

Feeding high school students in Nextipac, Zapopan, Jalisco**Alimentación de jóvenes de Secundaria en Nextipac, Zapopan, Jalisco**

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Abstract

Obesity in Mexico has reached worrying proportions, especially among young people aged 12 to 16 years. The impact of covid-19 has exacerbated this problem, as the confinement measures imposed during the pandemic have led to a sedentary lifestyle among adolescents. Prolonged time at home has led to an increase in unhealthy foods, rich in sugars, unhealthy fats and high in calories; this situation has contributed significantly to the increase in obesity rates. In order to better understand the situation in the educational environment, a survey was conducted at Ignacio L. Vallarta High School, covering students from the three academic grades. The sample included the students of the school, in order to obtain a comprehensive view of the problem at different educational levels. The results of this survey provided information to understand the reasons for the increase in obesity in adolescents, thus allowing the development of strategies to address this public health problem in a comprehensive manner, reverse this worrying trend and improve the health of future generations. The objective of the present study is to identify the type of diet of high school students in a rural area in order to promote an active lifestyle and a balanced diet in the school and family environment.

Obesity in young adolescents, Food in high school youth, Family, Foods with limited nutritional value

Resumen

La obesidad en México ha alcanzado proporciones preocupantes, especialmente entre jóvenes de 12 a 16 años. El impacto del covid-19 ha exacerbado esta problemática, ya que las medidas de confinamiento impuestas durante la pandemia han llevado a un estilo de vida sedentario entre los adolescentes. El tiempo prolongado en casa ha propiciado el aumento de alimentos poco saludable, ricos en azúcares, grasas no saludables y alto contenido calórico; esta situación ha contribuido significativamente al incremento de los índices de obesidad. Con el propósito de entender mejor la situación en el ámbito educativo, se llevó a cabo una encuesta en la Secundaria Ignacio L. Vallarta, abarcando a estudiantes de los tres grados académicos. La muestra incluyó a los alumnos del plantel, con el fin de obtener una visión integral de la problemática en distintos niveles educativos. Los resultados de esta encuesta proporcionaron información para comprender razones del aumento de obesidad en adolescentes, permitiendo así desarrollar estrategias para abordar este problema de salud pública de manera integral, revertir esta tendencia preocupante y mejorar la salud de las futuras generaciones. El objetivo del presente estudio es, identificar el tipo de alimentación de jóvenes de secundaria en una zona rural para promover un estilo de vida activo y una alimentación balanceada en el entorno escolar y familiar.

Obesidad en jóvenes adolescentes, Alimentación en jóvenes de secundaria, Familia, Alimentos con valor nutrimental limitado

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Introduction*Obesity in young adolescents*

The diet of young people between 13 and 17 years of age, who are generally studying at the secondary level, varies because in their homes they have the opportunity to consume a balanced diet, that is, they can consume products such as vegetables, meat, dairy products among others, this is because at that age, mothers are concerned about serving food at home as balanced as possible, according to their economic resources generated in the family. However, there may be food insecurity as mentioned by Ortiz, Rodriguez and Melgar (2012), who mention that it occurs when "an individual experiences limited or uncertain availability of nutritionally adequate food", which may be consumed outside the home, generating obesity risks. Several factors have had an impact on the alteration of young people's diet, among them food poverty. According to data from Coneval (2022), in rural areas, the extreme poverty line by income, i.e., the threshold to cover the food basket, stands at \$1,665 pesos per month in rural areas. This financial constraint significantly limits the ability to acquire nutritious food. Adding to this challenge is the presence of the COVID-19 contingency, which has exacerbated poverty, further affecting disposable income for food, especially in rural areas. This context underscores the need to address the food situation in these environments as a matter of priority.

Feeding in high school youth

During adolescence, eating habits are created and/or established, leading to food choice preferences; at this stage, the family, society and cultural aspects have a strong influence, thus generating some food problems such as malnutrition, overweight and obesity. Chavez (2018), mentions that food consumption is related to cultural values and beliefs, as well as the foods that are produced in the rural area where they come from.

In young people, eating disorders can be caused by moods, sedentary lifestyles and lifestyle; women tend to take a little more care of their diet, as there is a tendency to greater obesity than men Tinat (2022), generated by inadequate nutrition, academic and extra-academic activities, which can cause adolescents to sometimes skip breakfast or not to eat the most appropriate breakfast. Castañeda et al. (2008). Eating disorders (EDs) are the most common chronic diseases in young people with high mortality risk reflected in excessive weight control and distortion of physical complexion. Ortiz, L. et al (2017). Given that some adolescents experience the feeling of being perceived unfavorably by others, due to body standards and stereotypes imposed by the media, society, culture, among others, it is common for them to undertake efforts to conform to these ideals. This behavior can manifest itself in the alteration of specific parts of their body in order to achieve a slim figure, as noted by Guadarrama et al. (2014).

Food insecurity is defined as non-nutritional food limitations, food that is not safe for the consumer and/or the lack of ease of access to acceptable food. Consumption of energy-dense foods can increase the risk of obesity in young people, thus generating changes in metabolism and accumulating body fat. In general, these foods are very accessible and less expensive. Ortíz-Hernández, et al. (2012).

In the vicinity of several elementary schools, foods rich in fat and lacking in nutritional value are sold, which have a great attraction for young people of that age. Despite the fact that in October 2022, the Chamber of Deputies approved a law prohibiting the sale of junk food in the vicinity of schools, both public and private, modifying Article 50 of the General Education Law with the purpose of promoting a healthier lifestyle. However, in some schools these situations still persist.



Figure 1

Several studies indicate that the eating habits of young people are similar to those of adults, Márquez et al. (2008), as they tend to prefer foods with high levels of fat and calories. This behavior exposes them to the risk of developing various diseases, such as overweight that can evolve into obesity in adulthood, with associated consequences such as diabetes, hypertension and cancer. In the United States, a study reveals that adolescents are substituting healthy options for fast and nutrient-poor foods, thus compromising their proper nutrition.

Family

The family is an important factor in food in rural areas; the mother is the person who prepares food according to the crops and types of food that can be found in the region. However, Castro (2012) mentions that families can be affected by various factors such as economic and social changes Figueroa. et al (2022).

In rural areas, the consumption of vegetables grown in backyards and meat products, sometimes at lower cost, is a marked trend due to local incomes. Although the consumption of meats such as chicken and pork, which are produced in backyards for self-consumption, is observed, this practice occurs with women who are housewives and produce their food with the support of their husbands and children.



Figure 2

According to FAO 2019, in Latin America the problems of undernourishment and chronic child malnutrition have decreased, however, there is a greater problem of obesity and overweight in rural regions, with insufficient consumption of vitamins and minerals obtained from fruits and vegetables, as well as meats. Since 1980, several food programs have been implemented, such as the SAM (Mexican Food System), where one of its objectives is the development of new programs for the production of staple foods such as corn and beans (Spalding 1985), products that housewives can use for their own consumption.

In 1977, the DIF (Integral Family Development) implemented hot school breakfasts, seeking to offer safe and nutritious food to the school-age population (children and adolescents), offering milk and even popular kitchens to offer healthier and more nutritious food. DIF (2020). According to the National Health and Nutrition Survey in Jalisco 2018, mentions that a determining factor for the purchase of food is related to the budget allocated to the purchase of food, it is worth mentioning, that women in rural households do not have a high budget for the purchase of their food and their nutritional requirements where it can be compared, the purchase of food are high in fats and sugars against the purchase of fruits and vegetables, and it is mentioned that families try to buy healthy products but not an adequate diet (ENSANUT 2018). In the case of adolescents (high school youth), they generally decide what to eat, where and how much, in addition to being an influential stage in their lives (marketing, social networks and identifying with the customs and habits of their peers), Morales (2021).

At the adolescent age, new eating habits are produced as mentioned by Rufino et al (2007), which can cause a nutritional risk, due to the fact that when consuming food outside the home, mothers cannot have control of the food consumed. However, the Prospera program that was in force until 2018 delivered monthly economic support with scholarship holders in primary and secondary school directly to the family for food and education, in some way this was a small support that supported the family for the purchase of better food. Fiszbein et al (2009).

Foods with limited nutritional value

These types of foods considered empty calories provide little or no nutritional value, such as cereals, soft drinks, sweets, processed foods, industrial desserts, among others, generally contain asteroids, constantly provoking greater appetite. Sugar is one of the main sources of energy for the body and different organs, brain and muscles; the brain alone consumes 20% of the energy from glucose Partearollo et. al. (2013). Gutierrez (2022) observes that between 3 and 5 years of age, children begin to carry lunch boxes with foods that have a high sugar content. This generates, from an early age, a preference for the consumption of this type of products, which could contribute to the development of health problems such as tooth decay and diabetes, among other diseases. The consumption of ultra-processed products has a high calorie content and low nutritional value, which are highly appreciated by young people and cause obesity and serious health problems. According to FAO (1992), In industrialized countries with purchasing power, research on nutrition and food-related diseases is being developed, the high consumption of empty calories can cause diseases such as obesity in different degrees, arteriosclerosis, hypertension, dental caries, liver disease, among others. In the specific case of Mexico, the lack of culture regarding the consumption of foods with high nutritional value, added to poor eating habits and limited economic resources, is reflected in the preference of some people to opt for the consumption of soft drinks and snacks such as chips or industrialized bread rolls instead of choosing foods that provide healthier nutritional conditions.

Methodology

The type of research conducted was quantitative (Sampieri 2010) in the Ignacio L. Vallarta Tele-secondary School. A sample of 87 students was obtained from a total population of 112 students. It was carried out through a predetermined survey conducted randomly in the three grades of the high school, that is, 1st, 2nd and 3rd grade, with two groups of each grade; an exploratory talk was carried out where it was sought which foods were considered as junk products or products that do not benefit the health of consuming them, in addition to high in calories, in order to delve deeper with the data obtained from the surveys.

The following formula was used to determine the sample:

$$n = \frac{p * q * N}{N - 1 \left[\frac{E^2}{Z^2} \right] + p * q} \quad n = \frac{(.50)(.50)(112)}{111 \left[\frac{.05^2}{1.645^2} \right] + (.50)(.50)} = 86.95 \rightarrow 87$$

Z = Value of tables 90% = 1.645

P = Positive probability

q = Negative probability

N = Total data = 112

E = Error (95%)

n = Total sample

Results

The results obtained both from the surveys and from the conversations carried out with high school youth revealed relevant information. The first question asked during these interactions was whether they would like to know positive or negative aspects about junk food? 98% of the population was interested in knowing about healthy eating, 2% said they were not. Therefore, it was detected that there was interest in the topic. Subsequently, they were asked which foods were consumed most at home. There was variation according to the students' grade level. First graders mentioned that the main foods they consumed at home were beans, meat and vegetables, foods that were prepared and supervised by their mothers, and they generally sent a snack to school.

Secondary school 2nd graders also commented that they consumed beans at home and, to a lesser extent, meat, but that their diets offered by their mothers included spaghetti, rice, vegetable soup and, occasionally, hot dogs and hamburgers. In the case of the third grade, there was consumption of meat, vegetables, beans, hamburgers, hotdogs and included soft drinks and sometimes french fries; however, young people in the last grade consumed more frequently foods such as pizza, hamburgers, hot dogs, and fried foods that they could buy in grocery stores accompanied by soft drinks.

They were asked which foods they considered not very nutritious? What they mentioned in the same proportion were pizza, hot dogs, as well as candy and ice cream; with respect to hamburgers and french fries, they mentioned that, yes, it was probably a food that was not very nutritious, but "that it was very tasty along with the fries" and accompanied by a soft drink. Although soda contains a high calorie content, they did not mention it as an innutritious food.



Graphic 1

Source: Own elaboration with information from high school students

Finally, they were asked if they consumed vegetables, 90% of them said that they did consume vegetables, the most important of which were: potatoes, carrots, tomatoes, lettuce, cucumber and corn; it is worth mentioning that some of the vegetables mentioned above are grown by their mothers for their own consumption.

Conclusions

- High school students are able to recognize which foods offer low nutritional value and are interested in learning more about them.

- While the students eat at home, the mothers offer food that they can purchase locally, limiting themselves to household income.
- Young people eat properly as long as they consume the food inside their home.
- As they advance through high school, they consume foods with less nutritional value, preferring potatoes, hamburgers and pizza.
- It is necessary to promote from an early age the habit of consuming foods that contribute to healthy eating. This is achieved by raising awareness through talks and/or conferences on the possible health problems associated with the consumption of foods considered empty calories.
- It is suggested to encourage both physical activity and healthy eating from the early years of basic education, in order to promote healthy development in young people and cultivate the habit of a balanced diet.

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