

Eating habits in students of a University Campus in Jalisco, Mexico

Hábitos alimentarios en estudiantes de un Centro Universitario en Jalisco, México

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Abstract

The objective of the work was to know the eating habits of students of the University Campus of Biological and Agricultural Sciences, in Jalisco, Mexico. An online questionnaire was applied to 229 students, about the frequency of food consumption, grouping them into three categories of food (not healthy, unhealthy and healthy), hours and number of meals per day, influence of stress on the amount of food consumed and information about breakfast. The results showed that 29.3% of the students followed an not healthy diet, 40.6% unhealthy and 30.1% healthy; 55.5% had the three main meals, 62.9% did not comply with meal times. In stressful situations, 52.4% ingested a greater amount and 31% a smaller amount of food; 96.9% usually eat breakfast. The students surveyed presented an inadequate diet, with a deficient intake of fruits and vegetables, in addition to omitting some meal time and not complying with the recommended feeding schedules. It is essential to promote healthy eating habits in students, as well as implement strategies to access healthier foods in the university environment that allow improving the quality of the diet, which can influence health and academic performance.

Eating habits, Students, Food consumption

Resumen

El objetivo del trabajo fue conocer los hábitos alimentarios de estudiantes del Centro Universitario de Ciencias Biológicas y Agropecuarias, en Jalisco, México. Se aplicó un cuestionario en línea a 229 alumnos, sobre la frecuencia de consumo de alimentos agrupándolos en tres categorías de alimentación (no saludable, poco saludable y saludable), horarios y número de comidas realizadas al día, influencia del estrés sobre la cantidad consumida de alimentos e información del desayuno. Los resultados mostraron que 29.3% de los alumnos seguía una alimentación no saludable, 40.6% poco saludable y 30.1% saludable; el 55.5% realizaba las tres comidas principales, 62.9% no cumple con los horarios de comida. En situaciones de estrés el 52.4% ingiere una mayor cantidad y 31% una menor cantidad de alimentos; el 96.9% acostumbra desayunar. Los alumnos encuestados presentaron una alimentación inadecuada, con una ingesta deficiente de frutas y verduras, además de omitir algún tiempo de comida y no cumplir con los horarios de alimentación recomendados. Es fundamental promover hábitos de alimentación saludable en los estudiantes, así como implementar estrategias de acceso a alimentos más saludables en el entorno universitario que permitan mejorar la calidad de la dieta lo que puede influir en la salud y el rendimiento académico.

Hábitos alimentarios, Estudiantes, Consumo de alimentos

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1. Introduction

For adolescents, the start of university studies is an important stage that represents a period of increased responsibility in different aspects of life. At this stage, food choices and healthy lifestyle practices acquired in childhood often change and therefore many students do not have the experience of food shopping, planning and preparing their meals (Papadaki *et al.*, 2007). In addition, decision-making and independence increase, as university entrance for many students involves family separation, meeting new fellow students, and managing high levels of stress and time (Fernández and López, 2019). Numerous studies have observed inadequate eating habits among university students in different countries. Various reasons affect food choices in this young population such as migrating to another city with the consequent uprooting of the family, little money available, as well as the increased supply of fast food and less time available to prepare food (Irazusta *et al.*, 2007; Papadiki *et al.*, 2007), factors such as work and school schedules affect the choice and consumption of meals during the day (Duarte-Cuervo *et al.*, 2015).

The university stage is a critical period from the point of view of consolidating healthy lifestyle habits, both in terms of eating and physical activity, since habits are acquired at this stage that in most cases will continue into adulthood (Robledo *et al.*, 2014). Ibarra *et al.* (2019), point out that maintaining the development of healthy eating habits is essential for the learning process and academic achievement. A healthy and balanced diet is characterised by being varied with respect to food and adequate in terms of quantity and quality, so that it allows for proper functioning and ensures nutrition (Ibarra *et al.*, 2019). Diet is of enormous importance not only to ensure adequate growth and prevent specific nutritional deficiencies, but also to prevent diseases that can occur in adulthood (Pérez, 2020), both the amount of energy consumed and its distribution during the day and the balanced combination of the different food groups are important (Martín-Aragón & Marcos, 2008). According to the Mexican Ministry of Health (SS, 2013), the recommendation for an adequate diet is to eat three full meals a day at regular times and to incorporate one food from each food group at each meal.

Several studies highlight the influence that breakfast has on physical and intellectual performance in morning activities and it is considered one of the most important meals in an individual's diet (Kalen *et al.*, 2011). In this regard, López-Sobaler *et al.* (2018) report that eating a sufficient, varied and quality breakfast is associated with multiple nutritional and health benefits, which are part of a healthy dietary pattern. Muñoz *et al.* (2020), point out that some authors describe the importance of breakfast in young people as it has a positive effect on thinking functions, especially in aspects related to analysis, attention, class performance and academic performance.

Diet and nutrition are very important in promoting and maintaining good health, especially in university students as they can influence their lifestyle and academic performance. Therefore, the aim of this study was to learn about the dietary habits of students at the University Campus for Biological and Agricultural Sciences of the University of Guadalajara.

2. Methodology

This is a descriptive and cross-sectional study that was carried out at the University Campus for Biological and Agricultural Sciences (CUCBA) of the University of Guadalajara, through an online survey, a questionnaire was applied to 229 students using the Google Forms tool to find out about their eating habits.

The purpose of the study was explained to the young people and the information was collected, obtaining their informed consent and guaranteeing their confidentiality. The protocol for this study was endorsed by the Departmental College of the Department of Public Health and the Research Coordination of the University Campus of the University of Valencia.

Students who provided incomplete data were excluded from the study. The questionnaire included questions on the frequency of food consumption (1-2 times, 3-4 times, and 5-7 times per week), the description of the foods according to their category or group is shown in table 1.

Based on the frequency of food consumption, the surveyed students were grouped into three food categories: “not healthy”, “unhealthy” and “healthy”; they were asked about the number of meals eaten per day, whether they considered having a correct diet and eating adequate portions of food, meal times, influence of stress on the amount of food consumed, and they were also asked about breakfast.

Food groups	Description of food
Food of animal origin	Beef, pork and chicken, eggs and fish.
Milk	Milk and yoghurt.
Fruit	Apple, banana, orange, tangerine, mango, etc.
Vegetables	Chayote, pumpkin, carrot, broccoli, cauliflower, etc.
Cereals	Tortilla, biscuits, pasta, rice or oatmeal.
Legumes	Beans, broad beans, chickpeas or lentils.
Sugars	Soda, jam, sugar, honey, sweet breads or biscuits.
Fat	Butter, lard, frying oil, mayonnaise, cream or dressing.

Table 1 Food groups and their description

Source: Direct

3. Results

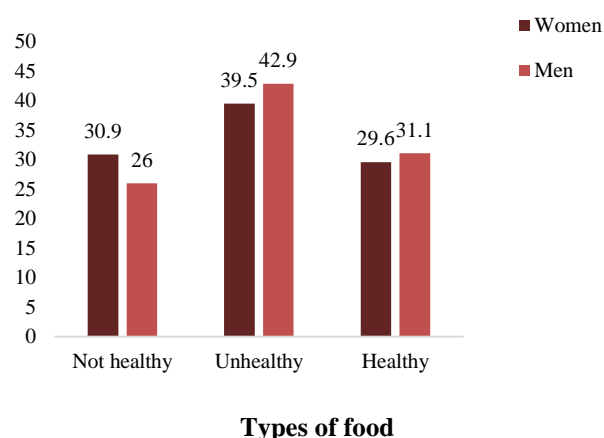
A total of 229 students were surveyed, 66.4 % (n=152) female and 33.6 % (n=77) male, with a higher proportion of students aged between 18 and 23 years, the distribution by age group is shown in table 2.

According to the frequency of food consumption, in general it was observed that 29.3% (n=67) of the students surveyed had an not healthy diet, 40.6% (n=93) had an unhealthy diet and only 30.1% (n=69) had a healthy diet, the results by gender are shown in graph 1, highlighting that a higher percentage of females had an unhealthy diet compared to males.

Age group	Women n (%)	Men n (%)	Total n (%)
18-20 years	57 (24.8)	26 (11.4)	83 (36.2)
21-23 years	67 (29.2)	27 (11.8)	94 (41.0)
24-26 years	15 (6.6)	15 (6.6)	30 (13.2)
> 26 years	13 (5.7)	9 (3.9)	22 (9.6)
Total	152 (66.4)	77 (33.6%)	229 (100)

Table 2 Distribution by age group and gender of students

Source: Direct



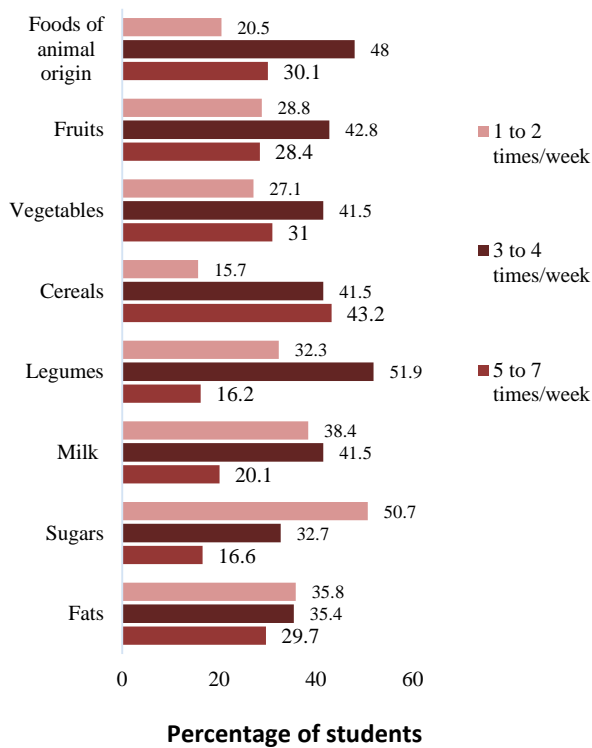
Graph 1 Type of food of the surveyed students at the University Centre

Source: Direct

The frequency of consumption by food group is shown in graph 2, showing that in the frequency of adequate consumption (5 to 7 times per week), only 30.1 % of the students consume animal foods, 28.4 % and 31 % eat fruit and vegetables respectively, daily or almost daily.

In relation to the number of main meals (breakfast, lunch and dinner) eaten per day, 55.5% (n = 127) consumed all three meals, while 38% (n = 87) mentioned eating only one or two meals. In terms of meal times, 37.1% (n=85) of the students stated that they follow these times, while 62.9% (n=144) do not, the main reasons being the time they spend travelling to the University Campus, school timetables, work and/or other activities.

Of the students surveyed, 18.8% (n=43) consider that they have an adequate diet, however, the majority (81.2%, n=186) think that they do not eat properly, of these, 46.3% (n=106) mention that this is due to the activities they do (homework, work, etc.), 13.5% (n=31) do not have enough money and 21.4% (n=49) say that due to lack of time.



Graph 2 Frequency of food consumption in students of the University Center
Source: Direct

Regarding the portions of food consumed by students, 32.8% (n=75) think that the portions are adequate, while 31.4% (n=72) believe that they are not, and 35.8% (n=82) do not know. When asking about the influence that stressful situations have on food intake, the results showed that 52.4% (n = 120) of the students surveyed ingested a greater amount, 31.0% (n = 71) a smaller amount and only 16 % (n = 38) maintain their normal consumption.

Regarding breakfast, 96.9% (n = 222) of the students mentioned having this meal time, of these, 39.7% (n = 91) used to have breakfast in the cafeteria or in the food stalls of the University Campus, 37.1% (n=85) at home, 20.1% (n=46) in the CUCBA gardens and 3.1% (n=7) said they did not eat breakfast.

4. Discussion

International organizations such as the World Health Organization (WHO) and the Pan American Health Organization (PAHO) point out that "maintaining a healthy diet throughout life prevents not only malnutrition in all its forms, but also a variety of non-communicable diseases and other health conditions" (OMS/OPS, 2022).

This study reveals an not healthy and unhealthy diet in 69.9% of the students surveyed, when analyzing the results according to the frequency of consumption (daily or almost daily) a low percentage was observed in the consumption of fruits and vegetables, similar to what was found by other authors (Mardones *et al.*, 2021; Ponce *et al.*, 2019), and which differ from what was reported by Díaz-Muñoz (2018).

Becerra-Bulla *et al.* (2015), mention the importance of these food groups for their nutritional contribution (antioxidants and fiber) as a health benefit. Troncoso (2011) and Valdes-Badilla *et al.* (2015), point out that carrying out a healthy diet is the basis for having optimal health as well as preventing the development of certain diseases, in the case of university students it is of special importance since several studies relate a good diet with adequate academic performance adequate academic (Hernández *et al.*, 2020; Pinos *et al.*, 2019; Stea & Torstveit, 2014).

Díaz-Muñoz (2018), in a study carried out on university students, found that 75% of the students habitually consumed the three main meals (breakfast, lunch and dinner) while in this study 55.5% of the students ate these meal times, data that coincides with what was reported by Martínez-Hernández *et al.* (2021), in this regard Becerra-Bulla *et al.* (2015), indicate that the exclusion of a main meal may be due to the academic load such as excessive homework and evaluations, separation from the family, the time spent traveling to the university campus, economic problems, lack of knowledge on nutritional aspects, etc., Pi *et al.* (2015), refer to the fact that the consumption of 3 to 4 daily intakes seems to be associated with an adequate energy intake and better control of body weight.

Various studies indicate that students perceive their eating behaviors as inappropriate, some of the reasons being the lack of time to make meals at school, or the lack of habits to comply with eating schedules (Concha *et al.*, 2019; Troncoso and Amaya, 2009).

Montero *et al.* (2006), indicate that the state of mind influences the choice of food, who affirm that both stress and sadness, anxiety or boredom affect in a different way the way we relate to food, sometimes increasing the intake as is the case of stress or decreasing in situations of sadness. In the present study it was found that academic stress situations influenced the consumption of a greater amount of food, Ramón-Arбуés *et al.* (2019), showed that not healthy eating is associated with some level of anxiety, depression and stress, in addition, there are other factors that influence eating habits such as emotional state, advertising, the preference of certain foods and the company from other students, which encourages young people to eat not healthy foods (Troncoso and Amaya, 2009).

Breakfast is considered an important part of a healthy lifestyle, several studies have linked the association between breakfast and health benefits, including better nutritional status and lower cardiovascular risk (Deshmukh-Taskar *et al.*, 2013; Odegaard *et al.*, 2013). In the present study, it stands out that the majority of students eat breakfast daily, either at home, in the cafeteria or in food stalls at the University Campus; these results are similar to other studies (Karlen *et al.*, 2011; Ponce *et al.*, 2019) and differs from what was found by Duarte-Cuervo *et al.* (2015) and Ratner *et al.* (2012). Although most of the students mentioned eating breakfast daily, the nutritional quality of these foods was not investigated in this study.

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Conclusions

According to the data found, the university population studied presented an inadequate diet regarding the consumption of certain food groups, with a deficient intake of fruits and vegetables, as well as omitting some meal time, in addition to not complying with eating schedules recommended.

It is important to promote the education of adequate eating habits in students, as well as to implement strategies for access and availability of healthier foods in the university environment that allow improving the quality of their diet and therefore their health and academic performance, associated with institutional support to create permanent support and follow-up programs for students who live in a state of vulnerability in the field of food and nutrition.

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