating, the research background allows us to specify that the results found identify that uncontrolled eating can be associated with addictive behavior through loss of control, repetition and sensitivity, however, all the elements indicated must be included to identify food addiction. Therefore, it is more appropriate to point out that it is a low behavioral expression of self-regulation and vulnerability, than as evidence of dependence [15].

On the other hand, the significant differences according to sex, marital status, academic area and daily water consumption according to eating behavior (small effect sizes), allowed us to identify that the variations are not only due to uncontrolled eating, but also to the loss of control and restriction, therefore, eating behaviors are distributed differently among certain groups of students, intervening personal, academic and daily life factors; highlighting that women have greater exposure due to sociocultural pressure on body image; in addition, social support, stability or household organization can intervene in the regulation of intake; likewise, daily habits such as water intake regulate daily intake. No differences were observed according to occupation, daily frequency of food consumption and age; presenting homogeneity in the university sample in the face of lack of control and impulsive eating [16-23].

Therefore, the results allow us to incorporate uncontrolled eating within a research perspective on addictive behaviors, provided that the distinction between both concepts is necessary. In addition, the main contribution of the study shows that the loss of control over intake is considered a relevant aspect of eating behavior in university students. This justifies the need to implement preventive actions aimed at recognizing food signals, strengthening abstention control, emotional regulation, and stress management.

Limitations

During the development of the research, some limitations were presented. Specific measures of food addiction and mental health, such as anxiety, depression or psychological distress, were not included, so direct associations with such outcomes cannot be affirmed. Some university students decided not to participate because they considered that they do not present a risk of eating disorder and, in addition, they expressed distrust of the safeguarding of the information. There were economic limitations due to the lack of funding to expand the sample and diversify it to more population.

The results indicate a reality that shows the seriousness of the problem, however, the health and political authorities do little or nothing to address this problem despite the fact that it is a situation that violates, denigrates and even puts at risk the lives of many students, who face eating disorders without adequate support or attention.

In this sense, the sample in the Peruvian population should be expanded, also considering incorporating women who have stated that they are at risk of developing eating

disorders. Therefore, given the importance of the research topic and the lack of evidence, it is suggested to continue with studies on this problem from a multidisciplinary approach to understand from various perspectives and disciplines that are interested in this line of research in the university population.

Conclusion

Uncontrolled eating is a relevant variable to understand the difficulty in regulating intake in Peruvian university students; the indicator of loss of control allows us to understand it within the addictive behavioral framework, because they share indicators such as desire, response to food signals and repetition of intake. However, this conceptual proximity does not mean that the participants have food addiction. The results identify a possible pattern of behavioral vulnerability that should be evaluated in future studies through specific instruments of food addiction and designs that allow analyzing its components and evolution.

A relevant aspect of the study is its usefulness for university well-being, tutoring and psychological counseling services, the identification of differences according to sex and academic area, together with the predominance of uncontrolled eating, can contribute to the design of screening, psychoeducation and prevention strategies focused on body image, food self-regulation and early search for help. However, it should be stressed that these results do not allow us to affirm the presence of depression, anxiety or other psychological disorders in the sample, but only to highlight the clinical and preventive relevance of the phenomenon studied within the field of university mental health.

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Conflict of interest

The authors declare no conflicts of interest.

Author Contributions

Dayana del Carmen Rojas Sanz: Conceptualization, investigation, data collection, writing-original draft. Onix Tamo Flores: Investigation, data management, writing-review and editing. Jose Calizaya-Lopez: Conceptualization, methodology, statistical analysis, supervision, writing-review and editing.

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