Dietary Habits and Nutritional Status in Students of the University Corporation Rafael Nunez, Cartagena-Colombia

Fabián Espitia Almeida[1], Martha Mora García[2], Alexandra Coquel Bru[2] and Christian Orozco Sanchez[1]

[1]Facultad de Ciencias Básicas y Biomédicas, Universidad Simón Bolívar, Colombia

[2]Facultad de Ciencias de la Salud, Universitaria Rafael Núñez, Colombia

Submission: May 29, 2021; **Published:** July 28, 2021

*Corresponding author: Fabián Espitia Almeida, Facultad de Ciencias Básicas y Biomédicas, Universidad Simón Bolívar, Colombia

Abstract

Eating habits and physical activity are determining factors of the state of health, being related to pathologies such as obesity and metabolic disorders. As established by the WHO, they represent a substantial reduction in morbidity and mortality and the burden of obesity and its related disorders worldwide.

Objective: Know the eating habits and physical activity in students of the Rafael Núñez University related to their state of health.

Materials and methods: Descriptive cross-sectional study, based on the application of a survey on eating habits and physical activity. Furthermore, variables such as height, weight, hip circumference and abdominal circumference were taken.

Results: 170 students were included, 29 (17.05%) men and 141 (82.95%) women, with an average age of 23.03 ± 3.73 years. Of which 22 (12.94%) were underweight, 95 (55.88%) were normal weight, 40 (23.53%) were overweight and 13 (7.65%) were obese. Regarding eating habits, it was found that the majority prefer to consume three meals a day, breakfast 140 (82.35%), lunch 170 (100%) and dinner 96 (56.47%). Fruit consumption 7 days a week was low, only 18 (15.88%) of men and 54 (31.76%) of women do it occasionally. In physical activity, the majority of the population 103 (60.59%) exercises with a frequency of 1 to 3 days / week.

Conclusion: Students present unhealthy eating habits, with low consumption of fruits, whole foods, legumes and dairy, on the contrary, they present high consumption of alcohol and junk food.

Keywords: Food habits; Nutritional status; Obesity; Students; University; Malnutrition

Introduction

Healthy lifestyles are currently established as a tool to combat some diseases or disorders linked to eating disorders throughout the world, within these disorders are obesity, cardiovascular disease, diabetes, insulin resistance, osteoarthritis, dyslipidemias, high blood pressure, atherosclerosis, chronic kidney disease, lung disorders, depression and cancer [1-6]. In this sense, the public policies of each country have recommended limiting energy intake from the consumption of fats and sugars, increasing the consumption of fruits, vegetables, legumes, whole grains, furthermore, recommending periodic physical activity (60 minutes a day for youth and 150 minutes per week for adults) [5, 7-10]. With a view to reducing the high frequencies of obesity in the world population, which is close to 18% [11], which corresponds to> 600 million adults. In Latin America these numbers are equally alarming and the nutritional situation has led to a great extent to an increase in the frequencies of obesity, with Mexico, Argentina,

Venezuela and Chile being the most prevalent with 33, 29.4, 31 and 29% respectively [12-15]. In Colombia, these numbers are equally worrying, the National Survey of the Nutritional Situation, ENSIN (ICBF, 2010) reported a prevalence of 16.5% for obesity, which is equivalent to more than 7 million affected people. Additionally, it was found that only 20.5% of Colombians consume fruits 3 or more times per day, and 3 out of 10 people consume vegetables every day, in fact, only 6.4% do so 2 or more times.

The most worrying thing is that the low consumption of fruits, vegetables and vegetables is exacerbated in the lower social strata and in rural areas where, paradoxically, they are produced being recommended the minimum consumption of 400 grams of fruits and vegetables every day by WHO and FAO to prevent non-communicable diseases such as obesity, related disorders and maintain good health, showing that healthy eating is one of the determining factors of a good Health, which would represent a

substantial reduction in mortality and the burden of obesity at the global, national, regional and local levels [16-18]. Understanding then that some of these diseases could be prevented with a recommended daily consumption of fruits and vegetables, whole grains, legumes, low-fat dairy, fish, little consumption of red meat, and added to it the practice of regular physical activity. Therefore, it is important that people can create healthy eating habits, and for this they must know which are those foods that contain the necessary micronutrient and macronutrient requirements, and what are those portions necessary to keep their body healthy. For which, the need to develop a series of investigations is seen in order to propose possible strategies that help the student community of the Rafael Núñez University Corporation (CURN) belonging to the program of aesthetics and cosmetology technology (TEC) to lead a healthy life and, at the same time, condition their bodies in order to avoid health problems. Considering that the CURN plays an important role in the integral formation of the student, it is necessary to identify the eating habits, physical activity and nutritional status of the students in TEC belonging to the CURN. In this sense, the present research aims to know the eating habits and physical activity of students at the Rafael Núñez University.

Methodology

A descriptive cross-sectional study was carried out in a student population belonging to the Technology in Aesthetics and Cosmetology (TEC) program of the Rafael Núñez University Corporation (CURN) in Cartagena-Colombia. The study lasted 5 months between June and October 2018For the selection of subjects, the following inclusion criteria were taken into account: be students of the CURN TEC program from first to last semester (1 to 6), be over 18 years of age and agree to participate in the study.

Sample process and selection

Initially, an approach was made with the subjects, they were told about the study and its purpos, then everyone who decided to participate was applied a survey to obtain information on their eating habits specifically on the preference and consumption of foods such as dairy, fruits, vegetables, legumes, whole foods, red meat, fish, sausages, among others. Physical activity habits were also investigated, such as the frequency with which the subjects perform physical activity, the type of physical activity carried out and the preference for the means of transport used to get around. Additionally, the subjects' weight and height were taken to estimate their nutritional status using the Body Mass Index (BMI, as the relationship of weight with the square of height: kg / mts^2), and abdominal circumference as a predictor. of abdominal obesity. Once the sampling stage was completed, the study was included by voluntary participation 170.

Statistical analysis

The collected data were stored in a database built in Excel and later processed with the Statistica version 7.0 program, in this processing, normality tests were performed on the data to determine if the variables tended towards the center and to be able to use the average accompanied with its standard deviation as a reporting measure. Furthermore, the behavior of the variables between the male and female groups was evaluated by means of the t-student test, using as a value of statistical significance for the differences all p<0.05.

Ethical aspects

Informed consent was taken from each subject to obtain authorization to store and process the information taken. In addition, according to resolution No. 008430 of 1993, article 11, the study carried out is an investigation with minimal or less than minimal risk, because it only involves the procedure of weighing, carving and taking verbal information.

He consultation tool was developed taking as reference surveys carried out in other studies such as ENSIN (2005 and 2010), based on the National plan of food and nutrition of the Colombian Institute of Family Welfare ICBF, and some posters published by the WHO. This included 22 questions that inquired about the consumption of: fruits, vegetables, legumes, whole foods, sugary drinks, red meat, alcohol, as well as if they did physical activity and how often they did it, among others as described in the results, additionally it included taking the weight and height (See complementary material: http:// dx.doi.org/10.17632/97ddmv4r6p.1)

Results

170 students out of 190 who are part of the CURN TEC student community were included, of which 29 (17.10%) were men and 141 (82.90%) were women, the average age of the general group was 23.03 ± 3.73 years with differences between men and women. The BMI was 24.32 ± 3.90 kg/m^2 in the general study population, according to this, the population was distributed into four groups regarding their nutritional status; underweight 22 (12.94 %, CI 95 % [0.122 - 0.129]), normal weight 95 (55.88 %, CI 95 % [0.545-0.563]), overweight 40 (23.53 %, CI 95 % [0.231 – 0.239]) and obesity 13 (7.65 %, CI 95 % [0.073 - 0.079]), These and other anthropometric variables are described in Table 1. Regarding eating habits, it was found with respect to the total population studied that the majority prefer to consume all three meals a day breakfast 140 (82.35%) in the morning, lunch 170 (100%) at noon and dinner 96 (56.47) %) in the afternoon. In addition, it was possible to show that the total of the subjects consumes less than recommended foods such as skim milk and legumes, of which 107 (62.94%) subjects consume less than the recommended fruits and 57 (33.52%) vegetables. In the distribution by sex, it was found that men consume less cold cuts than women (17.05% men vs 72.90% women, p<0.05). About sugary drinks, it was found that most of the women 125 (73.53%) prefer not to consume them, while 21 of the 29 men reported their consumption, and in the case of alcohol consumption, all the men reported consuming it, in Table 2 these and all the variables analyzed and the results found are described in greater detail. In physical activity, the majority of the population 101 (59.41%) exercises with a frequency of 1 to 3 days / week, with a distribution between men and women of

23 (13.53%) and 80 (47.06%) respectively. The preferred type of physical activity for women was walking 70 (41.17%) and going to the gym 46 (27.07%), and for men jogging 8 (4.70%) and cycling 10 (5.88%). For mobility, both groups report preferring to travel by using motorcycle-taxis, mens 19 (11.18 %) and 95 (55.88 %) women (Table 3).

Table 1: Anthropometric characteristics of the studied sample.

Variable	Mens Mean (SD)	Women Mean (SD)	Total Mean (SD)
Age (years)	21.82 (3.12)	24.24 (4.34)	23.03 (3.73)
Weigth (kg)	68.42 (11.70)	59.20 (12.18)	63.81 (11.94)
Talla (mts)	1.70 (0.09)	1.54 (0.07)	1.61 (0.08)
BMI (kg/mts^2)	23.68 (3.34)	24.96 (4.46)	24.32 (3.90)
AC	80.93 (8.34)	74.27 (9.52)	77.60 (8.93)
HP	106.54	110.14	108.34
IHW	0.77	0.67	0.72
	n (%)	n (%)	n (%)
Underweight	2 (6.89)	20 (14.18)	22 (12.94)
Normal weight	17 (58.62)	78 (55.32)	95 (55.88)
overweight	7 (24.14)	33 (23.40)	40 (23.53)
Obesity	3 (10.35)	10 (7.10)	13 (7.65)
Total	29 (100%)	141 (100%)	170 (100%)

kg: kilograms; mts: meters, BMI: body mass index; DS: standard deviation; AC: abdominal circumference; HP: hip circumference, ICC: index hip waist.

Table 2: Frequency of consumption of some foods by TEC students.

	Mens			Women		
	Does not consume/never n(%)	Occasional/less than recommended n(%)	Every day/ideal portions/day n(%)	Does not consume/never n(%)	Occasional/less than recommended n(%)	Every day/ideal portions/day n(%)
Eat breakfast	---	---	29 (17.05)	4 (2.35)	26 (15.30)	111 (65.30)
Eat lunch	---	---	29 (17.05)	---	---	141 (82.95)
Eat dinner	2 (1.17)	9 (5.29)	18 (10.59)	48 (28.23)	23 (13.53)	70 (41.17)
Skim dairy	---	29 (17.05)	---	---	141 (82.95)	---
fruit	8 (4.70)	3 (1.76)	18 (10.59)	60 (35.30)	54 (31.77)	27 (15.88)
Vegetables	2 (1.17)	20 (11.77)	7 (4.12)	20 (11.77)	87 (51.17)	34 (20.0)
Legumes	---	29 (17.05)	---	---	141 (82.95)	---
Whole-grain foods	5 (2.94)	24 (14.12)	--	---	125 (73.53)	16 (9.41)
Red meat	5 (2.94)	14 (8.23)	10 (5.88)	41 (24.12)	78 (45.89)	22 (12.94)
Fish	1 (0.60)	25 (14.70)	3 (1.76)	25 (14.70)	109 (64.12)	7 (4.12)
Cold cuts/meats*	---	29 (17.05)	---	17 (10.0)	124 (72.95)	---
Home cooking	9 (5.29)	6 (3.53)	14 (8.23)	4 (2.35)	88 (51.76)	49 (28.84)
	Does not consume/never n(%)	Less than 1 or up to 2 servings/day n(%)	Always 3 or more servings/day n (%)	Does not consume/never n(%)	Less than 1 or up to 2 servings/day n(%)	Always 3 or more servings/day n(%)
Sugary drinks	---	21 (12.35)	8 (4.70)	125 (73.53)	4 (2.35)	12 (7.07)
Alcohol	---	29 (17.05)	---	41 (24.12)	100 (58.83)	--
Fried	1 (0.60)	27 (15.88)	1 (0.60)	20 (11.77)	118 (69.39)	3 (1.76)
Salt	15 (8.83)	9 (5.29)	5 (2.94)	89 (52.36)	50 (29.41)	2 (1.17)

Fast food	5 (2.94)	21 (12.35)	3 (1.76)	35 (20.59)	100 (58.83)	6 (3.53)
Snacks between meals	4 (2.35)	19 (11.18)	6 (3.53)	8 (4.70)	98 (57.65)	35 (20.59)

Table 3: Physical activity report.

Variable		Mens n(%)	Women n(%)	Total n(%)
Activity physical*	1 to 3 days/week	23 (13.53)	80 (47.06)	103 (60.59)
	7 days of week	3 (1.76)	25 (14.70)	28 (16.46)
	Never performs	3 (1.76)	36 (21.17)	39 (22.93)
Kind of Activity physical	To walk	5 (2.94)	70 (41.17)	75 (44.11)
	Jogging	8 (4.70)	10 (5.88)	18 (10.58)
	Run bike	10 (5.88)	15 (8.83)	25 (14.71)
	Go to gym	6 (3.53)	46 (27.07)	52 (30.6)
To move he prefers to take	motorcycle-taxis	19 (11.18)	95 (55.88)	114 (67.06)
	Other Transportation**	8 (4.70)	46 (27.07)	54 (31.77)
	Go walking	2 (1.17)	---	2 (1.17)
Know the food pyramid	Yes	18 (10.59)	86 (50.59)	104 (61.18)
	No	11 (6.46)	55 (32.36)	66 (38.82)

Discussion

A short study has been carried out in a student community belonging to the TEC and the CURN in Cartagena-Colombia, in this we have reported the eating habits and physical activity of the subjects who participated, in addition, the frequency of obesity was estimated by using of BMI following the guidelines established by the World Health Organization Finding that the student population consisted mainly of female gender with 82.95%, similar to that reported by Laguado and Gómez where the female gender was 85.7% of the population [20]. It was possible to show that both men and women consume less than recommended skim milk and legumes, In addition, a low frequency in the consumption of fruits and vegetables was observed, and an imbalance in the number of meals per day where it is seen that the subjects do not distinguish the importance of each meal, stopping eating breakfast, but preferring to eat dinner in the afternoon just when energy intake should decrease (Table 2), eventuality that could be linked to ignorance of nutrition guidelines and the body's energy balance, fact that was also investigated by Ibáñez et al, in a Colombian student population [21]. It was also found that the total group of men have a limited intake of cold cuts and cold meats, sometimes consuming them in smaller portions than those recommended and the group of women the vast majority reported the same event (Table 2), which could indicate that the control policies for the consumption of this type of food are taking effect or it could also be subject to the fact that the subjects surveyed are of medium-high resources, and there is a tendency in the communities with the lowest income to consume this type of food due to its low cost.

Regarding the nutritional status, it was found that the majority of University students are in a normal weight state with 95 (55.88%), but leaving a growth trend towards the overweight state where 40 (23.53%) and 13 (7.65%) subjects presented obesity as estimated with the BMI. Abdominal obesity was estimated using hip circumference, finding that 47 (27.65%) subjects suffered from it, For which there is a group at risk of 53 (31.18%) due to excess weight for BMI and 47 (27.65%) for abdominal obesity that, according to what was established by Londoño et al, could present decompensation in their state of health and academic performance, as well as social rejection and psychological problems [22]. These inappropriate eating habits observed in the students, Sáenz et al, have considered it related to the stress caused by so much study that sometimes limits the time to eat, in addition they consider education on good eating habits essential [23], with a view to reducing the risk of cardiovascular disease, also finding that alcohol consumption and physical inactivity increase these risks as well as the risk of developing obesity, diabetes, dyslipidemia and high blood pressure [24]. In what this population showed a varied physical activity although with low frequency according to what is suggested by the WHO [5]. A broader study is necessary where more students from the rest of the programs are included to have an overview of this description in greater detail, in addition to including other metabolic and blood biochemistry aspects, to complement the information described here with a view to creating strategies that help to mitigate the impact of obesity and metabolic disorders in the student population, Cartagena-Colombia and if it were possible worldwide.

Conclusion

The students present unhealthy eating habits, with low consumption of fruits, whole foods, legumes, low-fat dairy, and a somewhat pronounced consumption of alcohol and fast foods. In

addition, it was evidenced that the participants do not perform physical activity very often, and prefer to use vehicles to transport themselves as much as possible, being the motorcycle-taxi the most common.

References

1. Nguyen T, Lau DC (2012) The Obesity Epidemic and Its Impact on Hypertension. Canadian Journal of Cardiology 28(3): 326.

2. Durán AS, Valdés BP, Godoy CA, Herrera VT (2014) Hábitos alimentarios y condición física en estudiantes de pedagogía en educación física. Revista chilena de nutrición 41(3): 251.

3. Ng M, Fleming T, Robinson M, Thomson B, Graetz N, et al. (2014) Global, regional, and national prevalence of overweight and obesity in children and adults during 1980 - 2013: A systematic analysis The Lancet 384 (9945): 766-781.

4. Organización Mundial de Salud (OMS) (2014) Global Status Report on noncommunicable diseases.

5. Organización Mundial de la Salud (OMS) (2010) Recomendaciones mundiales sobre actividad física para la salud 2010.

6. Aguilar MJ, Ortegón A, Mur N, Sánchez JC, García JJ, et al. (2014) Programas de actividad física para reducir sobrepeso y obesidad en niños y adolescentes. Nutrición Hospitalaría 30(4): 727.

7. Lobo F (2007) Políticas públicas para la promoción de la alimentación saludable y la prevención de la obesidad. Revista Española de Salud Pública 81(5): 437.

8. Bevilaqua CA, Pelloso SM, Marcon SS (2016) Stages of change of behavior in women on a multi-professional program for treatment of obesity. Revista Latino Americana de enfermagem 24: 2809.

9. Miedema B, Bowes A, Hamilton R, Reading S (2016) Assessing the Efficacy of a Group Mediated Nutritional Knowledge Intervention for Individuals with Obesity. Canadian journal of dietetic practice and research 77(4): 206-209.

10. Rizo MM, González NG, Cortés E (2014) Calidad de la dieta y estilos de vida en estudiantes de Ciencias de la Salud. Nutrición hospitalaria 29(1): 153.

11. NCD Risk Factor Collaboration (NCD-RisC) (2016) Trends in adult body-mass index in 200 countries from 1975 to 2014: a pooled analysis of 1698 population-based measurement studies with 19.2 million participants. The Lancet. 387 10026): 1377-1396.

12. Dávila J, González Jd, Barrera A (2015) Panorama de la obesidad en México. Revista Médica del Instituto Mexicano del Seguro Social 53(2): 240-249.

13. Galiani S (2014) Transiciones en demografía y salud en América Latina: Implicaciones de política pública. Foco Económico.

14. Pierlot R, Cuevas RE, Rodríguez AJ, Méndez HP, Martínez GM (2017) Prevalencia de síndrome metabólico en niños y adolescentes de américa. TIP 20(1): 40-49.

15. Organización Panamericana de la Salud (OPS) (2013) Panorama de la Seguridad Alimentaria y Nutrición en America Latina y el Caribe.

16. Fonseca Z, Heredia AP, Ocampo PR, Forero Y, Sarmiento OL, et al. (2010) Encuesta Nacional de la Situación Nutricional. Ministerio de la Protección Social, Instituto Colombiano de Bienestar Familiar, Profamilia.

17. Strong WB, Malina RM, Blimkie CJ, Daniels SR, Dishman RK, et al. (2005) Evidence based physical activity for school-age youth. The Journal of pediatrics 146(6): 732-737.

18. Tandon PS, Tovar A, Jayasuriya AT, Welker E, Schober DJ, et al. (2016) The relationship between physical activity and diet and young children's cognitive development. Preventive medicine reports 3: 379-390.

19. World Health Organization (WHO) (2000) Preventing and managing the global epidemic.

20. Zou ZY, Hu YR, Ma H, Wang YZ, He K, et al. (2015) Coptisine attenuates obesity-related inflammation through LPS/TLR-4-mediated signaling pathway in Syrian golden hamsters. Fitoterapia (105): 139-146.

21. Ibáñez E, Thomas Y, Bicenty A, Barrera J, Martínez J, et al. (2008) Cambios de hábitos alimentarios de los estudiantes de odontología de la Fundación Universitaria San Martín de Bogotá, Colombia. NOVA 6(9): 27.

22. Londoño X, Ochoa GH, Moreno JM (2004) Hábitos básicos de salud y creencias sobre salud y enfermedad en adolescentes de España, Colombia y México. Revista Latinoamericana de Psicología 36(3): 483.

23. Sáenz S, González F, Díaz S (2011) Hábitos y Trastornos Alimenticios asociados a factores Socio-demográficos, Físicos y Conductuales en Universitarios de Cartagena-Colombia. Revista Clínica de Medicina de Familia 4(3): 193-204.

24. Díaz JE, Muñoz J, Sierra CH (2007) Factores de Riesgo para Enfermedad Cardiovascular en Trabajadores de una Institución Prestadora de Servicios de Salud, Colombia. Revista de Salud Pública 9(1): 64-75.