

## Eating habits and physical activity of the students of the Universidad Iberoamericana del Ecuador (UNIB.E)

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### ABSTRACT

**Introduction:** Eating habits and physical activity are fundamental factors that influence society's health, today all over the world there are obesity and overweight problems, precisely due to the lack of physical exercise and poor dietary regime of people. Due to this reason, it is essential to carry out studies to identify these types of problems and carry out health prevention programs.

**Objective:** The objective of this research was to evaluate the eating habits (EH) and physical activity (PA) of the students of the Universidad Iberoamericana del Ecuador.

**Methods:** This study was carried out with 50% of university students; they were divided into two groups (G1-G2) according to the number of students enrolled for each degree. A validated questionnaire (consisting of 3 sections for EH and 1 section for PA) was used. The results were evaluated with descriptive statistics for the interpretation of the questionnaire. To analyze whether there was a significant difference between G1 and G2 results, the Student's t-test was performed with a level of statistical significance of  $p < 0.05$ .

**Results:** According to the instrument used, 72.6% of low consumption of adequate foods (fruits, vegetables, white yogurt, etc.), 54.3% of high consumption of inappropriate foods (sausages, snacks, sugary drinks, etc.), and 76.4% of adequate eating behavior (company, place and time of consumption) were obtained. In general, the students' EH is partially inadequate (70.2%) and predominates the inadequate PA

(60.6%). There were no significant differences between G1 and G2, except for eating behavior, with a higher average for G2 than G1.

**Conclusions:** There is a problem with eating habits and physical activity in UNIB.E students; the results obtained can be assumed for other higher education institutions in Ecuador. It is vitally important that public and private authorities generate prevention awareness campaigns for proper nutrition and health to avoid future diseases.

### KEYWORDS

Nutrition sciences, diet, obesity.

### INTRODUCTION

Eating habits are a fundamental aspect of human nutrition. However, these habits start developing from childhood to adolescence, youth (university stage according to the population), and mark to continue for the rest of life<sup>1</sup>. Eating habits will mainly be marked by various aspects, such as family, media, and study centers. It is considered that university students are generally in an age range between 18 to 30 years. Many factors can influence students to vary their eating habits (classmates, economy, alcohol, independent living, ability to cook, etc.) For these reasons, it is considered that the university period is a critical point in students' health, and it will have great importance in the present and especially in the future<sup>2,3</sup>.

Physical activity is of paramount importance in health; it is defined as the skeletal muscles' movements; all people must have physical activity throughout their lives, as this will prevent various chronic non-communicable diseases<sup>4</sup>. Within the age range of university students, it is recommended to have a physical activity (moderate or vigorous in-

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tensity) of 150 minutes at least per week. As the age of people increases, a decrease in physical activity has generally been observed, and this usually begins in the age range of 18 to 25 years (age group where the majority of the university population is found)<sup>5,6</sup>.

The Food and Agriculture Organization<sup>7</sup>, shows the results of the latest health and nutrition survey of Ecuador, carried out in 2012. From these results, we can analyze that Ecuador has a serious problem of eating habits and lack of physical activity, translating into problems related to people's weight. 63% of adults older than 19 years and younger than 60 years have a prevalence of overweight and obesity (BMI  $\geq 25$  kg / m<sup>2</sup>). This indicates that Ecuador is in a critical range of people with incorrect nutrition and lack of physical exercise. With these findings, we can say that 6 out of 10 people are overweight and obese. This happens due to Ecuadorians' diet, which is based on rice, white bread, palm oil, sugar, and potatoes. The consumption of these foods causes obesity, which represents a risk factor for cardiovascular diseases (increased blood pressure, diabetes, insulin resistance, and dyslipidemia), which is the leading cause of death in many countries<sup>8</sup>.

Based on the data presented, it is vital to analyze the nutrition and lifestyle of the students in Ecuador universities since they represent a sample of the population that can be the object of nutritional programs if they need it. For this reason, the objective of this research was to determine the eating habits and physical activity of the students of the Universidad Iberoamericana del Ecuador.

## MATERIAL AND METHODS

### *Study population and sample*

This research was developed with a representative sample of students from the Universidad Iberoamericana del Ecuador (UNIB.E). The total number of students in the semester of September 2020 - March 2021 was 416. The population was divided into two groups according to the careers offered by the University. This division was based on careers with more and fewer students enrolled, this means that it was divided into the careers that are most selected by students and those that are not; This division was carried out in order to analyze eating and physical behaviors of students when they are in large and small groups. 50% of the population was randomly chosen from each group. The most enrolled students, i.e., 372 students, were from Bachelor of Nutrition and Dietetics, Bachelor of Nursing, Bachelor of Tourism, Software Engineering, and Law (face-to-face). The group with the least students, i.e., 44 students, were from Bachelor of Business Administration, Bachelor of Gastronomy, Bachelor of Production for Means of Production and Law (blended).

All procedures were performed in accordance with the principles of the Helsinki declaration of 1975 in its revised version

of 2000, the study was approved by the Ethics Commission of the Universidad Iberoamericana del Ecuador (Faculty of Health and Wellbeing), all patients they were informed of the objectives of the study and accepted the requested approval. No experimental studies were carried out.

### **Process**

Data related to eating habits and physical activity were obtained through a validated survey designed on the Google forms platform. The survey was enabled for five days and was sent randomly to 50% of each group of university students' population. Before starting the questionnaire, the participants were informed about the details of the study (objectives, research design, and use of data). They had the voluntary option of accepting or not participating in the research. In this research, anthropometric measurements were not carried out since in the period that the study was carried out, interaction with people was not allowed due to the covid 19 pandemic.

### **Instruments**

#### Eating habits and physical activity questionnaire

The validated questionnaire prepared by Vasquez & Macedo (2016)<sup>9</sup>, was used to analyze eating habits and physical activity. This tool was designed for adolescents to have meaningful data without investing a high number of resources. The questionnaire has four sections (three to evaluate eating habits and one for physical activity); it is divided into 1) Frequency and amount of recommended food consumption (six questions about vegetables, fruits, plain milk, natural yogurt, and water). 2) Consumption of not recommended foods (nine questions about ham, sausage, salami, chorizo, hamburger, pizza, chocolate, biscuit, cake, alcoholic and sugary drinks, French fries, and snacks in general). 3) Frequency, company, and place of meal times (three questions regarding how many times a day, place, and with whom food is consumed). 4) Physical activity (four questions related to lifestyle, type, time, and place of the activity). The eating habits section has a maximum score of 51 points (0 to 3 points, or 0 to 1.5 depending on the question), and the physical activity section has a maximum total score of 12 points (0 to 3 points for each question). For the tabulation of data based on the results, the following scale was used in terms of eating habits: 1) Inadequate (<25.5). 2) Partially inadequate ( $\geq 25.5$  and <38.5). 3) Adequate ( $\geq 38.5$ ). In the physical activity, it was considered: 1) Inadequate (<6). Partially inadequate ( $\geq 6$  and <9). 3) Adequate ( $\geq 9$ ). The questions were adapted for the understanding of the population of Ecuador.

### **Statistical analysis**

A descriptive analysis was carried out using percentages and average ( $\pm$  standard deviations) according to the type

of variable to analyze eating habits and physical activity. The Student's t-test with a statistical significance level of  $p < 0.05$  was used to determine if there was a significant difference between the results of the two population groups. The statistical program, SPSS (Statistical Package for the Social Sciences; Chicago, Illinois), version 15.0 for Windows, was used.

## RESULTS AND DISCUSSION

A total of 208 students participated (50% of the total students enrolled in the cycle); the sample contributed by the different careers were: group 1 with 186 students, group 2 with 22 students. Table 1 shows the results obtained for each of the questionnaire sections on eating habits and physical activity in all UNIB.E students.

When analyzing the questionnaire sections, it was observed that the recommended food intake was adequate in 12.5% of the participants and inadequate in the majority of cases ( $n = 151$ ; 72.6%). Regarding the consumption of non-recommended foods, it was observed that this was adequate in most cases ( $n = 113$ ; 54.3%). On the other hand, eating behavior turned out to be adequate in most cases ( $n = 159$ ; 56.4%). In general, it can be seen that eating habits were adequate in 25.5% of the cases ( $n = 53$ ), and there was a predominance of partially inadequate eating habits. Regarding physical activity, it was detected that inadequate practice was predominant (60.6%,  $n = 126$ ), and only 9.6% of the students have adequate physical activity ( $n = 20$ ).

Table 2 shows that, when applying the Student's t-test for independent populations, it can be observed that there were no statistically significant differences in the responses of the participants according to the type of university degree, except for the responses regarding eating behavior (section three of the questionnaire), in which an average of  $15.77 \pm 1.49$  was obtained in group 2. This was significantly higher than that obtained in group 1 ( $14.59 \pm 2.95$ ); ( $p < 0.05$ ).

**Table 1.** Results of eating habits and physical activity in UNIB.E students.

	(n, %)
<b>Recommended food intake</b>	
Inadequate	151 (72,6)
Partially inadequate	31 (14,9)
Adequate	26 (12,5)
<b>Consumption of foods not recommended</b>	
Inadequate	14 (6,7)
Partially inadequate	81 (38,9)
Adequate	113 (54,3)
<b>Eating behavior</b>	
Inadequate	7 (3,4)
Partially inadequate	42 (20,2)
Adequate	159 (76,4)
<b>Total, eating habits</b>	
Inadequate	9 (4,3)
Partially inadequate	146 (70,2)
Adequate	53 (25,5)
<b>Physical activity</b>	
Inadequate	126 (60,6)
Partially inadequate	62 (29,6)
Adequate	20 (9,6)

**Table 2.** Relationship between results of eating habits and physical activity of groups 1 and 2 of the UNIB.E.

	Careers		Test T	p
	Group 1 (n=186)	Group 2 (n=22)		
Recommended food intake	4,10 ± 2,2	4,06 ± 2,57	0,73	0,942
Consumption of foods not recommended	15,82 ± 3,39	16,8 ± 3,11	-1,33	0,183
Eating behavior	14,59 ± 2,95	15,77 ± 1,49	-3,06	0,004
Total, eating habits	34,52 ± 5,74	36,68 ± 4,38	-1,703	0,090
Physical activity	4,73 ± 2,52	4,90 ± 3,22	-0,304	0,762

Values expressed as mean ± SD. Student's t-test. Significant differences,  $p < 0.05$ . Group 1: Bachelor of Nutrition and Dietetics, Bachelor of Nursing, Bachelor of Tourism, Software Engineering and Law. Group 2: Bachelor of Business Administration, Bachelor of Gastronomy, Bachelor of Production for Means of Production and Law (blended).

## DISCUSSION

From the findings of this study, the inadequate consumption of recommended foods stands out (72.6%); among these are fruits, vegetables, and dairy products. These findings coincide with the research carried out by Freire et al.<sup>10</sup>, where it is evident that the Ecuadorian population, in general, does not reach the consumption of 200 grams in fruits and vegetables, whereas the recommended consumption is 400 grams per day. In general, the eating habits of the university community are based on the low consumption of foods recommended and classified as healthy; as can be seen when comparing the studies carried out on university students from Chile<sup>11</sup>, Colombia<sup>12,13</sup>, Ecuador<sup>14</sup> and the United States<sup>15</sup>. Additionally, personal knowledge about healthy eating that affects personal consumption can also be mentioned. The term healthy can encompass a wide range of concepts, which are often not perceived in the same way by each student or family. As identified in a study carried out in Italy<sup>16</sup>, the perception of "healthy" changes due to individual psychology; therefore, students can have a personal idea of what it means to eat healthy without necessarily falling within adequate food recommendations. An example that can be cited is the consumption of non-caloric sweeteners in the University population. According to a study carried out by Durán et al.<sup>17</sup>, in the population of Latin American students, at least 80% of the participants consumed at least one product with non-caloric sweeteners. In the study, as mentioned earlier, obesity is not related to the consumption of sweeteners; however, it is important to note that although the consumption of these type of products reduces total caloric intake, it may be associated with metabolic alterations<sup>18</sup>, which can cause damage to health.

As for eating habits, a factor that can considerably influence the consumption of healthy foods is the family; this is clear from a study carried out on university students in Chile<sup>19</sup> where it was identified that a high number of students who feel satisfied with their life and their diet reside with their parents. They consume home-cooked food, which is usually healthier and more beneficial, and food consumption from outside the home is reduced, which is generally high in calories, sugar, and harmful fats. The reasons for an inadequate diet can be extrapolated from a study carried out in Germany<sup>20</sup>, where the main barriers to healthy eating are identified as: the little time to devote to eating, the lack of healthy food in bars the University, and the high prices of healthy food. A careless and inadequate diet, low in healthy and high in processed and junk food, can have serious consequences on students' health, such as insulin resistance, chronic non-communicable diseases, overweight, obesity, and inflammation<sup>21</sup>. Conditions that are not favorable for the academic performance of university students.

When reviewing the results on eating behavior of the population, 76.4% demonstrated adequate behavior; that means a large part of the students eats 4 to 5 meals a day.

There is a worrying 60.6% of the population that presents inadequate physical activity habits, while only 9.6% have adequate physical activity habits. Physical activity is a fundamental part of healthy habits. However, in the results obtained, it is observed that, unfortunately, the studied population does not present good physical activity habits. The studies of González-Morán et al.<sup>22</sup> are worth highlighting; he stated in his research that physical activity promotes an adequate cardiorespiratory condition and good health, which increases the confidence and well-being of the individual.

Normally, men tend to be more physically active than women<sup>15,23,24</sup>. Additionally, overweight and obese people have a greater chance of being inactive<sup>25</sup>. In this regard, it can be identified that physical activity motivations are varied; among them, health, satisfaction, and fun stand out. In men, the main motivation is competition and fun, while women are health and aesthetics<sup>23</sup>. On the other hand, the reasons for not doing physical activity usually focus on lack of time and little interest in physical activity, reflecting individuals' psychological and social state<sup>19</sup>. A study carried out by Ramírez Vélez et al.<sup>26</sup> in a population of Colombian university students coincides with the findings mentioned above, since it identifies that lack of time, social influence, and lack of skills are the main barriers to the practice of sport or physical activity in young people. It is worth mentioning that when the data was collected, the young students were in isolation due to the health emergency generated by the SARS Cov-2 virus. This phenomenon could have influenced the physical activity data of the students. However, as Andreu<sup>27</sup> mentioned, nowadays, there are several options to maintain constant physical activity, thanks to technology and many virtual physical exercise initiatives. In addition to the aforementioned, screen sedentary lifestyle must be added, a common phenomenon among young people today. This practice considerably reduces the number of hours of university students' physical activity to spend in front of the screen of computers, video games, or cell phones<sup>28</sup>. It is important to emphasize that the lack of physical activity directly affects health since it is related to metabolic diseases, overweight, obesity, and chronic non-communicable diseases<sup>29</sup>. Another factor that should be considered in physical activity is academic performance; as certain studies indicate, there is a positive relationship between physical activity and better academic performance<sup>30</sup>. It is important to highlight the importance of physical activity to maintain adequate health and good academic performance for all those mentioned earlier.

## CONCLUSIONS

The results obtained in the present study confirm that the living habits of young university students are not usually healthy, either due to lack of time, inadequate family habits, or carelessness. The current lifestyle that promotes a sedentary lifestyle and fast or processed food is exacerbated by the

isolation caused by SARS Cov 2. Therefore, it is of the utmost importance to take measures and actions regarding the University's personal and community habits. A healthy diet combined with constant physical activity promotes a state of complete well-being that benefits students' academic performance, which will result in reaching an adequate productive potential in adulthood. It is necessary to highlight the importance of raising awareness of healthy eating habits and physical activity to promote health.

It is important to mention that the university community comprises individuals who are still in a middle or late adolescence stage. Thus, young university students are in a vulnerable period both psychologically and physically. Considering those mentioned earlier, both at a family and social and educational level, special attention should be paid to the formation of conscious habits to promote a healthy lifestyle both in food and in physical activity.

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