Food addiction and eating profile in university young adults

Adicción a la comida y perfil de alimentación en adultos jóvenes universitarios

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Abstract

Objetivo: Determinar la relación entre la adicción a la comida y el índice de alimentación en adultos jóvenes universitarios. **Métodos:** Estudio descriptivo correlacional. Muestra de 282 adultos de 19 a 24 años de edad. El tamaño de la muestra se calculó a través del paquete nQuery Advisor® versión 7.0. El muestreo fue probabilístico por conglomerados unietápico, en una institución educativa del norte de México. Se utilizaron dos instrumentos de medición con confiabilidad aceptable, se recurrió al uso de estadística descriptiva y el coeficiente de correlación de Spearman. **Resultados:** La media de edad fue de 20.7 años (*DE*= 1.37), 80.9% mujeres, 39.3% presentó peso corporal elevado. El índice de alimentación saludable presentó una media de 40.57 puntos de 100 posibles (*DE*= 7.66), mientras que los síntomas de adicción a la comida fueron 1.31 de 11 posibles (*DE*= 1.75). Las puntuaciones de adicción a la comida fueron mayores en mujeres ($\bar{X}\bar{X}$= 30.19; *DE*= 7.49) y en los de mayor edad de 22 a 24 años ($\bar{X}\bar{X}$= 33.69; *DE*= 7.71). La correlación entre las variables propuestas no se identificó. **Conclusión:** No se encontró relación entre la adicción a la comida y el índice de alimentación en adultos jóvenes universitarios.

Palabras clave: Adicción a la comida; Dieta saludable; Obesidad; Sobrepeso.

Resumen

Objective: To determine the relationship between food addiction and eating index in university young adults. **Methods:** Descriptive correlational study. Sample of 282 adults aged 19 to 24 years. The sample size was calculated using the nQuery Advisor® version 7.0 package. The sampling was probabilistic by uni-stage clusters, in an educational institution in northern Mexico. Two measurement instruments with acceptable reliability were used, and descriptive statistics and Spearman's correlation coefficient were used. **Results:** The mean age was 20.7 years (*SD*= 1.37), 80.9% women, 39.3% presented high body weight. The healthy eating index presented a mean of 40.57 points out of a possible 100 (*SD*= 7.66), while food addiction symptoms were 1.31 out of a possible 11 (*SD*= 1.75). Food addiction scores were higher in females ($\bar{X}\bar{X}$=30.19; *SD*= 7.49) and in those aged 22 to 24 years ($\bar{X}\bar{X}$ = 33.69; *SD*= 7.71). Correlation between the proposed variables was not identified. **Conclusion:** No relationship was found between food addiction and eating index in university young adults.

Keywords: Food addiction; Healthy diet; Obesity; Overweight.

Introduction

High body weight is a public health problem. It is characterized by an abnormal or excessive accumulation of fat that can be detrimental to health, thus, a predisposing factor for the development of various conditions such as high blood pressure (HBP), Type 2 diabetes and cardiovascular disease[1]. Globally, two of the three main factors causing disability and loss of years of life are high body weight (HBW) and a high-calorie diet[2]. To address and prevent HBW, it is essential to understand what we eat and the factors that cause an influence on food choices. However, eating is a complex process that could be influenced by personal, social and environmental factors, among others[3].

Food addiction (FA) is a concept that in recent years has gained interest from researchers[4-5]; by means of this concept it is possible to describe the clinical difficulties that some individuals encounter with their relationship with food[6]. It is described as a specific pattern of eating behavior[7] where there is uncontrollable and excessive consumption of certain foods, leading to clinically significant distress in different areas of operation[6,8,9-10]. According to several authors, this could explain the difficulty some people face in adhering to a healthy diet[6,9].

Introduction

In 2017, the Modified Yale Food Addiction Scale (mYFAS) version 2,0[11-12], an instrument that diagnoses food addiction using 13 symptoms, was proposed, consistent with the DSM-5 substance abuse disorder. Findings on food addiction show a relationship with the consumption of fats, carbohydrates, proteins, sugar-sweetened beverages and processed foods[13-15]. However, the relationship between food addiction and people's feeding is still controversial.

A useful tool to describe people's food intake is the healthy eating index, which shows the characteristics of total food and beverage consumption over a specific period of time. This tool includes choice, quantity and frequency, and provides a dietary profile with reference to nutritional recommendations to prevent all forms of malnutrition[16]. Previous international studies show that being male between 18 and 30 years of age is related to a less healthy eating profile[17].

In Mexico, the evidence on the variables of interest is scarce; the objective of the study has been proposed to determine the relationship between food addiction and the eating index in university young adults.

Methods

Design

Descriptive correlational design. Sample of 282 young adults enrolled in a public higher education institution in Monterrey, Nuevo Leon, Mexico. The sample was probability sampling by uni-stage clusters. The groups were randomly selected on only one occasion (one-stage), by means of a random formula in Microsoft Excel® software. The statistical package nQuery Advisor® version 7.0 was used to determine the sample size, at a significance level of .05, a correlation coefficient of .20 (small size) and a power of 90%.

Participants

Men and women between 19 and 24 years of age who agreed to participate voluntarily in the study were included. During the study, pregnant or breastfeeding women were excluded because during these stages, consumption and dietary requirements vary.

Measurements

For food addiction, the mYFAS 2.0[11], which makes operational symptoms of food addiction, was used. Response options range from 0 to 7, where 0 means never, and 7 means every day. Symptom(s) are classified as s1) use of large amounts of substance or for longer than planned (item 1), s2) item 11 measures persistent desire to stop or regulate use, s3) investment of significant time in obtaining, using, or recovering after food use or intake (item 2), s4) reduction or withdrawal from social, occupational or recreational activities (item 3), s5) item 8 is used to measure continued use despite knowledge of adverse consequences, s6) tolerance, characterized by a marked increase in quantity and a marked decrease in effect (item 9).

Symptom s7), is characteristic of abstinence and is measured with item 4, s8) continued use despite social or interpersonal problems (item 13), symptom s9) is assessed with item 7 and is characterized by non-compliance with academic, work or domestic obligations, while s10) is use in situations that cause physical risk, which is verified with item 12. The s11) is the craving, or a strong desire or urge to use the substance, measured with item 10 and the s12) characterized by use that causes clinically significant discomfort or distress, items 5 and 6 are used for its determination.

To assign a score, each item must be evaluated with the criteria of 0, which means "criterion not met" or 1, criterion met. The assignment responds to individual cut-off points that are established as follows, items 3, 7, 12 and 13 are considered as a criterion met when the individual score was ≥ 2, indicating that these are presented once a month. Items 1, 4, 8 and 10 as criteria met when the individual score was ≥ 4= once a week. And items 2, 5, 6, 9 and 11, when the score was ≥ 5= two or three times a week. If the criterion is met, then the symptom is present, the symptom total fluctuates from 0 to 11. Items 5

and 6 determine the clinical significance of the diagnosis of FA (AC by its acronym in Spanish), ending with a total score of 13.

To establish the diagnosis of FA, at least 2 or 3 symptoms and clinical significance (clinically significant discomfort or distress) must be met. The diagnosis is classified as: a) mild food addiction, when 2 or 3 symptoms and clinical significance are met, b) moderate food addiction, when 4 or 5 symptoms and clinical significance are met, and c) severe food addiction, when 6 or more symptoms and clinical significance are met.

The Healthy Eating Index was evaluated by means of the Mexican Alternative Healthy Eating Index (IASMx)[18] which provides an overall score of total food and beverage consumption, provides a dietary profile with reference to nutritional recommendations for young adults. It is made up of 12 components (divided into two groups: appropriateness and moderation), in each of which the score obtained ranges from 0 (lowest score) to 5 or 10 (highest scores). Finally, all the components are added together to obtain a total score ranging from 0 (no adherence to the recommendations) to 100 (perfect adherence to the recommendations).

To determine the IASMx, information on total food and beverage consumption was collected. For this purpose, the Food Consumption Frequency Questionnaire for Adolescents and Adults was used. To calculate the nutritional value, energy and nutrient intake, the database compiled by the National Institute of Public Health of Mexico[19] was used.

Data collection procedure

Data collection was carried out in the period August-November 2022. After authorization from the educational institution, the list of groups was obtained and the sampling was carried out. The teacher in charge of the selected groups was visited to find the most pertinent moment to invite the students without his presence. Since young adults were approached, the reason for the contact was explained. The objective of the study was explained and they were invited to participate; those who agreed to participate were asked to sign the informed consent form and the filling out of the instruments was explained to them. Weight and height measurements were taken using a scale graduated from gram to gram with a capacity of up to 220 kilograms and a stadiometer.

Ethical considerations

The study adhered to the provisions of the Helsinki Declarations and in accordance with the stipulations of the Regulations of the General Health Law on Health Research (DOF 02-04-2014). It had the approval of the Research Committee and the Research Ethics Committee of the Nursing School of the Universidad Autónoma de Nuevo León, with registration number FAEN-M-1846. In addition, authorization was obtained from the educational institution where the research was carried out.

Data analysis

Data were processed using the statistical package Stata (Statistical Software for Data Science) version 16 for Windows. The internal consistency of the instruments was determined using Cronbach's alpha coefficients. Descriptive analysis was performed using frequencies, percentages, percentiles, measures of central tendency and variability. For inferential statistics, the Kolmogorov-Smirnov test with Lilliefors correction was applied to confirm the normality of the variables; however, normal distribution was not observed, so Spearman's correlation coefficient was used.

Results

The sample consisted of 282 young adults, 80.9% (228) were women. The mean age was 20.7 years (*SD*= 1.37). Formal education in years was 16.80 (*DE*=1.41), the average time spent on social networks was 9.21 hours (*DE*=3.35) (Table 1).

Table 1. General characteristics of the participants

Variable	$\bar{X}$	*SD*	*Min*	*Max*
Age (years)	20.71	1.37	19	24
Formal education (years)	16.80	1.41	15	21
Time spent using social networks (hours)	9.21	3.35	0.92	16.50
Weight (kilograms)	64.88	14.07	38.50	104
Height (meters)	1.62	0.08	1.45	1.87

Source: Direct. *SD*= standard deviation, *Min*=minimum value, *Max*=maximum value

Regarding BMI, a mean of 24.63 kg/m2 (*SD*= 4.63) was reported, representing a percentage of 39.4% of participants with PCE considering the BMI categories proposed by the WHO in 2021; 53.5% (151) of the participants showed normal weight (Table 2).

Table 2. Body mass index of the participants

Body Mass Index (kg/m^2)	*f*	%
Low weight	20	7.1
Normal weight	151	53.5
Overweight	68	24.2
Obesity	43	15.2

Source: BMI Classification, WHO 2021

The IAS (Healthy Eating Index) showed a mean of 40.57 points (*SD*= 7.66). In the category of adequacy the foods that showed the highest mean score were polyunsaturated fats ($\bar{X}$= 5.77; *SD*= 2.57) and whole grain consumption ($\bar{X}$= 4.36; *SD*= 3.26), the lowest mean score

was observed in the consumption of nuts and seeds ($\bar{X}$= 0.03; *SD*= 0.15). In the moderation category the highest score was located in the consumption of foods with trans fats ($\bar{X}$=8.24; *SD*= 1.54) (Table 3).

Table 3. Overall Healthy Eating Index Scores

Category	$\bar{X}$	*SD*	*p25*	*p75*
General	40.57	7.66	35.58	45.10
Appropriateness				
Vegetables	0.90	0.73	0.25	1.28
Fruits	1.65	1.00	0.96	2.25
Whole grains	4.36	3.26	1.71	6.96
Legumes	0.80	0.58	0.71	1.42
Nuts	0.03	0.15	0.00	0.00
Polyunsaturated fats	5.77	2.57	3.66	8.48
Long chain fatty acids	3.75	3.22	1.12	7.14
Moderation				
Sugary drinks	5.02	2.58	3.85	6.42
Red and processed meats	5.27	2.20	3.98	6.80
Sodium	4.04	4.23	0.00	9.00
Trans fats	8.24	1.54	8.13	9.00
Alcohol	0.69	2.36	0.00	0.00

Source: Alternative Mexican Index of Healthy Eating (IASMx). *p25*=25th percentile, *p75*=75th percentile

The IAS score overall mean is also lower in men ($\bar{X}$= 36.96; *SD*= 8.16) and in the youngest, i.e.. those who reported being between 19 to 21 years old ($\bar{X}$= 40.11; *SD*= 7.35). Finally, the overall mean score for FA symptoms was 1.31 out of a possible 11 points. Women presented a slightly higher overall mean score than men, as did the older age group (Table 4).

Table 4. Food addiction by sex and age

Food addiction	$\bar{X}$	*SD*	*Min*	*Max*
Sex				
Men	1.22	1.67	0	7
Women	1.31	1.98	0	11
Age (years)				
19 a 21	1.00	1.81	0	11
22 a 24	2.31	1.88	0	9

Source: mYFAS Food Addiction Scale. *SD*= standard deviation, *Min*=minimum value, *Max*=maximum value

IAS stood out in women with mean $\bar{X}$= 41.42 (*DE*=7.30) and in the age group of 22 to 24 years $\bar{X}$= 41.62 (*DE*=8.28) (Table 5).

Table 5. Healthy Eating Index by sex and age

Healthy Eating Index	$\bar{X}$	*SD*	*Min*	*Max*
Sex				
Men	36.96	8.16	20.41	67.03
Women	41.42	7.30	16.69	70.09
Age (years)				
19 to 21	40.11	7.35	20.41	60.62
22 to 24	41.62	8.28	16.69	70.09

Source: Alternative Mexican Healthy Eating Index (IASMx). *SD*= standard deviation, *Min*=minimum value, *Max*=maximum value

No relationship was found between the healthy eating index and food addiction (*rs* ≥ .017; *p*>.05).

Discussion

The mean number of symptoms found in young adults is different from that reported by previous researches[12-13,15], which has reported a mean of two to three points higher. One of the potential reasons is that these studies were conducted in samples with a wider age range and there is preliminary evidence to suggest that FA increases with age[13,20].

The results obtained with respect to FA according to sex and age are similar to those obtained previously[14], where a slightly higher score was observed in women and in the older age group (22 to 24 years). These findings support the premise that there is a relationship between female sex and FA, as well as a positive relationship between age and FA[7,13,20]. Women and those of older age would be more likely to develop an inclination to consume hypercaloric foods high in sugar and sodium.

The IAS results revealed poor dietary quality, similar to those reported by several Latin American studies[13,15,22]. The interpretation of the IAS shows low scores for consumption of vegetables, fruits and whole grains, similar to previous reports[17-18,21]. This is particularly relevant regardless of the constant efforts to promote healthy eating. Men showed a poor diet and in the 19-21 years age group, these results are similar to other studies[17,21]. This tell us that it is necessary to focus actions on the groups with the poorest diet quality.

Regarding the results of the general objective, on the relationship between food addiction and healthy eating index, no significant correlation was found (p>.05), which follows the same assumption compared to other studies[13].

Conclusions

No relationship was found between food addiction and eating index in university young adults.

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Conflicts of interest

The authors declare no conflicts of interest.

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